

# THE REPUBLIC OF KENYA

An Initiative of  
LAIKIPIA COUNTY GOVERNMENT



**Department of Lands Infrastructure and Urban Development**



## **ENVIRONMENTAL IMPACT ASSESSMENT (ESIA) PROJECT REPORT FOR PROPOSED**

### **UPGRADING OF RUMURUTI TOWN ROADS LAIKIPIA WEST SUB-COUNTY LAIKIPIA COUNTY**

**MARCH 2020**

# **“DOCUMENT CONTROL”**

## **ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) PROJECT REPORT FOR PROPOSED**

### **UPGRADING OF RUMURUTI TOWN ROADS**

#### **LAIKIPIA WEST SUB-COUNTY**

#### **LAIKIPIA COUNTY**

#### **EMPLOYER:**

**THE COUNTY GOVERNMENT OF LAIKIPIA**

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#### Disclaimer:

This Environmental Impact Assessment Project Report is based on literature review and findings from field assessment. It is strictly confidential and any materials thereof should strictly be used in accordance with agreement from the County Government of Laikipia. It is however, subject to conditions in the Environmental Management and Coordination 2015, Environmental (Impact Assessment and Audit) Regulations 2003, and triggered World Bank OP 4.01 Environment Assessment.

## LIST OF ABBREVIATIONS & ACRONYM

|       |   |
|-------|---|
| CSOs  | Civil Society Organization                  |
| CGL   | County Government of Laikipia               |
| DCBL  | Decibels                                    |
| EHS   | Environment Health and Safety               |
| ESIA  | Environmental and Social Impact Assessment  |
| EMCA  | Environmental Management & Coordination Act |
| GDP   | Gross Domestic Product                      |
| ICDP  | Integrated Development Plan                 |
| ILO   | International Labour Organization           |
| IFC   | International Finance Agency                |
| KeNHA | Kenya National Highways Authority           |
| KURA  | Kenya Urban Roads Authority                 |
| KeRRA | Kenya Rural Roads Authority                 |
| MWI   | Ministry of Water and Irrigation            |
| NEMA  | National Environment Management Authority   |
| NEP   | National Environment Policy                 |
| NGO   | Non-Governmental Organization               |
| OBA   | Output Based Aid                            |
| OSHA  | Occupational Health and Safety              |
| OP    | Operations Policy                           |
| PPEs  | Personal Protective Equipment               |
| RAP   | Resettlement Action Plan                    |
| SDGs  | Sustainable Development Goals               |
| STD   | Sexually Transmitted Diseases               |
| SUP   | Social Upgrading Project                    |
| WB    | World Bank                                  |
| WIBA  | Workplace Injuries and Benefits Act         |
| WSTF  | Water Services Trust Fund                   |
| WSP   | Water Services Provider                     |
| WRUA  | Water Resources Users Authority             |
| WRMA  | Water Resources Management Authority        |
| VCT   | Voluntary Counselling Centers               |



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## EXECUTIVE SUMMARY

### Project Description

#### E.1 Project Information

This project is an initiative of the County Government of Laikipia Department of lands, infrastructure and urban development. The main aim is to rehabilitate the road network within Rumuruti town that is in Laikipia West sub-county. Proposed works include construction of 3No.link roads, 1No. bus parking facility and 1No. road side parking.

#### E.2 Justification of the ESIA

EMCA 1999 Cap 387 revised in 2015 to align to the Kenyan Constitution 2010 provides in the second schedule that roads rehabilitation / upgrading projects be subjected to an Environmental Impact Assessment (ESIA).

Also, Environmental, Health, and Safety General Guidelines of April 30, 2007 provides guidelines related to Environment, Occupational Health and Safety, Community Health and Safety, construction and decommissioning upon which such Project should be analysed against. Therefore, to comply with the above referenced statutes, the Proponent (herein) referred to as County Government of Laikipia undertook Environmental Impact Assessment (ESIA) for the proposed Project and hence this Report.

#### E.3 Objectives and Scope of the ESIA Assessment

This Environmental & Social Impact Assessment (ESIA) has been conducted in compliance with the Environmental Impact Assessment Regulation as outlined under the Gazette Notice No. 56 of 2003 established under the Environmental Management and Coordination Act (EMCA) 1999 cap 387 amended in 2015 and World Bank Group Environmental, Health, and Safety General Guidelines of April 30, 2007.

The ESIA is expected to achieve below listed objectives.

- (i) Identify all potential significant environmental impacts of the proposed Roads upgrading project and recommend measures for mitigation.
- (ii) Generate baseline data for monitoring and evaluating how well the mitigation measures will be implemented during project operation phase.
- (iii) Design an Environmental and Safety Management and Monitoring Plan (ESMP) that will ensure the road is operated in a sustainable manner.

## **E.4 Scope of ESIA Assessment**

The scope of the ESIA focused on provisions of Environmental Management and Coordination Act 1999 Cap 384 regulations including; Legal Notice no 34 Air Quality Regulations, 2014, Legal Notice no 121 Waste Management Regulation 2006, Legal Notice no 120 Water Quality Regulations, 2006 and Legal Notice no. 61 Noise and Excessive Vibration Pollution Control Regulations, 2009.

## **E.5 Legal and Policy Regulatory Instruments**

The assessment involved review of national legal statutes and international policies relevant to roads rehabilitation / upgrading projects as summarized below.

- (i) Environmental Management and Coordination Act 1999 Cap 387 and subsequent regulation not limited to
  - ✓ Legal Notice no 121 Waste Management Regulation 2006
  - ✓ Legal Notice no 120 Water Quality Regulations, 2006
  - ✓ Legal Notice no. 61 Noise and Excessive Vibration Pollution Control Regulations, 2009
  - ✓ Legal Notice no 34 Air Quality Regulations, 2014
- (ii) Physical and Land Use Planning Act of 2019 – 202
- (iii) The Public Health Act (Cap.242)
- (iv) Occupational Health and Safety Act (OSHA 2007),
- (v) The Urban Areas and Cities Act 2011
- (vi) Water Act 2016
- (vii) Land Act 2012
- (viii) Energy Act 2019

## **E.6 Highlights of Stakeholder Consultations**

Kenya's Environmental Impact Assessment / Audit Regulations of 2003 require that in the process of Environmental Impact Assessment (ESIA) the proponent shall in consultation with the National Environment Management Authority (NEMA); seek the views of persons who may be affected by the Project.

Therefore, stakeholder interviews were done through administration of questionnaires to people who operate close to the proposed project area which is situated within Rumuruti Town.

A summary of major stakeholder concerns is summarized in table E-1.

**Table 0-1: Stakeholder Concerns**

| Indicator                  | Issues Discussed  |
|----------------------------|---|
| <b>Air quality</b>         | <p><b>Concerns</b></p> <p>During construction, the dust and exhaust fumes emitted from machines and Lorries going to the site might affect the quality of air within the town which might cause respiratory diseases.</p> <p><b>Response</b></p> <p>The contractor will ensure loose soil will be sprinkled with water to reduce amount of dust spewed into the environment additionally, construction equipment should be serviced regularly to reduce the amount of exhaust fumes generated, and avoid idle running of engines.</p> |
| <b>Water pollution</b>     | <p><b>Concerns</b></p> <p>Concern that during the rains, surface run-off from construction sites might wash away oils and grease that might have been spilt on the ground from the construction equipment.</p> <p><b>Response</b></p> <p>He was informed that the servicing of equipment will be centralized to reduce the amount of oil spillage.</p>  |
| <b>Noise and Excessive</b> | <p><b>Concern</b></p> <p>Stakeholders were concerned that equipment on site might cause excessive vibration and noise</p> <p><b>Response</b></p> <p>The response was that the equipment used will perform within allowable noise and vibration levels as provided in the noise and excessive vibration of 2010.</p>   |
| <b>Employment</b>          | <p><b>Concern</b></p> <p>Stakeholders wanted to know if they will be given employment opportunities during upgrading of the roads within the town.</p> <p><b>Response</b></p> <p>Residents were assured that employment opportunities will be created for locals within the project area.</p>   |

Detailed filled questionnaires are provided as **Appendix 1** of this report

## **E.7 Project Budget**

Available total budget for construction and administration of the roads upgrading in Rumuruti town is KSH 50 million.

## **E.8 Conclusion**

The Environmental Impact Assessment (ESIA) undertaken for the proposed upgrading roads within Rumuruti provides below listed conclusions

- I. The major positive impacts of this Project will include improved accessibility and reduce traffic congestion within the town.
- II. The Project activities are likely to cause, albeit on a small scale, soil erosion, disturbance of vegetation, ponding, risk of accidents, emission of dust, and increase in noise.
- III. The study has proposed several measures to reduce negative impacts including amelioration of social negative impacts, noise abatement, waste management, reduction of visual intrusion, reduction of soil erosion, prevention of accidents and health hazards.
- IV. Monitoring has been identified as an important process in the protection of environment of the project area since it will reveal changes and trends brought about mainly by construction activities.

## **E.9 Recommendations**

This assessment recommends the following provisions:

- I. The proponent needs to support the implementation of environmental management (including mitigation plan and monitoring) in order to protect the environment of the project area from the negative impacts of project implementation.
- II. Priority for employment should be given to the local community including women and youth. This will enhance social economic and capacity building.
- III. The proponent should adopt a participatory and collaborative approach during all the phases of the project. This will ensure active participation of all key stakeholders towards success and sustainability of the project.

# 1 INTRODUCTION

## 1.1 Project Information

The Project within Rumuruti town involves Upgrading of 3 No. road links, 1 No bus parking facility and 1 No. roadside parking. Details are as described below.

**Link 1 road:** 7m carriageway, 1.5m wide pedestrian walkways and 1.5m wide stone pitched drains on either side, with 2 access culverts. The road length is 140m, and the pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. Street lights are also to be installed.

**Link 2 road:** 5m carriageway, 1.0m wide pedestrian walkway on one side, and 1.0m wide stone pitched drains on either side, with 3 access culverts. The road length is 140m, and the pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. Street lights are also to be installed.

**Bus parking:** The bus park measures 110m in length x 30m wide. The proposed pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 200mm layer of approved gravel, and 150mm thick cobble stone finish. The project will involve installation of a shade with seats for the passengers, on a raised un-mountable platform. Drainage system will also be rehabilitated.

**Road-side car parking:** The car parking is on the two sides of the main feeder street, fronting the shops. The RHS measures 290m long x 9.5m wide, while the LHS measures 210m long x 8.5m wide. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and cabro paving blocks finish. Drainage will include 1m wide shallow drain connecting to the existing drainage system.

**Link 3 road:** 7m carriageway, 1.5m wide pedestrian walkways and 1.5m wide stone pitched drains on either side, with 2 cross culverts and 3 access culverts. The road length is 320m. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. Street lights are also to be installed.



## **I.2 Location and Administration**

Rumuruti is a town in Laikipia County in Kenya's former Rift Valley Province. It is situated within Laikipia West Sub County

### **I.1 Project Justification**

The Objective of the Project is to improve accessibility within the town, improve safety of pedestrians because they will use walkways and reduce traffic congestion within the town, and provide for parking facilities hence eliminate the lack of order in the township.

### **I.2 ESIA Objectives.**

This ESIA assessment has been conducted in compliance with the Environmental Impact Assessment Regulation as outlined under the Gazette Notice No. 56 of 2003 reviewed in 2009 established under the Environmental Management and Coordination Act (EMCA), 1999 of Kenya amended in 2015. The Environmental Impact Assessment (ESIA) is expected to achieve the following objectives:

#### **Box 1-2: ESIA Objectives**

- To identify all potential significant environmental and social impacts of the proposed Project and recommend measures for mitigation.
- To assess and predict the potential impacts during site preparation, construction and operational phases of the Project.
- To verify compliance with environmental regulations.
- To generate baseline data for monitoring and evaluation of how well the mitigation measures will be implemented during the Project cycle.
- To allow for public participation.
- To give an Environmental and Social Management Plan to mitigate the identified impacts so as to ensure sustainability of the proposed Projects.
- To recommend cost effective measures to be implemented to mitigate against the expected impacts.

### **I.3 Methodology**

To prepare this environmental impact assessment we adopted a standard methodology as described below.

### **1.3.1 Screening**

Screening was carried out to determine whether an ESIA was required in accordance with schedule 2 of EMCA 1999 and amendments 2015, and the Environmental (Impact and Audit) Assessment Regulation Legal Notice 101 of 2003. Issues considered included the physical location, sensitive issues, and nature of anticipated impacts. The project was found to qualify for a project report.

### **1.3.2 Scoping Stages**

Scoping was undertaken to decide on the critical issues of focus during the assessment. This stage mainly involved review of relevant data and identification possible area of impacts and recipients, project alternatives methodologies relevant to the project as well as who to consult. Accordingly, existing data including roads records, geological maps and reports and any other relevant information were reviewed. The identified issues were scrutinized against the available data.

### **1.3.3 Desktop Study**

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

### **1.3.4 Fieldwork/Impact Assessment Stage**

A site visit to the project area was undertaken to assess site characteristics and the environmental status of the surrounding areas to validate the baseline information obtained at scoping stage and determine the anticipated impacts. The existing road network situation with respect to demand, current land uses, alternative car parking areas and the general set up of the proposed project area were evaluated. The key impacts considered relevant to this project included:

- Impacts on Soil and Land,
- Impacts on Water Resources,
- Impacts on Biodiversity,
- Socio-Economic Impacts,
- Impacts on Air Quality,
- Impacts on Public Health and safety.
- Visual Impacts

### **1.3.5 Environmental Management Planning Stage**

Recommendations on appropriate mitigation measures were drawn, based on the key impacts identified, through discussion, experiences from past similar projects, assessment of land-use and socio-economic factors. An environmental management plan (EMP) was developed outlining key environmental aspects, appropriate action plans, responsibilities, time frames and monitoring indicators.

#### **1.3.6 Public Participation**

Legislation on ESIA processes requires that members of the public be adequately consulted. To ensure adequate public participation in the ESIA process, questionnaires were administered to several stakeholders within Rumuruti town, outcome from the responses received was subsequently synthesised and incorporated into the ESIA project report.

#### **1.3.7 Reporting**

In addition to constant briefing of the client, this Environmental Impact Assessment project report was prepared. The contents will be presented for submission to NEMA as required by law.

## 2 PROJECT DESCRIPTION

### 2.1 Project Area Description

Rumuruti is a town in Laikipia County in Kenya's former Rift Valley Province. It is situated within Rumuruti sub County approximately 40 kilometers due north from Nyahururu, on the Nyahururu-Maralal road (A4). Despite being smaller than either Nanyuki or Nyahururu, which are on the Southeastern and Southwestern corners of Laikipia respectively, its central location meant that it was selected as the administrative headquarters of Laikipia County government.

**Photo Plate 2.1: Condition of roads within Rumuruti town**

|   |  |
|---|--|
|   |   |
| Currently used Rumuruti bus park  | Poor drainage network at the proposed bus parking facility                           |
|  |  |
| Poor road network in Rumuruti town  | A link road that lacks drainage and walkway  |

### 2.2 Existing Road Situation

The town is characterized by earth roads that show several incidences of washouts, poor drainage, lack defined /organized parking that force motorists to park haphazardly, and lack of pedestrian walkways that can endanger them. Generally, the

traffic situation in the town requires urgent intervention.

## **2.3 Project Description**

The proposed project will include several components as described below

- I. Link 1 road: 7m carriageway, 1.5m wide pedestrian walkways and 1.5m wide stone pitched drains on either side, with 2 access culverts. The road length is 140m. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. Street lights are also to be installed.
- II. Link 2 road: 5m carriageway, 1.0m wide pedestrian walkway on one side, and 1.0m wide stone pitched drains on either side, with 3 access culverts. The road length is 140m. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. Street lights are also to be installed.
- III. Bus parking: The bus park measures 110m in length x 30m wide. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. The project will involve installation of a shade with seats for the passengers, on a raised un-mountable platform. Drainage system will also be rehabilitated.
- IV. Road-side car parking: The car parking is on the two sides of the main feeder street fronting the shops. The RHS measures 290m long x 9.5m wide, while the LHS measures 210m long x 8.5m wide. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and cabro paving blocks finish. Drainage will include 1m wide shallow drain connecting to the existing drainage system.
- V. Link 3 road: 7m carriageway, 1.5m wide pedestrian walkways and 1.5m wide stone pitched drains on either side, with 2 cross culverts and 3 access culverts. The road length is 320m. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. Street lights are also to be installed.

## **2.4 Project Beneficiaries**

The road upgrading project is aimed at benefiting the entire population of Rumuruti sub county which is approximately 31,000 people. The town is also the recently upgraded headquarters of Laikipia County, therefore the entire county will benefit as a result of improved infrastructure.

## 3 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

### 3.1 Introduction

Development of infrastructure projects is dealt with under several Laws, By-laws, Regulations and Acts of Parliament, as well as Policy Documents and it is not possible to bring all those statutes under one heading. This section is therefore aimed at assessing the existing policies and legislative framework, economic tools and enforcement mechanisms for the management of infrastructure projects at different stages.

### 3.2 Policy Provision

#### 3.2.1 Constitution of Kenya

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

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

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

Part (II) “Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

Chapter 5 on Land and Environment emphasizes on the following:

- (i) Land use and management shall by law benefit local communities
- (ii) Community land is protected from encroachment by State.
- (iii) Law shall protect Rivers, forests and water bodies.
- (iv) Equitable access to land.
- (v) All lawful land rights are secured; only someone who has stolen land needs to worry.
- (vi) County governments will manage land in trust of the people in accordance with the constitution.

### **Relevance**

The constitution of Kenya provides for sound management and sustainable development of all of Kenya's Projects, both public and private investments. It also calls for the duty given to the Project proponent to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II.

### **3.2.2 Kenya Vision 2030**

Kenya Vision 2030 is the current national development blueprint for period 2008 to 2030 and was developed following on the successful implementation of the Economic Recovery Strategy of Wealth and Employment Creation which saw the country's economy back on the path to rapid growth since 2002. GDP growth rose from 0.6% to 7% in 2007, but dropped between 1.7% and 1.8% in 2008 and 2009 respectively.

The objective of the vision 2030 is to "transform Kenya into a middle income country with a consistent annual growth of 10% by the year 2030". One of this aims is to make Kenya to be a nation that has a clean, secure and sustainable environment by 2030. This will be achieved through promoting environmental conservation to better support the economic pillar.

Kenya's transformation in to a middle income country will be achieved by bringing and improving basic infrastructure and services namely: roads, street lights, storm water drains, footpaths, and water and sanitation facilities among others. This Project aims at improving the road network of Rumuruti town

### **3.2.3 National Environment Policy (NEP)**

Sessional Paper No. 6 of 1999 on Environment and Development, since adoption by parliament in 1999 has been in use and influenced the formation of EMCA in 1999, but has since been surpassed by time and is therefore under revision to comprehensively cover areas that were previously left out to augment it.

The revised draft of the National Environmental Policy, dated April 2012, sets out important provisions relating to the management of ecosystems and the sustainable use of natural resources, and recognizes that natural systems are under intense pressure from human activities particularly for critical ecosystems including forests, grasslands and arid and semi-arid lands. The objectives of the Policy include developing an integrated approach to Environmental management, strengthening the legal and institutional framework for effective coordination, promoting environmental management tools.

### **Relevance**

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

#### **3.2.4 National Land Policy**

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

Chapter 4 of the land policy under Environmental Management Principles, The policy provides actions for addressing the environmental problems such as the degradation of natural resources, soil erosion, and pollution.

For the management of the urban environment it provides guidelines to prohibit the discharge of untreated waste into water sources by industries and local authorities; it also recommends for appropriate waste management systems and procedures, including waste and waste water treatment, reuse and recycling. This Project aims at improving physical infrastructure within the Project area.

The policy goes further to advocate for environmental assessment and audit as a land management tool to ensure environmental impact assessments and audits are carried out on all land developments that may degrade the environment and take appropriate actions to correct the situation. Public participation has been indicated as key in the monitoring and protection of the environment.

Chapter 4 further advocates for the Implementation of the polluter pays principle which ensures that polluters meet the cost of cleaning up the pollution they cause, and encourage industries to use cleaner production technologies.



### **3.2.5 HIV and AIDS Policy 2009**

The proposed project is to be implemented in the rural area, this area has moderate freelance cases of HIV and Aids. This policy shall provide a framework to both the project proponent and contractor to address issues related to HIV and Aids. In Summary the policy provides a mechanism for:

- (i) Setting Minimum Internal Requirements (MIR) for managing HIV and AIDS
- (ii) Establishing and promoting programmes to ensure non-discrimination and non- stigmatization of the infected;
- (iii) Contributing to national efforts to minimize the spread and mitigate against the impact of HIV and AIDS;
- (iv) Ensuring adequate allocation of resources to HIV and AIDS interventions;
- (v) Guiding human resource managers and employees on their rights and obligations regarding HIV and AIDS.

#### **Relevance**

The Policy will be complied with during implementation of the Project; the Contract will in cooperate in tender document and implement HIV awareness initiatives during construction of the Project.

### **3.2.6 Gender Policy 2011**

The overall goal of this Policy Framework is to mainstream gender concerns in the national development process in order to improve the social, legal/civic, economic and cultural conditions of women, men, girls and boys in Kenya

The policy provides direction for setting priorities. An important priority is to ensure that all ministerial strategies and their performance frameworks integrate gender equality objectives and indicators and identify actions for tackling inequality. In addition, each program will develop integrated gender equality strategies at the initiative level in priority areas. Within selected interventions, the policy will also scale-up specific initiatives to advance gender equality.

#### **Relevance**

This policy will be referred to during Project implementation especially during hiring of staff to be involved in the project, procuring of suppliers and sub-consultants and sub-contractors to the project.

### **3.2.7 The Sustainable Development Goals (SDGs)**

The 2030 Agenda comprises 17 new Sustainable Development Goals (SDGs), or Global Goals, which will guide policy and funding for the next 15 years, beginning with a historic pledge to end poverty.

The concept of the SDGs was born at the United Nations Conference on Sustainable Development, Rio+20, in 2012. The objective was to produce a set of universally applicable goals that balances the three dimensions of sustainable development: environmental, social, and economic.

The Global Goals replace the Millennium Development Goals (MDGs), which in September 2000 assembled the world around a common 15-year agenda to tackle the indignity of poverty.

Sustainable Development Goal (6) which is the new 2030 agenda and expands Millennium Development Goal as guided by resolutions of Rio+20 conference. The goal focuses more on investment in adequate infrastructure in road network improvement, water and sanitation, Hygiene, water quality, waste Water Management, water scarcity and use efficiency, integrated water resource management and protection of water related ecosystems. Upgrading of roads within Rumuruti Town will directly contribute towards achieving this goal.

## **3.3 Kenyan Legislations**

### **3.3.1 The Environmental Management and Coordination Act (EMCA) 2015.**

The Act provides for the establishment of a legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. Just as in the New Constitution, Part II of EMCA confers to every person the right to a clean and healthy environment and to its judicial enforcement.

The new Constitution and EMCA therefore obligates the project's Executing Agency and Contractor to work in a clean environment and not to contravene the right of any person within its zone of influence, to this entitlement. EMCA has provided for the development of several subsidiary legislations and guidelines which govern environmental management and are relevant to the project implementation.

These include:

- (i) The Environmental (Impact Assessment and Audit) Regulations, 2009 Legal Notice No. 101;
- (ii) The Environmental Management and Coordination (Waste Management) Regulations, 2006 Legal Notice No. 121;
- (iii) The Environmental Management and Coordination (Water Quality) Regulations, 2006 Legal Notice No. 120;
- (iv) The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61;
- (v) The Environmental Management and Coordination (Air Quality Regulations 2014)
- (vi) The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 Legal Notice No. 160;
- (vii) Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009.
- (viii) The Environmental Management and Coordination (Controlled Substances) Regulations, 2007 Legal Notice No. 73.

#### **Relevance to the Project**

EMCA 1999 with 2015 amendments and above listed regulations will form the main statutory instruments which will guide the implementation of the project so that any likely adverse impacts that could be caused by the project are promptly mitigated as recommended in this study.

#### ***3.3.2 County Government Act No. 17 of 2012***

Part II of the Act empowers the county government to be in charge of function described in Article 186 of the constitution, (county roads, water and Sanitation, Health), Part XI of the Act vest the responsibility of planning and development facilitation to the county government with collaboration with national government, this arrangement has been adopted for interventions in order not to conflict with provisions of the Kenyan Constitution.

#### **Relevance to the Project**

The project once commissioned will be handed over to Laikipia County Government for operation and maintenance.

### **3.3.3 Physical Planning Act 1996 (286)**

Section 29 of the said Act empowers the local Authorities (now county governments) to reserve and maintain all land planned for open spaces, parks, urban forests and green belts as well as land assigned for public social amenities.

The same section allows for prohibition or control of the use and development of 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 permission granted by the respective local Authority.

#### **Relevance to the Project**

Thus the Act directs, regulates and harmonizes development and use of land over the Country, the entire Project has been designed within the reserve land stipulated as road reserve land under this Act, this was in an effort to avoid cases of acquisition of private property and resettlement complications.

### **3.3.4 Occupational Health and Safety Act (OSHA 2007)**

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

#### **Relevance to the Project**

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

### **3.3.5 The Public Health Act (Cap.242)**

Part IX section 115 of the Act states that no person / institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires

Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 and include nuisances caused by accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbour rats or other vermin.

### **Relevance to the Project**

The Act provides guideline to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the community, this Act during construction shall be read alongside the waste management regulations of EMCA 1999 for utmost compliance.

#### **3.3.6 Work Injury Benefits Act, (WIBA 2007)**

This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes. An employee is a person who has been employed for wages or a salary under a contract and includes apprentice or indentured learner.

The proposed project will adhere to the provisions of this act throughout the construction period of the project.

### **3.4 NEMA Compliance**

The government established the National Environmental Management Authority (NEMA) as the supreme regulatory and advisory bodies on environmental management in Kenya under EMCA 1999 and amendments 2015. NEMA is charged with the responsibility of coordinating and supervising the various environmental management activities being undertaken by other statutory organs. NEMA also ensures that environmental management is integrated into development policies, programmes, plans and projects.

### **3.5 Sectoral Integration**

This integration encourages provision of sustainable development and a healthy environment to all Kenyans. The key functions of NEMA through the NEC include policy direction, setting national goals and objectives and determining policies and

priorities for the protection of the environment, promotion of cooperation among public departments, local authorities, private sector, non- governmental organizations and such other organizations engaged in environmental protection programmes and performing such other functions as contained in the act.

### **3.6 Project Implementation Institutional Structure**

Laikipia County Government has an established implementation system that has clear provisions for environmental and social integration through the Environmental Division. An ideal project management structure proposed for the organization in this project has the following components:

#### **3.6.1 The Contractor**

The contractor will be required to establish an environmental office to continuously advise on environmental components of the project implementation. Elements in the environmental and social management plan are expected to be integrated in the project with appropriate consultations with The County Government of Laikipia through the supervising environmental expert. The environmental officer of the contractor is also expected to fully understand the engineering and management aspects of the project for effective coordination of relevant issues.

#### **3.6.2 The Supervisor**

The supervisor will be engaged by County Government of Laikipia (as the project proponent) to ensure effective implementation of the environmental management plan. It is expected that supervisor engages the services of an environmental expert who should in return understand the details of the recommendations on environment management and especially the proposed action plans, timeframes and expected targets of the management plan. The environmental supervisor expert should also be the liaison person between the contractor and County government of Laikipia on the implementation of environmental concerns as well as issues of social nature associated with the Project.

### **3.7 World Bank Policies**

The Project will only trigger Environmental Assessment OP 4.01 as discussed below. Other Operational Safeguard Policies of the World Bank as illustrated by table 3-1 below are not triggered.

**Table 3-1: Analysis of potential triggers to World Bank Safeguards Policies**

| <b>World Bank Operation Policy</b>         | <b>Applicability to the Project</b>   |
|--|---|
| Environmental Assessment OP 4.01           | Applicable. As a result of environmental and social screening, the project was identified as a Category B   |
| Natural Habitats OP 4.04                   | Not applicable - there no natural habitats at the project site  |
| Pest Management OP 4.09                    | Not applicable- the project will not involve any pest management  |
| Indigenous Peoples OP 4.10                 | Not applicable- there are no indigenous people at the site or project area  |
| Physical Cultural Resources OP 4.11        | Not applicable. Site inspections and literature searches have not indicated the presence of any cultural (historical, archaeological) sites in the construction area. However, to manage “chance finds” an appropriate procedure is included in this ESIA. Such procedure to be followed by contractors during the construction phase.  |
| Involuntary Resettlement OP 4.12           | Not Applicable. <ul style="list-style-type: none"> <li>• The proposed Water Project is designed to be implemented on clear road reserve that is free from encroachment by people’s assets and sources of livelihood.</li> <li>• The Proposed sites for Water tanks is within community public amenities which include schools and local administration offices therefore no land acquisition will be required.</li> </ul> |
| Forests OP 4.36                            | Not applicable  |
| Safety of Dams OP 4.37                     | Not applicable because the project will not involve construction of dams.   |
| Projects on International Waters (OP 7.50) | Not applicable- the site does not sit on international waters   |
| Projects in Disputed Areas (7.60)          | The site is not classified as disputed in the project area.   |

### **3.7.1 Environmental Assessment OP 4.01**

The area overtime, anthropogenic activities have exerted pressure on both natural and social environments which has eventually converted the area into a human settlement area. Therefore, the Project will have less significant impact on both physical, biological and social setting within the immediate surroundings. However, OP 4.01 will be triggered.

This policy requires Environmental Assessment (EA) of Projects proposed to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed investment. The EA process takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property) and Trans-boundary and global environmental aspects.

Operational Policy 4.01 further requires that the EA report must be disclosed as a separate and stand-alone document by the Government of Kenya and the World Bank. The disclosure should be both in Kenya where it can be accessed by the general public and local communities and at the Info-Shop of the World Bank and the date for disclosure must precede the date for appraisal of the Project.

The proposed improvement of the proposed project has been classified as environmental category B and hence requirement for this Project Report.

### **3.7.2 Harmonization of both WB and GOK requirements for Social and Environmental Sustainability**

The World Bank (WB) and Government of Kenya (GoK) require that Projects of such nature are subjected to environmental and social impact assessment as stipulated under EMCA 2015 and its tools, the same process simultaneously fully resolves requirements of OP 4.01. Generally, both requirements are aligned in principle and objective in that:

- (i) Both require Environmental Assessment before project implementation leading to development of comprehensive Environmental and social Management plans to guide resolution of social and environmental impacts as anticipated.



- (ii) Both require public disclosure of Project Report and stakeholder consultation during preparation,
- (iii) While OP 4.01 of World Bank stipulates different scales of Project Report for different category of projects, EMCA requires Project Report for all sizes of projects, which are required to be scoped as relevant
- (iv) Where EMCA requires consultation of Lead Agencies comprising of relevant sectors with legal mandate under GoK laws, the WB has equivalent safeguards for specific interests.
- (v) The Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project which is equivalent to the statutory annual environmental audits at the operation phase of projects in Kenya.
- (vi) The understanding of this Project Report study is that, pursuit of an in-depth Project Report process as stipulated by EMCA 1999 and amendments 2015 is adequate to address all World Bank requirements for environmental and social assessment. This is a major guiding principle in this study.

Therefore, in keeping with this trend, public consultation has been done to the stakeholders, and their comments have been incorporated in the final Environmental Assessment and final design of the project. In addition, the Environmental Assessment report will be made publicly available to all stakeholders through disclosure at the project's proponent website, NEMA, and WB info shop, as well as copy of the report available at the project site.

## 4 ENVIRONMENT AND SOCIAL SETTING

### 4.1 Project Location

Rumuruti is a town in Laikipia County in Kenya's former Rift Valley Province. It is situated within Laikipia West Sub-County approximately 40 kilometers due north from Nyahururu, on the Nyahururu-Maralal road (A4). Despite being smaller than either Nanyuki or Nyahururu, which are on the South-Eastern and South-Western corners of Laikipia respectively, its central location meant that it was selected as the administrative headquarters of Laikipia County Government.

### 4.2 Physical Environment

#### 4.2.1 Rainfall

Annual average rainfall over most of the county ranges between 400mm to 750mm (GoK, 2013b). There are areas with rainfall averages below or above these figures. Rainfall totals greater than 1000mm per year are recorded in some south-western areas bordering the Aberdare Ranges and the slopes of Mt. Kenya. The drier Northern pockets around Mukogondo and Rumuruti receive the least rainfall of between 250 and 500mm annually.

#### 4.2.2 Soils and Geology

Geologically, Kenya consists of very old underlying metamorphic rocks (rocks which have been fundamentally changed by heat and pressure) which are overlain in much of the Kenya highlands, as well as in extensive low-lying areas of Kenya by younger rock formations and deposits (Ministry of Agriculture, 1983 (8)). These younger formations include large areas of volcanic deposits and lavas. The geology of Laikipia reflects this general pattern. The whole of Laikipia is underlain by metamorphic rocks of Pre-Cambrian age. They form part of the extensive African Basement complex which extends south to Mozambique and west to West Africa. The predominant soil types in Laikipia County are loam, sand and clay. Black cotton soil which has inherent fertility spreads in most parts of the plateau. The dark reddish brown to red friable soils and rocky soils are mainly found on the hillsides.

#### 4.2.3 Hydrology

The main water catchment in Laikipia County is the Ewaso Nyiro North basin with its tributaries having their sources in the slopes of the Aberdares and Mt. Kenya. These tributaries include Nanyuki (the main river that drains the Project area), Timau, Rongai, Burguret, Segera, Naromoru, Engare, Moyok, Ewaso Narok, Pesi and Ngobit rivers. The flow of these rivers matches the County's topography, which slopes gently from the highlands in the South to the lowlands in the North.

### 4.3 Biodiversity

Laikipia County has gazetted forest areas totaling 580 Km<sup>2</sup>, comprising of both indigenous and planted exotic forests. The indigenous forests include Mukogodo and Rumuruti while plantations include Marmanet and Shamaneik. The County is richly endowed with wildlife, widely distributed in most parts of the County, extending to Aberdare, Samburu, Meru and Mount Kenya wildlife corridors. Most of the wildlife is found in the large scale private ranches, which occupy over 50% of the total area of the County. The rest is found in group/ community owned ranches predominantly owned by the Maasai, in the gazetted forests of Mukogodo, Rumuruti and Marmanet and other uninhabited tracts of land in the County, tilapia

### 4.4 Social Setup

#### 4.4.1 Demographics

According to the 2009 KNBS Housing and Population Census, the total population of Laikipia County was 399,227 people of whom 198,625 (49.8%) were males and 200,602 (50.2%) were females. This population was projected to increase to 491, 927 persons in 2018. Population growth is expected to rise to 515,290 persons in 2020 and 539,763 persons in Laikipia is a cosmopolitan County and largely rural in nature. There are over 23 main communities settled in the County, who include the Maasai, Samburu, Rendille, Somali, Pokots, Tugens, Asians, European, Meru, Kikuyu and Turkana among others. The settlement patterns in the county are uneven as they are influenced by varying land potential, livelihood zones, infrastructure access, land use systems, and availability of social amenities. Laikipia North constituency is arid and semi-arid in nature and therefore the least populated, with land use being predominantly wildlife ranches and pastoral livelihood patterns. Laikipia West and Laikipia East have the highest population densities, attributed to medium sized towns namely Nyahururu and Nanyuki. These towns are the commercial, administrative and transportation hubs of the County.

#### 4.4.2 Land ownership

Land in Laikipia County is held under private, communal and government ownership<sup>11</sup>. Generally, arable land in Nanyuki County constitutes of 1,984 km<sup>2</sup> while non-arable land constitutes of 7,456 km<sup>2</sup>. Water mass is at 22 km<sup>2</sup> and urban areas at 243.3 km<sup>2</sup> (Laikipia CIDP 2018 – 2022). There are several distinct land use patterns, which are heavily influenced by the climatic conditions and the ecological zones. These include among others; pastoralism, mixed farming, irrigated cultivation, rivers, forest, ranching, ranching and wildlife, wildlife only, timber, charcoal and informal grazing and urban development. The percentage of landowners with title deeds is 65.3% (Laikipia CIDP 2018 – 2022). This low percentage is partially attributed to the absentee landlords, long land adjudication, and transfer processes.

#### **4.4.3 General Infrastructure**

The County's main infrastructure aims at ensuring a good road and transport network, Information Communication and Technology (ICT), and access to electricity. There is a total of 1,038.1 km of classified road networks within the County, of which over 80 per cent are feeder roads. The bitumen, gravel, and earth surface standard of road stand at 207.3 km, 328.9 km and 501.9 km respectively.

The major transport routes serving the County are Nairobi-Isiolo-Marsabit (A102), Gilgil-Rumuruti (C55), Rumuruti-Mararal (A2) and Nakuru-Nyeri (B65). There exists an old railway network that used to serve Nanyuki town and a small stretch of about 2 Kilometres in Nyahururu Town (although it has been non-functional since 2010, plans are underway to revive it). The county is served by 1 airstrip near Nanyuki Town. There are several landing grounds across the County, the majority of which are within main private ranches. The County is served by four main post offices located at Dol Dol, Rumuruti, Nanyuki and Nyahururu and one substation at Kinamba. The percentage of households owning mobile phones as of projections in 2014 was 69.9%. Households with access to internet based on 2009 population and housing census was 4.8%. The length of the National Fibre Optic Back bone infrastructure in the County is estimated at 80 km, serving Nanyuki, Nyahururu and Rumuruti Towns.

The courier services are mainly provided by G4S, EMS, Securicor, Wells Fargo and PSVs. There is one Huduma Center (a one-stop centre for provision of a wide array of government services to the public) based at Nanyuki. The national power grid serves 156 trading centres and is yet to reach and additional 24 centres in the County. Approximately 17.7% of households has access to electricity for lighting within the County.

The county has several learning institutions, health facilities and boreholes as described under the respective sections above. It is estimated that 66.5% of the households own the homes they live in; however, most of the population is sheltered in semi-permanent structures that consist of timber walls, earthen floors and corrugated iron-sheets roofs. Over 80% of the shelters have corrugated iron sheets for roofs. Similarly, the largest percentage of walling material is wood, recording 46% of total households. The main types of houses in the County are individual, national and County government-owned.

#### **4.4.4 HIV and AIDs**

HIV and AIDS is considered a threat to the development of Kenya. The prevalence rate stands at 3.7per cent. AIDS related deaths are common and those mainly affected are within the productive age group of 15-49 years of age. It was also noted that the number of HIV/AIDS orphans is on the increase. Poverty is viewed as a major cause of HIV/AIDS. Poverty increases vulnerability of people with HIV, hence there is need to redirect resources towards support services to poor households.

The situation is further aggravated by the fact that HIV/AIDS mostly affects people in the productive age leaving minors and the elderly people to take care of households. Progressive gains on poverty reduction may be reversed if concerted efforts are not urgently put in place to bring the HIV/AIDS pandemic under control. Implementation of the project thus needs to create comprehensive HIV/AIDS awareness among the workers along the project area

## 5 ANALYSIS OF ALTERNATIVE

### 5.1 No Go Alternative

No Action Alternative implies that upgrading of Rumuruti town road will not take place. This is highly undesirable because the proposed project is supposed to provide improved road network to people of Rumuruti town. If the status quo is maintained, the locals will continue to suffer from persistent transport challenges currently being experienced. The 'No Action' alternative is therefore ruled out.

### 5.2 Project Site Alternatives

There are a number of scenarios that may lead to consideration of an alternative road upgrading site. These may include lack of land for the road network, resistance from the local community, destruction of sensitive environmental ecosystem and risk of destruction to sensitive socio cultural sites. The project area does not trigger any of the above mentioned scenarios therefore there is no need to prospect for an alternative project site.

### 5.3 Design Alternative Technologies

For each of the link roads, the pavement will be made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish, improving drainage system, and installing street lights.

The bus park pavement will be made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and 150mm thick cobble stone finish. The project will involve installation of a shade with seats for the passengers, on a raised un-mountable platform. Drainage system will also be rehabilitated.

The car parking is on the two sides of the main feeder street fronting the shops. The RHS measures 290m long x 9.5m wide, while the LHS measures 210m long x 8.5m wide. The pavement is made of top soil stripping, filling with soft material, compacted fill and cut sections, 150mm layer of approved gravel, and cabro paving blocks finish. Drainage will include 1m wide shallow drain connecting to the existing drainage system

## 6 STAKEHOLDER ENGAGEMENT

### 6.1 Legal and Policy Provisions for Stakeholder Consultations

#### 6.1.1 EMCA 1999 amended in (2015)

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

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

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

#### 6.1.2 World Bank Group (WBG) Environmental Assessment Policy (OP 4.01)

The World Bank Group's Environmental Assessment Policy (OP 4.01, January 1999) requires that project-affected groups and local non-governmental organizations (NGOs) be consulted during the impact assessments process about the project's potential environmental and social impacts.

The purpose of this consultation is to take local views into account in designing the environmental and social management plans as well as in project design. For complex projects where the environmental impacts and risks are high, the policy requires public consultation at least twice: first, shortly after Environmental Screening and before the terms of reference for the ESIA are finalized and secondly, once a draft ESIA Report is prepared. Consultation during project execution is also required. Section 5 summarizes the consultation programme for the ESIA, and confirms that the project meets and indeed exceeds these requirements.

### **6.1.3 Schedule of Stakeholder Consultations**

The assessment involved consultations with relevant stakeholders in target Project area. The aim of stakeholder consultations was to give a platform for information sharing and opinion gathering in relation to the proposed Project. Consultations were done in form of public meetings and key informant interviews. The issues were then analyzed and presented to design team for finalization of Project designs and planning on how best to implement the Project. Questionnaires were administered to stakeholders within Rumuruti on 27<sup>th</sup> March 2020. Different categories of stakeholders including business owners transport sector players and civil servants were target during the study.

### **6.1.4 Summary of issues raised in consultations during the assessment**

**Table 6-3:** Summary of some of the stakeholders concerns that were captured during administration of the questionnaires done within Rumuruti town has been summarised in the table below

#### **Public Consultations**

| <b>Parameter Discussed</b> | <b>Issues Discussed</b>  |
|----------------------------|--|
| <b>Air pollution</b>       | <p><b>Concerns</b></p> <ul style="list-style-type: none"> <li>During construction, the dust and exhaust fumes emitted from machines and Lorries going to the site might affect the quality of air within the town which might cause respiratory diseases.</li> </ul> <p><b>Response</b></p> <ul style="list-style-type: none"> <li>The contractor will ensure loose soil will be sprinkled with water to reduce amount of dust spewed into the environment additionally, construction equipment should be serviced regularly to reduce the amount of exhaust fumes generated.</li> </ul> |
| <b>Water pollution</b>     | <p><b>Concerns</b></p> <p>Concern that during the rains, surface runoff from construction sites might wash away oil that might have spilt on the ground from the</p>   |



|                            |   |
|----------------------------|---|
|                            | <p>construction equipment.</p> <p><b>Response</b><br/>He was informed that the servicing of equipment will be centralized to reduce the amount of oil spillage.</p>   |
| <b>Noise and Excessive</b> | <p><b>Concern</b><br/>Stakeholders were concerned that equipment on site might cause excessive vibration and noise</p> <p><b>Response</b><br/>The response was that the equipment used will perform within allowable noise and vibration levels as provided in the noise and excessive vibration of 2010.</p> |
| <b>Employment</b>          | <p><b>Concern</b><br/>Stakeholders wanted to know if they will be given employment opportunities during upgrading of the roads within the town.</p> <p><b>Response</b><br/>Residents were assured that employment opportunities will be created for locals within the project area.</p>                       |

## 6.2 Inclusion of Outcomes of Stakeholder Engagement in the Final Design of the Project

### 6.2.1 Employment Opportunities for the Public

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

The project will provide employment opportunities for the estimated number of people as illustrated in Table 6.4 below.

**Table 6.4: Employment Opportunities to be provided by the Project**

| Description               | No. |
|---------------------------|-----|
| Casual Labourers          | 100 |
| Skilled Staff             | 30  |
| Plant Operators / Drivers | 20  |
| Managerial Staff          | 10  |

The opportunities will be shared equally throughout the Project Areas and as provide by Gender Policy 2011 discussed in chapter 4.

### **6.2.2 Improved Road network**

The Stakeholder Engagement identified the need for improved transport network within Rumuruti town, it was noted that the improvement will ease traffic congestion in the town, reduce risks of accidents to pedestrians, reduce cost of motor vehicle maintenance, spur economic growth rate within the town and also reduce time taken to move goods around the town.

### **6.2.3 Public Health and Safety**

The public were concerned about health and safety risks that are likely to be triggered by the project. Specific risks were traffic risks of workers and community members during road crossings, occupational health and safety issues related to dust, noise and excessive vibrations and general health and hygiene.

The Contract Specifications (Clause 141 and 142 of the Specifications) have included a chapter on Contractor's compliance with Environment Health and Safety as outlined in the ESMMP prepared for the project. An item has been included in the Preliminaries and General Items Bill of Quantities for the Contractor to price for all costs for compliance with the specified requirements on environment health and safety.

## **6.3 Public Disclosure of ESIA, RAP, SEP and Annual Monitoring Reports**

In accordance with EMCA 1999 and amendment 2015 and World Bank OP 4.01, the Project Proponent in this case project committee will ensure that the Results of Public Consultations including ESIA area disclosed to relevant stakeholders.

The Reports will also be made available at sub county Offices in the affected Locations for ease of access by the project interested parties at sub county level and Project site office as well as local chief's offices

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

The Reports and information will also be disclosed at the ESIA Stage by NEMA and during Project Implementation Stage by project committee. NEMA will require project committee to undertake a closeout audit after completion of the project and also undertake an initial Environment Audit (EA) immediately after commissioning of the project in the 1st year, these audits are essential in determining the performance of the project in addressing issues related to environment and social safeguards, gaps

identified are corrected through implementation of recommendation of the Environment and Social Audit Action Plan (ESAAP).

#### 6.4 Construction, Operation and Decommissioning Phase Consultations

Stakeholder groups that may be affected by and/or interested in the implementation of the Project, as well as proposed communication methods and media for each group, have been identified and are presented in Table 6.5 below.

**Table 6.5: Stakeholder Consultations during Project Construction and Operation Phase**

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

##### 6.4.1 Community Relations in Construction Phase

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

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

The objectives of the Community Relations Programme will be to:

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

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

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

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

#### **6.4.3 Community Relations in Operational Phase**

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

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

- (iv) Monitor community attitudes to the water infrastructure and to the operator, project committee.

#### **6.4.4 Decommissioning**

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

## 7 ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT AND MITIGATION MEASURES

### 7.1 Introduction

This chapter presents the assessment of the issues likely to arise as a result of implementation of the proposed project. For each issue, the analysis is based on its nature, the predicted impact, extent, duration, intensity and probability, and the stakeholders and/or values affected. In accordance with best practice, the analysis includes issues relating to the project's environmental and social sustainability. The anticipated positive and negative impacts associated with the different phases of proposed road upgrading project are outlined below:

**Table 7-1: Summary of anticipated impacts, their respective ratings and development stage**

| Impact                              | Impact Rating    | Development Stage  |
|-------------------------------------|------------------|--------------------|
| Impacts on Soil and Land            | Low              | Construction Phase |
| Impacts Water Resources             | Low              | Operation Phase    |
| Impacts on Biodiversity             | Low              | Construction Phase |
| Socio-Economic Impacts              | High-Positive    | Construction Phase |
| Impacts on Air Quality              | Low              | Construction Phase |
| Impacts on Public Health and safety | Potentially High | Construction Phase |
| Visual Impacts                      | Low              | Construction Phase |

### 7.2 Positive/Beneficial Impacts

- Increased accessibility within the town
- Reduce travel time for residents
- Reduces risks of accident to pedestrians.
- Reduce traffic congestion and traffic jam within the town

## 7.3 Adverse/Negative Impacts

### 7.3.1 Vegetation Loss

The proposed road upgrading site has very little vegetation due to anthropogenic impacts which have led to people clearing vegetation to provide land for housing.

An unavoidable part of any development in general is the clearance and loss of areas of vegetation, which currently characterize the site of the development area. Not only may vegetation be lost, but also faunal habitats may also be lost or at least partly destroyed. In addition, the removal of areas of vegetation could mean that the same degree of interception will no longer occur, and consequently increased run-off might be expected.

No significant impact is expected on biodiversity since the site is devoid of significant animal and plant life, and the chemicals to be used are biodegradable and environmental friendly. Minimal effect expected from the road upgrading activities.

#### Mitigation Measures

- Retention of vegetation where possible, only site pegged for upgrading should be cleared.
- Timely clearing, reinstatement and re-vegetating of the area after excavation

### 7.3.2 Waste Generation

Solid wastes include solid containers such as cement, bentonite and gravel bags and other packets from materials used during implementation of the project.

Spillage of oil and grease from machines used in road construction, repair and maintenance and transportation activities, which can have negative impact on microbial life. The occurrence of these wastes is expected to be minimal. Highly flammable fuels can cause destructive fire at project site

#### Mitigation Measures

- Wastes such as papers or polythene containers, cement, bentonite and gravel bags, should be disposed in a sanitary dumpsite after completion of road construction.
- Avoid any form of ignition at the project site during operation to prevent fire outbreaks.
- Keep all fuels in secluded sections with clearly marked “Danger” or “Hatari” tags in place. They should be stored, properly handled and their wastes disposed safely during construction.

- Repair and maintenance of vehicles and plants must be carried out at petrol station or garage to avoid fuels and lubricants spills at the project site.
- In case of oil spills, road construction the contractor should keep rain or other water off the soil area if possible by covering the ground using tarps or polyethylene sheets.

## 7.4 Impacts on Soils.

The upgrading project is likely to impact on soil during excavation. This can lead to disturbance of the top soil making it loose and susceptible to agents of soil erosion like wind and rain water. Stripping of top soil will also lead to destruction of vegetation cover thereby exposing the soil to further erosion.

### Significance of Impact

The impact on soil is regarded as low even without mitigation and limited within the footprint. Table 7-4 below presents a summary of significance of impacts on soil and geology.

**Table 7-4: Impact to Soils and Geology during construction.**

|  |  |   |        |     |
|--|--|---|--------|-----|
| Impact source(s)                         | Road upgrading and construction equipment  |   | Status | -   |
| Nature of impact                         | <ul style="list-style-type: none"> <li>✓ Erosion</li> <li>✓ Disturbance of natural state</li> <li>✓ Contamination of soil from leakages</li> </ul> |   |        |     |
| Reversibility of impact                  | Good maintenance of the vehicles and equipment to avoid oil leaks, Proper storage of all fluids, oils and fuels                                    |   |        |     |
| Degree of irreplaceable loss of resource | N/A  |   |        |     |
| Affected stakeholders/area               | Soil Quality/Land Suitability  |   |        |     |
|  | Extent   | Footprint – 1   |        |     |
| Magnitude                                | Intensity  | Low – 1   |        |     |
|  | Duration   | Medium - 3  |        |     |
|  | Probability  | Definite – 5  |        |     |
| Significance                             | Without mitigation   | $(Extent + Intensity + Duration + Probability) \times WF (1+1+3+5) \times 1 = 10$ |        | Low |

### Mitigation

The potential impacts on soil can be mitigated by:

- ✓ Minimize excavation to specific areas where work is anticipated to be done
- ✓ Stabilise and re-vegetate all excavated areas promptly to reduce soil erosion.



## 7.5 Impacts to Air Quality

Road construction equipment will generate combustion/exhaust emissions. Potential pollutants from diesel combustion include nitrogen oxides (NOX) (which comprises of nitrogen dioxide (NO<sub>2</sub>) and nitric oxide (NO), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and particulate matter smaller than 10 and 2.5 microns (PM<sub>10</sub> and PM<sub>2.5</sub> respectively).

Also dust from the excavated area might lead to some air pollution

During operation phase, the combustion emissions from the motor vehicles can lead to a slight increase in air pollution. However, the potential impact on people living and working in the surrounding area from combustion emissions will be negligible.

### Significance of Impact during construction and operation phases

The gaseous pollutants from combustion emissions are considered minor and are almost impossible to quantify, therefore they are not assessed and do not attract specific management actions.

### Significance of Impact

The impact on air quality is regarded as low even without mitigation and limited within the footprint.

Table 7-5 below presents a summary of significance of impacts on air quality.

**Table 7-5: To Air Quality during Road construction**

|  |   |                |   |
|--|---|----------------|---|
| Impact source(s)                         | Road construction   | Status         | - |
| Nature of impact                         | <ul style="list-style-type: none"> <li>✓ Dust generation</li> <li>✓ Combustion emissions</li> </ul>   |                |   |
| Reversibility of impact                  | <ul style="list-style-type: none"> <li>✓ Implementation of best practice measures to minimize the potential for nuisance dust to be generated and escape off-site;</li> <li>✓ Implementation of dust management techniques such as water suppression (if required)</li> </ul> |                |   |
| Degree of irreplaceable loss of resource | N/A   |                |   |
| Affected stakeholders/area               | Air quality   |                |   |
|  | Extent  | Footprint – 1  |   |
| Magnitude                                | Intensity   | Low – 1        |   |
|  | Duration  | Short-term - 2 |   |
|  | Probability   | Definite – 5   |   |

|              |                    |   |     |
|--------------|--------------------|---|-----|
| Significance | Without mitigation | (Extent + Intensity + Duration + Probability) x WF (1+1+2+5) x 1 = 9<br>low | Low |
|--------------|--------------------|---|-----|

#### **Mitigation Measure**

- ✓ Implementation of best practice measures to minimize the potential for nuisance dust to be generated and escape off-site; and
- ✓ Implementation of dust management techniques such as water suppression (if required)

### **7.6 Noise and Vibration Impact**

During road construction phase, noise will mostly be generated by the equipment in use. Noise generated is not anticipated to surpass the allowable decibels by a bigger margin

During operation phase, it is expected that traffic volume on the road will slightly increase. This increase is however not expected to increase the level of noise significantly.

#### **Minimizing Noise and Excessive Vibrations**

Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if the project would result in the following:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels.
- A substantial permanent increase in ambient noise levels (more than five decibels) in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The proponents shall put in place several measures that will mitigate noise pollution arising during road construction.

The following noise-suppression techniques will be employed to minimize the impact of noise and excessive vibrations at the project site.

- Make sure all machinery and vehicles are fitted with appropriate mufflers, and that all mufflers and acoustic treatments are in good working order;
- Make sure all machinery and vehicles are regularly maintained and broken parts (such as mufflers) are replaced immediately
- Make sure that activities likely to cause adverse noise impacts are timed to have

least impact on surrounding land users and other site activities (such as the schools and the hospitals)

- Make sure all personnel are issued with hearing protection and are advised of its proper use
- Consultation of earthwork hours with affected residents and nearby sensitive receivers

#### Significance of Noise and Vibrations Impacts during construction phase

Noise generated during road construction is considered to moderate to high significance on ambient noise quality. The levels at the nearby sensitive receptors are not expected to exceed the regulatory limits set by Environmental Management and Coordination (Noise and Excessive Vibration (Control) Regulations, 2009. The regulation set permissible noise levels to be 60 decibels for a construction site during the day and 35 decibels during the night.

**Table 7-6: Noise and Vibrations –Construction Phase**

|  |   |  |        |               |
|--|---|--|--------|---------------|
| Impact source(s)                         | Road construction   |  | Status | -             |
| Nature of impact                         | Noise generation  |  |        |               |
| Reversibility of impact                  | ✓ Adherence to Good International Industry practices for noise and vibration control as described in IFC EHS guidelines which include: <ul style="list-style-type: none"> <li>○ Selecting equipment with lower sound power levels</li> <li>○ Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas</li> <li>○ Developing mechanism to record and respond to complaints</li> </ul> |  |        |               |
| Degree of irreplaceable loss of resource | Low if the above mitigation measures are implemented  |  |        |               |
| Affected stakeholders                    | Noise quality and nearby sensitive receptors (residential areas)  |  |        |               |
|  | Extent  | Site - 2   |        |               |
| Magnitude                                | Intensity   | Medium- 3  |        |               |
|  | Duration  | Short term – 2   |        |               |
|  | Probability   | Definite - 5   |        |               |
| Significance                             | Without mitigation  | (Extent + Intensity + Duration + Probability) x WF (2+3+2+5) x 2 = 24<br>Low to medium |        | Low to medium |
|  | With  | 24*0.2 = 4.0 Low   |        | Low           |

|  |            |  |  |
|--|------------|--|--|
|  | mitigation |  |  |
|--|------------|--|--|

### Significance of Noise and Vibrations Impacts during operation phase

Noise generated during operation phase is considered to be of low significance on ambient noise quality. The levels at the nearby sensitive receptors are expected not to exceed the regulatory limits set by Environmental Management and Coordination (Noise and Excessive Vibration (Control) Regulations, 2009. The regulation provides for 50 decibels for an outdoor residential level during the day and 35 decibels during the night.

**Table7-7: Noise and Vibrations –Operation Phase**

| Impact source(s)                         | Water Pump  |  | Status        |
|--|---|--|---------------|
| Nature of impact                         | Noise generation  |  | -             |
| Reversibility of impact                  | <ul style="list-style-type: none"> <li>✓ Selecting equipment with lower sound power levels</li> <li>✓ Developing mechanism to record and respond to complaints</li> </ul> |  |               |
| Degree of irreplaceable loss of resource | Low if the above mitigation measures are implemented  |  |               |
| Affected stakeholders                    | Noise quality and nearby sensitive receptors (residential areas)  |  |               |
|  | Extent  | Site - 2   |               |
| Magnitude                                | Intensity   | Low- 1   |               |
|  | Duration  | Long term – 5  |               |
|  | Probability   | Definite - 5   |               |
| Significance                             | Without mitigation  | (Extent + Intensity + Duration + Probability) x WF (2+1+5+5) x 2 = 26Low to medium | Low to medium |
|  | With mitigation   | 26*0.2 = 5.2 Low   | Low           |

### Significance of Noise and Vibrations during decommissioning phase

Noise generated during decommissioning phase is considered to be of low significance. The levels at the nearby sensitive receptors are not expected to exceed the regulatory limits set by Environmental Management and Coordination (Noise and Excessive Vibration (Control) Regulations, 2009.

**Table7-8: Noise and Vibrations –Decommissioning Phase**

|                  |  |        |   |
|------------------|--|--------|---|
| Impact source(s) | Demolition works and vehicles carting away materials | Status | - |
| Nature of impact | Noise generation                                     |        |   |

|  |   |  |     |
|--|---|--|-----|
| Reversibility of impact                  | Adherence to Good International Industry practices for noise and vibration control as described in IFC EHS guidelines which include: <ul style="list-style-type: none"> <li>○ Selecting equipment with lower sound power levels</li> <li>○ Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas</li> <li>○ Developing mechanism to record and respond to complaints</li> </ul> |  |     |
| Degree of irreplaceable loss of resource | Low if the above mitigation measures are implemented  |  |     |
| Affected stakeholders                    | Noise quality and nearby sensitive receptors (residential areas)  |  |     |
|  | Extent  | Site - 2   |     |
| Magnitude                                | Intensity   | Low- 1   |     |
|  | Duration  | Short term – 1   |     |
|  | Probability   | Definite - 5   |     |
| Significance                             | Without mitigation  | (Extent + Intensity + Duration + Probability) x WF (2+1+1+5) x 2 = 18Low | Low |
|  | With mitigation   | 18*0.2 = 3.6 Low   | Low |

### Mitigation

- ✓ The proponent and contractor should adhere to Good International Industry practices for noise and vibration control as described in IFC EHS guidelines which include:
  - Selecting equipment with lower sound power levels
  - Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas
  - Developing mechanism to record and respond to complaints
  - All workers exposed to noise should have appropriate PPE

## 7.7 Impacts to Occupational Health and Safety

Road, construction, operation and decommissioning involve some inherent dangers related to exposure to noise, operation of equipment, demolition and handling of materials. In the absence of sufficient management of Health and Safety (H&S) issues, the workforce may suffer injury or death.

### Significance of Occupational Health and Safety Impacts

- Occupational health and safety impacts during the project cycle are considered to be of low significance. It is expected that experienced and trained personnel will be engaged in operating equipment, construction and demolition activities.

**Table 7-9: Occupational Health and Safety during Construction**

|  |  |  |       |
|--|--|--|-------|
| Impact source(s)                         | Equipment operation, road construction activities and demolition and carting away of materials                             | Status   | -     |
| Nature of impact                         | Injuries to workers/visitors arising from project operations<br>Exposure to nuisance noise, dust, vibrations and emissions |  |       |
| Reversibility of impact                  | Formulation and implementation of health and safety plan   |  |       |
| Degree of irreplaceable loss of resource | Low, if health and safety plan is implemented  |  |       |
| Affected stakeholders                    | Workers and visitors to the site   |  |       |
|  | Extent   | Site - 2   |       |
| Magnitude                                | Intensity  | Low - 1  |       |
|  | Duration   | Medium - 3   |       |
|  | Probability  | Possible - 2   |       |
| Significance                             | Without mitigation   | (Extent + Intensity + Duration + Probability) x WF (2+1+3+3) x 3 = 27<br>Low to Medium | L - M |
|  | With mitigation  | WOM 27 * ME 0.2 = 5.4  | Low   |

#### **Mitigation Measures**

Formulation and implementation of health and safety plan which include the following:

- ✓ Adherence to standard operating procedures
- ✓ Use of proper and appropriate PPE
- ✓ Crew supervisor to ensure that safety standards are maintained and safe working practices are adhered to by all members of the crew
- ✓ Formulate and implement emergency preparedness and response plan
- ✓ A First Aider must be appointed, trained and equipped with adequate equipment for handling first aid incidents

### **7.8 Decommissioning Impacts**

Abandonment of a road infrastructure may result from a number of reasons including; defective construction and legal implications. Upon decommissioning of the proposed project, upgrading of the project site will be carried out by disconnection of power

supply, removal of concrete sections and re-vegetation of bare exposed land, this will lead to improved visual quality of the area.

## 8 ENVIRONMENTAL MANAGEMENT PLAN

Table 8-1 provides the Environmental Management and monitoring Plan (EMP) for the upgrading of road network. The EMP provides a logical framework within which identified negative environmental impacts can be mitigated and monitored. Overall the EMP outlines the potential safety, health and environmental risks associated with the project and detail all the necessary mitigation measures as well as the person(s) responsible and the budgetary element for implementing and monitoring such measures. The EMP will be used as a reference point in annual environmental audits and success of the mitigation measures will be realized if project participants duly comply with the EMP.

**Table 8-1: Environmental Management and Monitoring**

| Impact   | Proposed Mitigation and Monitoring  | Responsibility     | Impact Rating             | Monitoring Indicators   | Frequency of monitoring      | Budget Ksh.                   |
|--|---|--------------------|---------------------------|---|------------------------------|-------------------------------|
| Impacts on Land and Soil-<br><i>Mainly Oil and grease spills, and soil excavations</i> | <ul style="list-style-type: none"> <li>- Ensure management of excavation and construction activities.</li> <li>- Proper refilling of the excavated cuttings pit and power cables.</li> <li>- Proper storage, handling and disposal of oil and oil wastes during construction</li> <li>- Any maintenance of construction vehicles should be carried out in the contractor's yard or at a petrol station.</li> </ul>                                | Project Contractor | Low                       | <ul style="list-style-type: none"> <li>-Oil and grease spills on the ground</li> <li>-Excavated channel</li> </ul>  | Throughout road construction | Part of the road construction |
| Impact on Air Quality - <i>Mainly dust and fumes from machinery</i>                    | <ul style="list-style-type: none"> <li>- Ensure proper working conditions of exhaust systems of the road construction machines.</li> <li>- Water earth stockpiles.</li> <li>- Provide drill crew with dust masks.</li> <li>- Use water spray when the work area becomes dusty</li> </ul>  | Project Contractor | Low                       | <ul style="list-style-type: none"> <li>Level of dust in the vicinity of project site.</li> <li>Level of fumes in the vicinity of the project site.</li> </ul> | Throughout road construction | 150,000                       |
| Impacts on Water Resources-<br>Quality and Quantity                                    | <ul style="list-style-type: none"> <li>- Proper maintenance of water structure</li> <li>- Strengthen water user associations</li> <li>- Management of water extraction through capacity building of management committees.</li> <li>- Construct a proper sanitary seal and wellhead</li> <li>- Management of water usage to avoid unnecessary wastage of water.</li> <li>- Installation of uPVC deeper line for water level monitoring</li> </ul> | Project Contractor | Low                       | <ul style="list-style-type: none"> <li>-Water quality analysis</li> <li>-Frequency of breakdowns of the structure</li> </ul>                                  | Periodically                 | Part of the road construction |
| Impacts on Public health and occupational  | <ul style="list-style-type: none"> <li>- Provide proper protective gears to all workers</li> <li>- Ensure that there are no spills of petroleum, no smoking, no source of</li> </ul>  | Project Contractor | Low, but potentially high | <ul style="list-style-type: none"> <li>-Number of accidents/injuries recorded</li> <li>-Response time incase</li> </ul>                                       | Daily<br><br>Throughout road | 150,000                       |



| Impact                  | Proposed Mitigation and Monitoring  | Responsibility     | Impact Rating | Monitoring Indicators   | Frequency of monitoring | Budget Ksh.                   |
|-------------------------|---|--------------------|---------------|---|-------------------------|-------------------------------|
| safety                  | ignition and<br>- Appropriate use of warning signs in explosive environment.<br>- Provide insurance cover to all project participants<br>- There should be a standby vehicle incase of any medical emergency<br>- Provide fully equipped first aid kit at site.<br>- Provide Emergency contacts for police<br>- Emergency plans should be communicated and well understood. |                    |               | of emergencies<br>-Frequency of water related illnesses among the community | construction            |                               |
| Impacts on Biodiversity | - Avoid cutting and destruction of trees and shrubs during the drill process.   | Project Contractor | Low           | - Number of trees/vegetation cover in the project site                      | After construction      | Part of the road construction |
| Visual Impact           | - Minimize implementation period<br>- Clearance of site after decommissioning<br><br>- All temporary works should be removed from site  | Contractor         | Low           | –   | –                       | –                             |
|                         | <b>Total Cost of EMP</b>  |                    |               |   |                         | <b>300,000</b>                |

**Table 8-2: Environmental Management and Monitoring during Operation**

| Project Activities             | Possible Negative Impacts                   | Proposed Mitigation Measures   | Monitoring indicators  | Responsible body                          | Time Frame  |
|--------------------------------|---|--|--|---|---|
| Water supply to the Proponent. | -Disposal of wastes near the drainage       | -Monitor water quality and ensure good waste water disposal<br>-Create awareness among users on importance of ensuring facilities cleanness  | Presence of litter pits, water quality reports, and state of the drainage structures                                     | Proponent (County Government of Laikipia) | During operation phase                                |
|                                | -Possible overexploitation of ground water. | -Monitor water levels<br>-Ensure efficiency in water use<br>-Encourage rain water harvesting to reduce pressure on ground water  | Water level monitoring method, water use management strategy, the extraction volumes<br>Rain water harvesting techniques | Proponent (County Government of Laikipia) | Throughout operation phase                            |
|                                | -Possible conflicts among other road users  | -Ensure adequate consultations and negotiations<br>-Adhere to provisions contained in the license in accordance with Water Act 2002 revised in 2015 and Water Use Rules and Regulations<br>- All aquifers within radius of 160M should be sealed with plain casings and screens. | Number of consultation meetings held, status of surrounding aquifers   | Proponent (County Government of Laikipia) | During design phase and throughout the project period |

## 9 CONCLUSIONS AND RECOMMENDATIONS

- Holistically, the project aims at providing the local community with increased accessibility, reduced traffic congestion and reduced risk of accident to pedestrians.
- The project activities are likely to cause albeit on a small scale soil erosion, disturbance of vegetation, ponding, risk of accidents, emission of dust, and increase in noise.
- The study has proposed several measures to reduce negative impacts including amelioration of socially negative impacts, noise abatement, waste management, reduction of visual intrusion, reduction of soil erosion, prevention of accidents and health hazards.
- Monitoring has been identified as an important process in the protection of environment of the project area since it will reveal changes and trends brought about mainly by construction activities.
- Priority for employment should be given to the local community including women and youth. This will enhance social economic and capacity building.
- The proponent should adopt a participatory and collaborative approach during all the phases of the project. This will ensure active participation of all key stakeholders towards success and sustainability of the project.
- The proponent needs to support the implementation of environmental management (including mitigation plan and monitoring) in order to protect the environment of the project area from the negative impacts of project implementation.

It is in our opinion that the few anticipated negative impacts can readily be mitigated and that the proposed project does not pose any threat to the environment.

## 10 REFERENCES

1. *Filled stakeholder questionnaires*
2. *Environmental Management and Coordination Act 1999 Cap 387 revised in 2015 to align to the Kenyan Constitution 2010, and subsequent regulation not limited to*
  - ✓ *Legal Notice no 121 Waste Management Regulation 2006*
  - ✓ *Legal Notice no 120 Water Quality Regulations, 2006*
  - ✓ *Legal Notice no. 61 Noise and Excessive Vibration Pollution Control Regulations, 2009*
  - ✓ *Legal Notice no 34 Air Quality Regulations, 2014*
3. *Physical and Land Use Planning Act of 2019 – 202*
4. *The Public Health Act (Cap.242)*
5. *Occupational Health and Safety Act (OSHA 2007),*
6. *The Urban Areas and Cities Act 2011*
7. *Water Act 2016*
8. *Land Act 2012*
9. *Energy Act 2019*
10. *Environmental, Health, and Safety General Guidelines of April 30, 2007*
11. *World Bank Group Environmental, Health, and Safety General Guidelines of April 30, 2007.*
12. *Environmental (Impact Assessment and Audit) Regulations 2003*

## ANNEX

### **ANNEX I: Sample of filled stakeholder questionnaires**



COUNTY GOVERNMENT OF  
LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



**QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT**

**PROJECT: Rehabilitation of Rumuruti Town Roads**

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name MAIGUA L.W SUSAN Area & Sub County: LAIKIPIA WEST  
Occupation: TEACHER Company/Organization: \_\_\_\_\_  
Tel No: 0721213102 Location/Area of residence RUMURUTI TOWN

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO

2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO

3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy

- It will open up business
- It will improve security of the area
- Vehicles will have another road to
- avoid traffic jam
- \_\_\_\_\_

4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any

- it is impassable when it rains
- It is very dusty during hot seasons
- It harbors crooks who smoke bang
- and brings insecurity in the area
- \_\_\_\_\_

5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any

- None
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_



THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? ☒ YES/NO With Title? ☒ YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them Potatoes, Maize

Livestock ? YES / ☒ NO

Horticulture? YES/NO ☒

If you do commercial farming, list items sold commercially eg Milk, tea? N/A

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| 25  | Female        | N/A             | N/A                          | Working                            |                                  |
| 28  | MALE          | N/A             | N/A                          | Working                            |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

If Yes List Vulnerability

N/A

D4. What is the total monthly income of your entire household? 200 000 Ksh

D5. What is your total monthly expenditure for your entire household on transport? 50 000 Ksh

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities                | Health Facilities                   | Government facilities               | Going to Market                     | Transport of farm products          | Other |
|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------|
| Walking                |                                     |                                     |                                     |                                     |                                     |       |
| Matatu/Bus             |                                     |                                     |                                     |                                     |                                     |       |
| Motorcycle (Boda boda) |                                     |                                     |                                     |                                     |                                     |       |
| Taxi                   |                                     |                                     |                                     |                                     |                                     |       |
| Personal Car           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |
| Other                  |                                     |                                     |                                     |                                     |                                     |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town      | Time to travel there | Cost (one way) |
|--------------------------------------|-----------|----------------------|----------------|
| Going to Major Market centre         | Nyahururu | 45 minutes           | 150 Ksh        |
| Transporting goods to market         |           |                      |                |
| Going to school                      |           |                      |                |
| Seek medical services                |           |                      |                |
| Seek Government services             |           |                      |                |
| Seek Veterinary Extension Services   |           |                      |                |
| Seek Agricultural Extension Services |           |                      |                |
| Other                                |           |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

## Department of Lands, Infrastructure & Urban Development.



### QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

#### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name SULIA CHENGO KOGUT

Area & Sub County: LAIKIPIA

Occupation: \_\_\_\_\_

Company/Organization: \_\_\_\_\_

Tel No: 0727108663

Location/Area of residence RUMURUTI

1. Are you aware of this ROAD project? Circle one YES NO
2. Do you believe this project will be of any economic benefit to the area? YES NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. IT WILL CREATE EMPLOYMENT
  - b. IT WILL MAKE TRANSPORT EASY
  - c. IT WILL BENEFIT MY WORK INTERMS OF CUSTOMERS
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. MANY POLE HOLES WHICH CAUSES ROAD ACCIDENTS
  - b. A LOT OF DUST DURING SUNNY DAY BY RAINING
  - c. WHEN WE HAVE HEAVY RAINING IT DAMAGES THE ROAD BY
  - d. STAGNATE WATER THAT CAUSES EYE IRRITATION
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_



**THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.**

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other                                |      |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

## Department of Lands, Infrastructure & Urban Development.



### QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

#### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name TITUS MUNENE  
Occupation: BUSINESS  
Tel No: 0722 664539

Area & Sub County: RUMURUTI  
Company/Organization: \_\_\_\_\_  
Location/Area of residence RUMURUTI

1. Are you aware of this ROAD project? Circle one YES NO
2. Do you believe this project will be of any economic benefit to the area? YES NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. It will make the town easily accessible
  - b. Reduce respiratory problems due to dust in the town
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Roads have potholes
  - b. Roads take too much time to be completed
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. \_\_\_\_\_
  - b. NONE
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

**THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.**

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other _____                          |      |                      |                |



COUNTY GOVERNMENT OF  
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**QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT**

**PROJECT: Rehabilitation of Rumuruti Town Roads**

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name FUNICE MURUTHI

Area & Sub County: Rumuruti

Occupation: BUSINESS Lady

Company/Organization: \_\_\_\_\_

Tel No: 0725461713

Location/Area of residence Rumuruti

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. For easy Movement of Good & services
  - b. for security purposes
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Not tarmaacked.
  - b. Pot holes in the roads.
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. needs to be tarmaacked
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_



THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

## Household Survey

### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| 40  | Female        | 12              | No                           | Not working                        | Not working                      |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? 6,000

D5. What is your total monthly expenditure for your entire household *on transport?* 1000

E2 What is your mode of transport to the following ? motor cycle

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       | ✓               |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) | ✓                    | ✓                 | ✓                     |                 | ✓                          |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town       | Time to travel there | Cost (one way) |
|--------------------------------------|------------|----------------------|----------------|
| Going to Major Market centre         | Rumukiti   | 8:00 AM              | Walking        |
| Transporting goods to market         | Rumukiti   | 8:00 AM              | Boda-100       |
| Going to school                      | Rumukiti   | 8:00 AM              | Walking        |
| Seek medical services                | Rumukiti   | 8:00 AM              | Walking        |
| Seek Government services             | MATATURUKI | 8:00 AM              | 200.00         |
| Seek Veterinary Extension Services   | Rumukiti   | 8:00 AM              | Walking        |
| Seek Agricultural Extension Services | Rumukiti   | 8:00 AM              | Walking        |
| Other                                |            |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name SARAH - MOTORCYCLE

Area & Sub County: LAIKIPIA WEST

Occupation: BUSINESS LADY

Company/Organization: GARAGE

Tel No: 0728 427410

Location/Area of residence MILIMANI

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. It will allow easy access to the market
  - b. Easy entry to the market
  - c. It may lead to growing of businesses and related
  - d. The project will minimize pollution within town area
  - e. The project will encourage faster transportation of both people and goods
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Poor drainage in terms of sewage
  - b. Congestion as the road is poor and narrow
  - c. Pot holes Vehicles cannot get in or out easily
  - d. Narrow road thus does not accommodate the rising
  - e. number of both motor bikes and vehicles
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. The proposed road project will enable
  - b. the re-open of the public toilet near
  - c. the stage
  - d.
  - e.

THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them NA

Livestock ? YES / NO NA

Horticulture? YES/NO NA

If you do commercial farming, list items sold commercially eg Milk, tea? N/A

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age    | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|--------|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| 39 yrs | Female        |                 |                              | JUA KALI                           |                                  |
|        |               |                 |                              |                                    |                                  |
|        |               |                 |                              |                                    |                                  |
|        |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? N/A

D5. What is your total monthly expenditure for your entire household *on transport*? ~~1500~~ 4000

E2 What is your mode of transport to the following ?

| Mode of transport to     | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|--------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                  |                      |                   |                       |                 |                            |       |
| Matatu/Bus               |                      |                   |                       |                 |                            |       |
| ✓ Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                     |                      |                   |                       |                 |                            |       |
| Personal Car             |                      |                   |                       |                 |                            |       |
| Other                    |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town     | Time to travel there | Cost (one way) |
|--------------------------------------|----------|----------------------|----------------|
| Going to Major Market centre         | Rumunuti | 30 mins              | 50             |
| Transporting goods to market         | Rumunuti | 5 mins               | 100            |
| Going to school                      | Rumunuti | 30 mins              | 50             |
| Seek medical services                | Rumunuti | 25 mins              | 50             |
| Seek Government services             | N/A      |                      |                |
| Seek Veterinary Extension Services   | N/A      |                      |                |
| Seek Agricultural Extension Services | N/A      |                      |                |
| Other                                |          |                      |                |





# COUNTY GOVERNMENT OF LAIKIPIA

## Department of Lands, Infrastructure & Urban Development.



### QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

#### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name Joseph Kung'ira

Area & Sub County: \_\_\_\_\_

Occupation: \_\_\_\_\_

Company/Organization: \_\_\_\_\_

Tel No: 07 40 96 22 50

Location/Area of residence \_\_\_\_\_

1. Are you aware of this ROAD project? Circle one YES NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. easy transportation of goods and services.
  - b. Clean environment
  - c. Control of flood during rainy season.
  - d. The proper Town plan.
  - e. General Cleanliness of town will be enhanced.
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. \_\_\_\_\_
  - b. flooding during rain season.
  - c. dusty environment during dry season.
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. one part of the road be completed for use
  - b. \_\_\_\_\_
  - c. Difficult in transportation of goods in town.
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_



**THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.**

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

\_\_\_\_\_

D4. What is the total monthly income of your entire household? \_\_\_\_\_

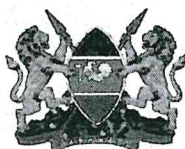
D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other _____                          |      |                      |                |



COUNTY GOVERNMENT OF  
LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



**QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT**

**PROJECT: Rehabilitation of Rumuruti Town Roads**

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name STELLA THOMPSON

Area & Sub County: Laikipia

Occupation: SALONIST

Company/Organization: \_\_\_\_\_

Tel No: 0704344736

Location/Area of residence KADUTURA

1. Are you aware of this ROAD project? Circle one YES NO
2. Do you believe this project will be of any economic benefit to the area? YES NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. Businesses
  - b. Cleanliness
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Poor drainage
  - b. No exits and clear entrances
  - c. Business visibility poor
  - d. Congestion of people
  - e. No spaces
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. Cleanliness
  - b. Security lights
  - c. Business Permit rates too high
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

## Household Survey

### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them N/L

Livestock ? YES / NO N/L

Horticulture? YES/NO N/L

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other    |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|----------|
| Walking <u>✓</u>       |                      |                   |                       | <u>✓</u>        |                            |          |
| Matatu/Bus <u>✓</u>    |                      |                   |                       |                 |                            | <u>✓</u> |
| Motorcycle (Boda boda) |                      | <u>✓</u>          | <u>✓</u>              | <u>✓</u>        |                            | <u>✓</u> |
| Taxi                   |                      |                   |                       |                 |                            |          |
| Personal Car           |                      |                   |                       |                 |                            |          |
| Other                  |                      |                   |                       |                 |                            |          |

E3. What is the travel time and cost of transport?

| Facilities                           | Town     | Time to travel there | Cost (one way)    |
|--------------------------------------|----------|----------------------|-------------------|
| Going to Major Market centre         | <u>✓</u> | <u>Anytime</u>       | <u>✓ 50-100</u>   |
| Transporting goods to market         |          |                      | <u>500 - 3000</u> |
| Going to school                      |          |                      |                   |
| Seek medical services                |          |                      | <u>50 - 500</u>   |
| Seek Government services             |          |                      |                   |
| Seek Veterinary Extension Services   |          |                      |                   |
| Seek Agricultural Extension Services |          |                      |                   |
| Other                                |          |                      | <u>50 - 3000</u>  |





# COUNTY GOVERNMENT OF LAIKIPIA

## Department of Lands, Infrastructure & Urban Development.



### QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

#### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name AGNES MWIHAKI

Area & Sub County: (GIKOMBA) RUMURUTI TOWN

Occupation: HOTEL

Company/Organization: \_\_\_\_\_

Tel No: 0713101470

Location/Area of residence GIKOMBA

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. → Improve bussines
  - b. → Easy transport
  - c. → It will improve cleankess
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. → Poor drainage
  - b. → Poor main of transport.
  - c. → It has holes along
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. ~~None~~ → Poor drainage. → none
  - b. ~~None~~ → Poor drainage → none
  - c. ~~None~~ → Poor drainage → none.
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

**THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.**

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other                                |      |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name HASUANG ABDURA LALO.

Area & Sub County: LAIKIPIA WEST.

Occupation: BUSINESSMAN

Company/Organization: RUMURUTI GIKONYA.

Tel No: 0721863677

Location/Area of residence RUMURUTI TOWN.

1. Are you aware of this ROAD project? Circle one YES NO
2. Do you believe this project will be of any economic benefit to the area? YES NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. It will enhance the business in the area.
  - b. There will be a clean environment.
  - c. People will get good transport network to the business area.
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. The road becomes muddy.
  - b. People have problems accessing the business areas.
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. There are sewage problems during the rainy season.
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them Tomato, Cabbages.

Livestock ? YES / NO

Horticulture? YES/NO

If you do commercial farming, list items sold commercially eg Milk, tea? N/A

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age       | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----------|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| <u>28</u> | <u>M</u>      | <u>15</u>       |                              |                                    |                                  |
| <u>25</u> | <u>M</u>      | <u>19</u>       | <u>✓</u>                     |                                    |                                  |
| <u>18</u> | <u>F</u>      | <u>15</u>       | <u>✓</u>                     |                                    |                                  |
| <u>8</u>  | <u>M</u>      | <u>5</u>        | <u>✓</u>                     |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other      |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|------------|
| Walking                | <u>walking</u>       | <u>walking</u>    | <u>walking</u>        | <u>walking</u>  | <u>walking</u>             | <u>N/A</u> |
| Matatu/Bus             |                      |                   |                       |                 |                            |            |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |            |
| Taxi                   |                      |                   |                       |                 |                            |            |
| Personal Car           |                      |                   |                       |                 |                            |            |
| Other                  |                      |                   |                       |                 |                            |            |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other _____                          |      |                      |                |





# COUNTY GOVERNMENT OF LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name PURITY GAICUGI  
Occupation: Entrepreneur  
Tel No: 0710990073

Area & Sub County: Laikipia County  
Company/Organization: Business  
Location/Area of residence Muthaiga

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. Improvement on transportation of goods
  - b. Improvement of sales in the locality
  - c. Cost of transport will go down
  - d. Job opportunity
  - e. Economy will improve
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Poor transport system
  - b. High cost of transport
  - c. low economy
  - d. low sales of goods
  - e. low job opportunity
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. NONE
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_



THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial NA

Types of Crops ? List them NA

Livestock ? YES / NO

Horticulture? YES/NO

If you do commercial farming, list items sold commercially eg Milk, tea? NA

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other                                |      |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name MICHAEL ITHIFY

Area & Sub County: RUMURUTI

Occupation: RUMURUTI-BUSINESS

Company/Organization: IRK-O' KIKOMBA DEN

Tel No: 0729669987

Location/Area of residence RUMURUTI TOWN

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy

- a. IT WILL MAKE TOWN CLEAN.
- b. IT WILL Create Jobs opportunity
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any

- a. \_\_\_\_\_
- b. Muddy and Sturdy.
- c. Sewage and bad smell through-out.
- d. \_\_\_\_\_
- e. \_\_\_\_\_

5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any

- a. KEEP THIS TOWN CLEAN.
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them maize, beans and Sukuma wiki.

Livestock ? YES / NO

Horticulture? YES/NO

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| 47  | MALE          | 12              |                              | Rumu                               | Rumuruti                         |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other     |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-----------|
| Walking                | walking              | walking           | walking               | walking         | car                        | Boda boda |
| Matatu/Bus             |                      |                   |                       |                 |                            |           |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |           |
| Taxi                   |                      |                   |                       |                 |                            |           |
| Personal Car           |                      |                   |                       |                 |                            |           |
| Other                  |                      |                   |                       |                 |                            |           |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other                                |      |                      |                |





# COUNTY GOVERNMENT OF LAIKIPIA

## Department of Lands, Infrastructure & Urban Development.



### QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

#### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name DAVID MURUTHI W.

Area & Sub County: Rumuruti Town

Occupation: Rumuruti Erikomba

Company/Organization: Business man

Tel No: 0721 151521

Location/Area of residence Erikomba market

1. Are you aware of this ROAD project? Circle one ☒ YES NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. This Road so busy for vehicle and
  - b. other customers use this road
  - c. even, I used this to take my
  - d. 1 term for my shop I dear
  - e. white shoe and bag selling.
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. many of pot hole
  - b. when it's Rain long not pass
  - c. Customer not pass when mud
  - d. affect my business for poor maintenance
  - e. motor bicycle cannot take anything this road.
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. I want you to help us for grading
  - b. or termic road I can ask if you can
  - c. able to grade even those pass we use
  - d. to pass in Erikomba market we can happy
  - e. the pass have 18ft so is okay for garden

**THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.**

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other                                |      |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name Paul Mcheri  
Occupation: HxTel  
Tel No: 0721 401015

Area & Sub County: Laikipia  
Company/Organization: Gikomba Market  
Location/Area of residence Muthaiga Rumuruti

1. Are you aware of this ROAD project? Circle one YES NO
2. Do you believe this project will be of any economic benefit to the area? YES NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. Job creation.
  - b. improved security.
  - c. improved drainage system.
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Muddy during the rainy season.
  - b. Dusty in the dry season.
  - c. P
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. Sewerage Drainage
  - b. Security.
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/~~NO~~ With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES /~~NO~~ \_\_\_\_\_

Horticulture? YES/~~NO~~ \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| 5   | f             | 2               | ✓                            |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? 3000

D5. What is your total monthly expenditure for your entire household *on transport*? 5000

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                | ✓                    | ✓                 | ✓                     | ✓               | ✓                          |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other                                |      |                      |                |





# COUNTY GOVERNMENT OF LAIKIPIA

Department of Lands, Infrastructure & Urban  
Development.



## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name JOEL KAMAU  
Occupation: BUSINESS MAN  
Tel No: 0701780741

Area & Sub County: LAIKIPIA WEST  
Company/Organization: —  
Location/Area of residence RUMURUTI TOWN

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. Enhanced transportation of goods and services
  - b. Linking producers, business people and consumers
  - c. —
  - d. —
  - e. —
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. It's always muddy when it rains ~~at night~~
  - b. customers are not able to get to our businesses.
  - c. —
  - d. —
  - e. —
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. —
  - b. —
  - c. —
  - d. —
  - e. —



THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

### Household Survey

#### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/NO With Title? YES / NO

Type of farming? Subsistence or Commercial

Types of Crops ? List them \_\_\_\_\_

Livestock ? YES / NO \_\_\_\_\_

Horticulture? YES/NO \_\_\_\_\_

If you do commercial farming, list items sold commercially eg Milk, tea? \_\_\_\_\_

#### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |
|     |               |                 |                              |                                    |                                  |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

*If Yes List Vulnerability*

D4. What is the total monthly income of your entire household? \_\_\_\_\_

D5. What is your total monthly expenditure for your entire household *on transport*? \_\_\_\_\_

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities | Health Facilities | Government facilities | Going to Market | Transport of farm products | Other |
|------------------------|----------------------|-------------------|-----------------------|-----------------|----------------------------|-------|
| Walking                |                      |                   |                       |                 |                            |       |
| Matatu/Bus             |                      |                   |                       |                 |                            |       |
| Motorcycle (Boda boda) |                      |                   |                       |                 |                            |       |
| Taxi                   |                      |                   |                       |                 |                            |       |
| Personal Car           |                      |                   |                       |                 |                            |       |
| Other                  |                      |                   |                       |                 |                            |       |

E3. What is the travel time and cost of transport?

| Facilities                           | Town | Time to travel there | Cost (one way) |
|--------------------------------------|------|----------------------|----------------|
| Going to Major Market centre         |      |                      |                |
| Transporting goods to market         |      |                      |                |
| Going to school                      |      |                      |                |
| Seek medical services                |      |                      |                |
| Seek Government services             |      |                      |                |
| Seek Veterinary Extension Services   |      |                      |                |
| Seek Agricultural Extension Services |      |                      |                |
| Other _____                          |      |                      |                |



# COUNTY GOVERNMENT OF LAIKIPIA

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## QUESTIONNAIRE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

### PROJECT: Rehabilitation of Rumuruti Town Roads

In order to carry out a proper Environmental Impact Assessment for the above project, we would like your views on the project based on the questions below. Please note that your name and information will not be used for any other purposes but ONLY for this particular project, to ensure that all Environmental and Social Impacts are identified, captured, and used during the implementation of this project.

Name ABUBAKH HASSAN  
Occupation: BUSINESS MAN  
Tel No: 0792587259

Area & Sub County: LAIKIPIA WEST  
Company/Organization: SOLE PROPRIETORSHIP  
Location/Area of residence TOWN

1. Are you aware of this ROAD project? Circle one ☒ YES ☐ NO
2. Do you believe this project will be of any economic benefit to the area? ☒ YES ☐ NO
3. Please tell us how this project will be of benefit to you, the community, and its impact to the local economy
  - a. Ease customer movements.
  - b. Ease transportation of Goods.
  - c. Foster economic growth through increased
  - d. customer numbers and improved services.
  - e. \_\_\_\_\_
4. What are the current problems/issues with the existing road? Indicate NONE if you don't have any
  - a. Poor Movements.
  - b. Cumbersome transportation of Goods.
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_
5. Do you have any environmental or social concerns on the proposed project? Indicate NONE if you don't have any
  - a. N/A
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

THANK YOU IN ADVANCE FOR YOUR TIME AND HELP IN PROVIDING THIS INFORMATION.

## Household Survey

### A. INFORMANT'S INFORMATION

B1. Do you have a farm? YES/~~NO~~ With Title? YES / ~~NO~~

Type of farming? Subsistence or Commercial

Types of Crops ? List them N/A

Livestock ? YES / NO N/A

Horticulture? YES/NO N/A

If you do commercial farming, list items sold commercially eg Milk, tea? N/A

### D. HOUSEHOLD INFORMATION

D1. People live living in the household

| Age | Male / Female | Years of School | Currently Enrolled in School | Working (If working , which area ) | Not Working (excluding children) |
|-----|---------------|-----------------|------------------------------|------------------------------------|----------------------------------|
| 26  | Male          | 12              | No                           | Business (1)                       | N/A                              |
| 28  | Male          | 12              | No                           | N/A                                | (1)                              |
| 19  | Female        | 12              | Yes                          | N/A                                | (1)                              |
| 50  | Male          | 12              | No                           | Business (1)                       | N/A                              |

Indicate if more than 15 \* = Person(s) interviewed

D2. Does the household have vulnerable people? (Widows, orphans, elderly, disabled etc?)

If Yes List Vulnerability

N/A

D4. What is the total monthly income of your entire household? KSh 59,000

D5. What is your total monthly expenditure for your entire household on transport? KSh 5,000

E2 What is your mode of transport to the following ?

| Mode of transport to   | Education facilities                | Health Facilities                   | Government facilities               | Going to Market                     | Transport of farm products          | Other                               |
|------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Walking                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| Matatu/Bus             |                                     |                                     |                                     |                                     |                                     | <input checked="" type="checkbox"/> |
| Motorcycle (Boda boda) |                                     |                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Taxi                   |                                     |                                     |                                     |                                     |                                     | <input checked="" type="checkbox"/> |
| Personal Car           |                                     |                                     |                                     |                                     |                                     |                                     |
| Other                  |                                     |                                     |                                     |                                     |                                     |                                     |

E3. What is the travel time and cost of transport?

| Facilities                           | Town     | Time to travel there | Cost (one way) |
|--------------------------------------|----------|----------------------|----------------|
| Going to Major Market centre         | Kumunuti | 10 min               | 50/-           |
| Transporting goods to market         | Manura   | 20 min               | 100/-          |
| Going to school                      | Manurtha | 15 min               | 100/2          |
| Seek medical services                | Town     | 10 min               | 50/-           |
| Seek Government services             | Town     | 10 min               | 50/2           |
| Seek Veterinary Extension Services   | Town     | 10 min               | 50/-           |
| Seek Agricultural Extension Services | Town     | 10 min               | 50/2           |
| Other                                | N/A      | 10 min               | 50/2           |



## ANNEX II: Project Appreciation Photographs

### Link 1 Road



Gulleys on the road due to impended drainage



Section of Proposed Link 1 Road

## Link 2 Road



Km 0+000 of Link 2 road



A poorly drained section of the link 2 road.





Link 2 road at Km 0+140 of the road.

### Link 3 Road



Water ponding at Km 0+000 of link 3 road



General condition of Link 3 Road



Link 3 Road at km 0+320.



## Road Side Parking



RHS of the road side parking where water is ponding, while parking is not organized.



LHS of the road side parking.



## Bus Parking



Entrance to the bus park



Current Exit of the bus park



Ongoing works on Phase 1 of the bus park.

### ESIA Stakeholder's Involvement







Laikipia County Staff and Stakeholders going through the ESIA questionnaires during the site visit.