



**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED RURAL ELECTRIFICATION ALONG 400KV KENYA-TANZANIA POWER INTERCONNECTOR PROJECT (KTIPI), LOT K2, KAJIADO COUNTY.**



March, 2020

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## DECLARATION AND DOCUMENT AUTHENTICATION

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

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*Do hereby certify that this report was prepared based on the information provided by various stakeholders as well as that collected from other primary and secondary sources and on the best understanding and interpretation of the facts by the Environment Social & Impact Assessors. It is issued without prejudice.*

## EXECUTIVE SUMMARY

The country's long-term development blue print, Vision 2030 aims at transforming Kenya into a globally competitive newly industrialized middle-income and prosperous country. The Second Medium Plan 2013-2017 identifies energy as one of the enablers for transformation into "a newly-industrializing, middle-income country providing a high quality of life to all its citizens in a clean and secure environment". Efficient, accessible and reliable infrastructure is identified as an enabler for achieving sustainable economic growth, development and poverty reduction by lowering the cost of doing business and improving the country's global competitiveness.

The energy sector plays a critical role in the socio-economic development of a country. Kenya is committed to universal access to modern forms of energy by year 2030, as articulated in the Vision 2030 (the Vision). Energy is identified as a critical enabler of this Vision. According to KPLC annual report 2016/2017 the national electricity access stood at 70.3%. The company aims at attaining universal access by the year 2020. To attain this universal coverage alongside providing reliable and affordable power, the government is implementing various projects all over the country.

During his second term (2018-2022), the President of Kenya His Excellency Uhuru Kenyatta announced his new plan, the '**Big Four**' to guide the development agenda of the country. The Big Four focuses on key basic needs that are critical in uplifting the standard of living of Kenyans on the path to becoming an upper middle-income country by 2030. The agenda priorities are affordable and decent housing; affordable healthcare; food and nutritional security; and, employment creation through manufacturing (Kara, 2019).

In a bid to attaining the Big 4 Agenda, the government has begun realigning its resources towards reviving manufacturing, boosting food production, security, building affordable housing and expanding access to medical care. These targets can be achieved through reliable, accessible and affordable electricity.

### Project Objectives

The main objective is to construct a 33kV and 11kV overhead distribution lines and connection of some public utilities and individuals in Kajiado County along the transmission line corridor.

Specific Objectives include: -

- Designing and constructing of a 33kV Distribution line in compliance with electric generation regulatory authorities (ERC, Ministry of energy)
- Ensure sustainability of the project by complying with national laws especially those touching on environment

The proposed project falls under project classified under Schedule II of Environment Management and Coordination Act (EMCA) Cap 387, which requires such projects to undergo environmental impact assessment. This study report therefore done as per the requirements of EMCA Environmental (Impact and Audit) Regulations, 2003. This can be highlighted as below: -

**Chapter 1 Introduction:** The chapter give a description of the project background, the ESIA Project study objectives; Project Justification; ESIA process; the Project Scope; Terms of Reference and ESIA Approach and Methodology

**Chapter 2 Policy Legal and Institutional Framework:** This chapter highlights the current guiding national policy, the relevant national legal applicable to the project and the relevant institutions deemed associated with the proposed project and their roles.

**Chapter 3 Project Description:** This chapter gives a detail information on the nature of the proposed project; the location; site ownership; the project design and layout; materials to be consumed be the project; labour required and the project activities at the different phases of project cycle.

**Chapter 4 Baseline information:** The Chapter give a description of Kajiado County and narrows it down to the proposed project site in regards to environmental and Socio-economic elements related to the project

**Chapter 5 Stakeholder consultation:** Public participation is enshrined in the Kenya Constitution of 2010. This chapter highlights the procedure followed in conducting stakeholder engagement; objectives; identification of Stakeholders and the outcome from stakeholder engagement.

**Chapter 6 Potential Environmental Impacts and Mitigation:** This chapter highlights both the positive and negative impact that might result from project implementation. The positive include creation of job opportunities; reliable electricity supply; boost local economic development; promotion of green energy; opportunity to enable value addition; improvement of quality education and enhanced security. While the possible negative impacts could include noise pollution; oil spill; increased water demand; dust emission; workers' incidents and accidents; workers' influx, diseases and crime; solid waste generation, increase energy consumption and disruption of visual esthetics. The chapter further provides possible mitigation measures aim at minimizing or eliminating the negative impact.

**Chapter 7 Analysis of project alternatives:** This chapter highlight the option that are available to the project including the "No option".

**Chapter 8 Environmental and Social Management Plan (ESMP):** This chapter outlines the resources, roles and responsibilities required to manage environment and social impacts and implement mitigation measures.

**Chapter 9 Environmental and Social Monitoring Plan:** This Chapter give the monitoring measures to ensure that the project is environmentally sustainable.

The report seeks approval of the proposed project and issue of EIA license by National Environment Management Authority (NEMA). The report strongly recommend that the proponent ensure that the EMP is strictly implemented and that all EIA license conditions are adhered to ensure that the project is implemented sustainably.

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## ABBREVIATION

ASAL	Arid and Semi-Arid Lands
CEEC	center for Energy Efficiency and Conservation
EA	Environmental Audit
EMCA	Environment Management and Coordination Act
EMP	Environment Management Plan
EPRA	Energy & Petroleum Regulatory Commission
ESI	Electricity supply industry
ESIA	Environment and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESS	Environment and Social Standards
FRP	Fiber Reinforced Polymer
GDC	Geothermal Development Corporation
GoK	Government of Kenya
IPP	Independent Power Producers
KETRACO	Kenya Electricity Transmission Company Limited
NUPEA	Nuclear Power & Energy Agency
NEAP	National Environment Action Plan
NEC	National Environmental Council
NEMA	National Environment Management Authority
PAP	Project Affected Persons
REREC	Rural Electrification and Renewable Energy Corporation
TOR	Terms of Reference

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Project Background

Energy is a critical component in the economy, standard of living and national security of a country. The level and the intensity of energy use in a country is a key indicator of the economic growth and development. The Kenya Vision 2030 identified energy as one of the infrastructure enabler of its socio-economic pillar. Sustainable, competitive, affordable and reliable energy for all citizens is a key factor in realization of the Vision.

Electricity is a secondary source of energy generated through the consumption of primary energy sources namely petroleum, coal, renewable energy and nuclear energy. By virtue of its versatility in application, electricity is crucial to the socio-economic development of the country and is the most sought after energy service. Access to electricity is associated with rising or high quality of life.

Reforms and restructuring of the Kenyan electricity supply industry (ESI) has been going on since the mid-90s with the aim of: -

- Creating appropriate legal, regulatory and institutional framework for the industry
- Ensuring provision of affordable, competitive, reliable, efficient and sustainable electric power supplies
- Increasing the population's access to electricity as a means of stimulating economic growth
- Improving the efficiency of power distribution and supply through reductions in system losses and collection of revenues
- Creating a more competitive market structures with clear delineation of roles for public and private sector players in generation, transmission, distribution and retail functions

The rural electrification program was started in 1973 as part of the basic infrastructure to stimulate socio-economic growth, stem rural-urban migration through creation of social amenities and employment opportunities at close proximities to the rural population and thus uplift the quality of life in the rural areas. However, the rate of penetration has been slow with only 91,069 directly metered consumers having benefited from the program by January 2004. The low penetration level is attributed to past mismanagement of financial resources, high cost of network extension, low consumer densities and the scattered nature of the human settlements in rural Kenya. In 2003, it costed more than KShs.1.2 million

on average to construct a kilometer of an 11kV or a 33kV line. Thus, the average cost of supplying a rural consumer was Kshs. 180,000, which is about seven times the national per capita income in 2002. Rural electrification schemes also incur higher operating costs per unit sold than the KPLC system sales. For example, over the period 1997/98 to 2001/02 the average cost of selling one unit of electricity under the rural electrification program was Kshs. 12..4 per kWh for the interconnected system as opposed to KShs.7.78 per kWh for KPLC, while for the isolated program schemes the cost was KShs.32.0 per kWh.

The Kenya Electricity Transmission Company (KETRACO) is currently constructing a 400kV 100km transmission line that will subsequently link Kenya and Zambia through Tanzania. As part of Corporate Social Responsibility (CSR), KETRACO further intends to further construct a network of low voltage power distribution lines aimed at mainly connecting public utilities to the national grid. The distribution lines will eventually contribute in further opening up the project area, spur development and support other sectors that depend on power.

## 1.2 Objectives of the ESIA

The general objectives of the ESIA are:

1. To conduct baseline biophysical and socio-economic survey of the project area
2. To identify the potential positive and negative environmental and social impacts of the distribution line
3. To engage relevant stakeholders
4. To develop an environmental and social management plan (ESMP) for design, construction, operation and decommissioning phase of the proposed project

## 1.3 ESIA Methodology

The process of ESIA involved the following:

- Review of relevant secondary data
- Collection, reviewing and analyzing relevant information from key project stakeholders
- Baseline survey/assessment of the line route
- Conducting public meetings (barazas) with the communities affected and beneficiaries of the project
- Identifying environmental and social positive and negative impacts
- Analyzing impacts



- Providing appropriate mitigation measures against negative impacts
- Analysis of project alternatives
- Developing ESMP

## 1.4 Scope of the Study

The EIA scope largely covered the following areas:

(1) Baseline Conditions:

- Environmental setting (climate, topography, geology, hydrology, ecology, water resources, sensitive areas etc.),
- Socio-economic activities in the surrounding areas (land use, human settlements, economic activities, institutional aspects, water demand and use, health and safety, public amenities, etc.),
- Infrastructural issues (roads, water supplies, drainage systems, power supplies, etc.).

(2) Legal and policy framework:

- Focusing on the relevant national environmental laws, regulations and by-laws and other laws and policies focusing on allied activities relative to the project in question.

(3) Interactive approach was adopted for the immediate neighbourhood in discussing relevant issues including among others:

- Land use aspects,
- Neighbourhood issues,
- Project acceptability,
- Social, cultural and economic aspects,

(4) Environmental impacts:

- Physical impacts,
- Biological impacts,
- Legal Compliance.

## 1.5 Terms of Reference (TOR) for the ESIA Process

The TOR of the ESIA project report includes but not limited to:

- Description of the baseline environment (physical, biological, social and cultural)
- Detailed description of the proposed project
- Review Legislative and regulatory framework that relate to the project
- Identify potential environmental impacts that could result from the project
- Carry out public consultation on positive and negative impacts of the project
- Propose mitigation measures against identified environmental and social impacts of the project
- Development of an Environmental and Social Management Plan to mitigate negative impacts
- Development of an Environmental Monitoring Plan
- Environmental and Social Impact Assessment Report

## CHAPTER TWO

### POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

#### 2.1 Policy Framework

##### 2.1.1 The constitution of Kenya, 2010

- I. The Constitution has enhanced protection and enforcement of fundamental rights amongst other gains. It provides for two tier structure of government, the National and the County Government. It distributes the functions and power between the two levels as detailed in Chapter Eleven and Fourth Schedule.
- II. Specifically, in relation to the energy sector, Part 1 of the Fourth Schedule provides that the National Government shall be responsible for: -
  - a) Protection of the environment and natural resources with a view to establishing a durable and sustainable system of development including water protection, securing sufficient residual water, hydraulic engineering and the safety of dams;
  - b) Energy policy including electricity and gas reticulation and energy regulation; and
  - c) Public investment
- III. In relation to the County Government, part 2 of the Fourth Schedule provides that they shall be responsible for the county planning and development including electricity and gas reticulation and energy regulation

##### 2.1.2 Sessional Paper No. 4 on Energy 2004

The policy was established to promote equitable access to quality energy services at least cost while protecting the environment.

The policy paper led to establishment of Rural Electrification Authority to accelerate the pace of rural electrification in the country; Kenya Electricity Transmission Company Limited, 100% state owned to be in charge of transmission; and Geothermal Development Company to be in charge of geothermal resource assessments and sale of steam to future Independent Power Producers.

Energy policy specific objectives are to: -

- a) provide sustainable quality energy services for development;
- b) utilize energy as tool to accelerate economic empowerment for urban and rural development;

- c) improve access to affordable energy services;
- d) provide an enabling environment for the provision of energy services;
- e) enhance security of supply;
- f) promote development of indigenous energy resources; and,
- g) promote energy efficiency and conservation as well as prudent environmental, health and safety practices.

The policy objectives are to expand access to electricity as a means to promote sustainable socio-economic development of rural communities. The goal is to accelerate the pace of rural electrification through grid extension and off-grid projects, taking into account economic cost effectiveness criteria, and emphasizing productive use of power for growth and employment creation. Government's goal is to provide electricity service connections to 20% of the rural population by 2010, increasing to at least 40% by 2020

The Government encourages and promote private sector initiatives to enter clean biomass and other renewable technologies energy market. Furthermore, the Government intends to allocate resources to research into and promote mature alternative sources of energy and renewable energy technologies.

## 2.2 Legal Framework

### 2.2.1 Environmental Management and Coordination Act, Cap 387

The Section Part VI of EMCA 2015 Part II states that every person is entitled to a clean and healthy environment and has the duty to safeguard the same. In order to achieve this goal, the projects listed under the Schedule No. 2 of EMCA must be subjected to Environmental Impact Assessment (EIA). The aim of EIA is to reduce negative environmental outcomes of the listed projects by implementing mitigation measures. The proposed project falls within the Second schedule and must therefore comply with EMCA requirements in as far as EIA is required. There are also several regulations that have been formulated within the framework of EMCA 2015 that are applicable to the proposed project. These are listed in the following sections.

### **2.2.1.1 Environmental Management and Co-ordination (Environmental Impact Assessment and Audit) Regulations, 2003, Legal Notice No. 101**

The Environmental (Impact Assessment and Audit) Regulations provides guidelines for conducting EIA studies. The regulations provide details on the parameters to be evaluated when undertaking an EIA study. It also provides guidelines on the conduct of environmental audits and development of project monitoring plans.

*The proposed project must comply with the requirements of the regulations that also include conducting continuous monitoring and annual audits on the proposed project.*

### **2.2.1.2 Environmental Management and Co-ordination (Water Quality) Regulations, 2006, Legal Notice No. 120**

The EMCA (Water Quality) Regulations, 2006 provide guidelines on the use and management of water sources in order to safeguard quality of water for domestic use and irrigation, among others. The proposed project will need to comply with the requirements of this regulation in order to ensure water sources in the neighbouring areas are protected from pollution and over-abstraction. The project will also need to comply with the regulations that prohibit undertaking of development within a minimum of 6m from the highest ever recorded flood level of a river system. Section 4(2), 6 and Section 24 of the regulation prohibits pollution of water bodies and requires that all substances discharged into the water bodies should meet the standards set under the Third Schedule of the regulation. Everyone is required to refrain from any actions, which directly or indirectly cause water pollution, whether or not the water resource was polluted before the enactment of the Environmental Management and Coordination Act (EMCA) Gazetted in 2015. It is an offence to contravene the provisions of these regulations with a fine not exceeding five hundred thousand shillings.

Most of the rivers within the project areas are seasonal. The proponent will ensure that the distribution line routing avoid these water ways.

### **2.2.1.3 Environmental Management and Co-ordination (Fossil Fuel Emission Control) Regulations, 2006**

The EMCA (Fossil Fuel Emission Control) Regulations, 2006 aims at eliminating or reducing emissions emitted from internal combustion engines to acceptable levels. The regulation provides guidelines on use of clean fuels, use of catalysts and inspection procedures for engines and generators. This regulation is

applicable to the proposed project since there would be use of vehicles, machineries and equipment that depend on fossil fuel as their source of energy. The requirements of the regulation must be implemented in order to eliminate or reduce air quality degradation. Sections of the regulation citing the standards of recommended emission levels will be given to the contractor and or pinned at strategic points in the contractor's field offices.

*In compliance to the provisions herein, the report has given recommendations and measure to mitigate the emissions*

#### **2.2.1.4 Environmental Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006**

The EMCA (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 provides that no person shall engage in any activity that may have an adverse impact on any ecosystem; may lead to the introduction of any exotic species or to unsustainable use of natural resources, without an Environmental Impact Assessment License issued by the Authority under the Act.

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

The proponent that biological diversity within the project area is conserve. Minimal interruption of vegetation.

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

The Waste Management Regulations are basically aimed at streamlining the handling, transportation and disposal of various types of wastes. The broad goal of the regulations is to protect human health and the environment. The regulations place emphasis on waste minimization, cleaner production and segregation of waste at source. The regulations have also classified various types of waste and recommended appropriate disposal methods for each waste type. Under the regulations, NEMA is supposed to licenses transporters, incinerators, landfills, composers, recyclers and transfer stations. Facilities to be licensed

include local authorities, transporters and handlers of various types of waste. The licensing employs a risk-based approach by concentrating on facilities considered to pose a high risk to the environment. The regulations also provide an opportunity for investment in various aspects of waste management. During the construction of the proposed NSCC, proper disposal of wastes will need to be observed by the contractor at all areas of working. This will ensure good hygiene and healthy working environment for workers.

*In compliance to this, the contractor and the proponent will ensure there exists proper contractual agreement with licensed solid waste handlers and that solid wastes are disposed in the manner prescribed*

#### **2.2.1.6 Environmental Management and Co-ordination (Controlled Substances) Regulations, 2007**

The EMCA (Controlled Substances) Regulations aims at controlling the production, consumption and, exports and imports of controlled substances. Controlled substances are grouped into three lists as indicated below:

- Group 1 list consists of halogenated fluoro-chemicals with ozone depleting substances.
- Group 2 list consist of hydrobromoflourocarbons with ozone depleting substances.
- Group 3 list consist of bromochloromethane with ozone depleting substances.

Products containing controlled substances include air conditioners, air coolers, refrigerants, portable fire extinguishers, heat pump equipment, dehumidifiers, insulation boards, panels and pipe covers, pre-polymers, etc.

*The project contractor and the proponent will need to ensure that the requirements of this regulation are observed in order to ensure that equipment, machinery, vehicles and chemicals containing such components are not imported into the country for use in the proposed project.*

#### **2.2.1.7 Environmental Management and Co-ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009**

The Environmental Management and Co-ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009 applies to all wetlands in Kenya whether occurring in private or public land. The objectives of the regulations are to provide for the conservation and sustainable use of wetlands and their resources in Kenya and promote the integration of sustainable use of resources in wetlands into

the local and national management of natural resources for socio-economic development. The Act also aims at ensuring the conservation of water catchments and the control of floods and the sustainable use of wetlands for ecological and aesthetic purposes for the common good of all citizens. The Act also makes provision for the protection of wetlands as habitats for species of fauna and flora. It also provides a framework for public participation in the management of wetlands.

The Act requires wetland resources to be utilized in a sustainable manner compatible with the continued presence of wetlands and their hydrological, ecological, social and economic functions and services. The Act requires special measures to be undertaken to preserve and maintain knowledge innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity in wetlands.

The regulation also calls for sustainable use of wetlands through integration into the national and local land use plans to ensure sustainable use of wetlands in the country.

*The project will traverse some of the seasonal rivers, proponent will ensure that riparian areas are not encroached*

#### **2.2.1.8 Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009**

The Noise and Excessive Vibration Pollution Control Regulations, 2009 prohibits excessive noise and vibration. It states that no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. The contractor of the project will have to ensure that no excessive noise and vibrations are made during the construction stage. This is important since the construction of the project involve use of heavy earthmoving equipment and trucks which can generate excessive noise and vibrations. Motor vehicles used during the construction of the proposed project should also adhere to the regulations which prohibit excessive noise.

The provision of the act on motor vehicle states that no person shall operate a motor vehicle which produces any loud and unusual sound exceeding 84 dB(A) when accelerating (*See table Below*).

The Act also states that, “no person shall at any time sound the horn or other warning device of a vehicle except when necessary to prevent an accident or an incident. Any person carrying out construction,



demolition, mining or quarrying work should ensure that the vibration levels do not exceed 0.5 centimetres per second beyond any source property boundary or 30 metres from any moving source”.

All these provisions have been comprehensively catered for in this report at the Environmental and Social Management Plan and their adherence shall be closely monitored.

Zone		Sound Level Limits Db(A) (Leq,14h)		Noise Rating Level (NR) (Leq, 14h)	
		Day	Night	Day	Night
<b>A</b>	Silent Zone	40	35	30	25
<b>B</b>	Places of Worship	40	35	30	25
<b>C</b>	Residential: indoor	45	35	35	25
	Outdoor	50	35	40	25
<b>D</b>	Mixed residential (with some commercial and places of entertainment)	55	35	50	25
<b>E</b>	Commercial	60	35	55	25

**Plate 1: Maximum Permissible Noise Levels**

**Time Frame**

**Day: 6.01 a.m. – 8.00 p.m. (Leq,14h)**

**Night: 8.01 p.m. – 6.00 a.m. (Leq 10h)**

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

**Plate 2: Maximum Permissible Noise Levels For Construction Sites**

**Time Frame**

**Day: 6.01 a.m. – 8.00 p.m. (Leq,14h)**

**Night: 8.01 p.m. – 6.00 a.m. (Leq 10h)**

### **2.2.2 The Energy Act, 2019**

The act was enacted in 2006. It sought to amend and consolidate the law relating to energy, provide for the establishment, powers and functions of the Energy Regulatory Commission, the Energy Tribunal and the Rural Electrification Authority.

The Act provides the regulatory framework for the energy sector and, among other things, stresses the need for energy players in general and electrical energy players in particular to adopt environmentally friendly and sustainable practices in power generation, distribution and consumption. It sets standards for proper environmental management in the sector. Section 30 (1) part (b) of the Act states compliance with the EMCA, 2015 as an important criterion to be considered by the ERC during the registration and supervision of sector players.

### **2.2.3 The Wildlife Management and Conservation Act 2013**

This Act was enacted to consolidate and amend the law relating to the protection, conservation and management of wildlife in Kenya, and for purposes connected therewith and thereto.

Part VI, Section 30 states that Any activity which is likely to have adverse effects on the environment, including the seepage of toxic waste into streams, rivers, lakes and wetlands is prohibited.

The proponent will ensure that there is no hunting of wildlife.

### **2.2.4 The Standard Act, Cap 496**

The Act established Kenya Bureau of Standards whose function are: -

- a) To promote standardization in industry and commerce;
- b) To make arrangements or provide facilities for the testing and calibration of precision instruments, gauges and scientific apparatus, for the determination of their degree of accuracy by comparison with standards approved by the Minister on the recommendation of the Council, and for the issue of certificates in regard thereto;
- c) to make arrangements or provide facilities for the examination and testing of commodities and any material or substance from or with which and the manner in which they may be manufactured, produced, processed or treated;

- d) to control, in accordance with the provisions of this Act, the use of standardization marks and distinctive marks;
- e) to prepare, frame, modify or amend specifications and codes of practice;
- f) to encourage or undertake educational work in connection with standardization;
- g) to assist the Government or any local authority or other public body or any other person in the preparation and framing of any specifications or codes of practice

*The proponent will adhere to the set standards specified by KEBS for electrical equipment and power supply*

### **2.2.5 The Forest Conservation and Management Act of 2016**

The Act establishes Kenya Forest Service and give its core functions. This Act makes provision for the conservation and management of public, community and private forests and areas of forest land that require special protection, defines the rights in forests and prescribes rules for the use of forest land. It also makes provision for community participation of forest lands by community forest association, the trade in forest products, the protection of indigenous forests and the protection of water resources.

*The proposed project does not traverse any forest. However, the contractor and the proponent will ensure that minimal vegetation clearance as well as promote tree plantation toward attaining 10% forest cover in Kenya*

### **2.2.6 Occupational Safety and Health Act, 2007**

The Occupational Safety and Health Act 2007 applies to all workplaces where any person is at work, whether temporarily or permanently. The purpose of the Act is to secure the safety, health and welfare of persons at work and protect persons other than persons at work against risks to safety and health arising out of, or in connection with, the activities of persons at work.

Section 16 provides that no person shall engage in any improper activity or behaviour at the workplace, which might create or constitute a hazard to that person or any other person.

*The contractors of the proposed project and the operators will need to fully comply with the requirements of the Occupational Safety and Health Act 2007.*

### 2.2.7 The Land Act, 2012

The Land Act was enacted in May 2012 to provide for the review, consolidation and rationalization of land laws and to provide a framework for sustainable management and utilization of all categories of land. It provides a legal framework for administration and management of public and private land, leases, charges, compulsory acquisition, easements and related rights.

Section 61 of Kenyan constitution recognizes three classification of land; public, community or private.

- **Public land:** It includes all un-alienated government land held and occupied by government agencies, territorial sea and sea bed, all public roads whether gazetted or not and any land not classified as private or community land under the Constitution; and any other land declared to be public land by an Act of Parliament.
- **Community land:** This is all land vested in and held by communities identified on the basis of ethnicity, culture or similar community of interest. Any unregistered community land shall be held in trust by county governments on behalf of the communities.
- **Private land:** This is land which is registered and held by any person under freehold tenure; or land held by any person under leasehold tenure; and any other land declared private land under an Act of Parliament.

*The proposed project will traverse private land, some registered to individual and some communally owned. The distribution component will utilise the road reserve.*

### 2.2.8 The Water Act, 2016

This Act provides for the regulation, management and development of water resources and water and sewerage services in line with the Constitution. Authorities shall, in administering or applying this Act, be guided by the principles and values set out in Articles 10, 43, 60 and 232 of the Constitution. It establishes the Water Resources Authority ("Authority"), the National Water Harvesting and Storage Authority, the Water Services Regulatory Board, the Water Sector Trust Fund and the Water Tribunal.

The Act states that, A permit is required for any of the following purposes: -

- a) any use of water from a water resource, except as provided by section 37 of the Act;
- b) the drainage of any swamp or other land;

- c) the discharge of a pollutant into any water resource; and
- d) any other purpose, to be carried out in or in relation to a water resource, which is prescribed by Regulations made under this Act to be a purpose for which a permit is required.

Part IV Section 63 states that “Every person in Kenya has the right to clean and safe water in adequate quantities and to reasonable standards of sanitation as stipulated in Article 43 of the Constitution.”

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

The Public Health Act regulates activities detrimental to human Health. An environmental nuisance is one that causes danger, discomfort or annoyance to the local inhabitants or which is hazardous to human health. Although the Act is primarily concerned with domestic water supplies and sources of water used for human consumption, its regime may be extended to cover rivers, streams, lakes and underground water resources since these are the basic water sources for the majority of Kenya’s population.

It also outlines the standards of construction of various facilities of any place. In terms of air pollution thermal plants are said to emit a variety of gases, volatile organic compounds and particulate matter depending on the amount and type of fuel used and method used for burning. It is therefore necessary to monitor the air pollution. The Act prohibits activities (nuisances) that may be injurious to health. The primary purpose of the Act is to secure and maintain public health. It defines nuisances on land and premises and empowers public health authorities to deal with such conditions.

Part IX, section 115, of the Act states that no person/institution shall cause nuisance or condition liable to be injuries or dangerous to human health. Section 116 requires that Local Authorities take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to be injuries or dangerous to human health.

On responsibility of the Local Authorities Part XI, section 129, of the Act states in part “It shall be the duty of every local authority to take all lawful, necessary and reasonably practicable measures for preventing any pollution dangerous to health of any supply of water which the public within its district has a right to use and does use for drinking or domestic purposes. Section 130 provides for making and imposing regulations by the local authorities and others the duty of enforcing rules in respect of prohibiting use of water supply or erection of structures draining filth or noxious matter into water supply as mentioned in section 129. This provision is supplemented by section 126A that requires local authorities to develop by-laws for controlling and regulating among others private sewers, communication between drains, power

lines, and sewers as well as regulating sanitary conveniences in connection to buildings, drainage, cesspools, etc. for reception or disposal of foul matter. Part XII, Section 136, states that all collections of water, sewage, rubbish, refuse and other fluids which permits or facilitates the breeding or multiplication of pests shall be deemed nuisances and are liable to be dealt with in the matter provided by this Act.

*The Proponent shall observe its provisions and implement measures to safeguard public health and safety.*

## **2.3 Institutional framework**

### **2.3.1 Ministry of Energy**

It is responsible for formulating and articulation of energy policies through which it provides an enabling environment for all stakeholders. Its tasks include national energy planning, training of manpower and mobilization of financial resources

### **2.3.2 Energy and Petroleum Regulatory Authority (EPRA)**

It was established as an energy sector regulator under the Energy Act, 2006, with responsibility for economic and technical regulation of electric power, renewable energy, and downstream petroleum sub-sector. its functions also include tariff setting, review, licensing, enforcement, dispute settlement and approval of power purchase and network service contracts.

### **2.3.3 Energy Tribunal**

This quasi-judicial body was established under section 108 of the Energy Act, 2006. It came into operation in July 2007 to primarily hear appeals against the decisions of ERC. It also has jurisdiction to hear and determine all matters referred to it relating to the energy sector

### **2.3.4 Kenya Power**

Kenya Power is a State Corporation with GoK shareholding of 50.1% and private shareholding of 49.9% as at June 2014. It purchases electrical energy in bulk from KenGen, GDC and other power producers and carries out distribution, supply and retail of electric power. The proposed project will be handed over to Kenya Power for maintenance and billing.

### **2.3.5 Kenya Electricity Generating Company Limited (KenGen)**

KenGen is a State Corporation with GoK shareholding of 70% and private shareholding 30% as at June 2014. It is mandated to generate electric power, currently producing the bulk of electricity consumed in the country. The company currently utilizes various sources including hydro, geothermal, thermal and wind to generate electricity.

### **2.3.6 Rural Electrification and Renewable Energy Corporation (REREC)**

REREC was established under section 66 of the Energy Act of 2006 as a body corporate with the principal mandate of extending electricity supply to rural areas, managing the rural electrification fund, mobilizing resources for rural electrification and promoting the development and use of renewable energy

Rural Electrification and Renewable Energy Corporation

### **2.3.7 Geothermal Development Company Limited (GDC)**

This is a 100% state-owned company established by the Government of Kenya as a special purpose for development of geothermal resources in Kenya

### **2.3.8 Independent Power Producers (IPPs)**

IPPs are private companies which generate power and sell electricity in bulk to Kenya Power. As at November 2014 there were nine IPPs in operation which accounted for about 24% of the country's installed capacity.

### **2.3.9 Nuclear Power and Energy Agency (NUPEA)**

KNEB is charged with the mandate of spearheading and fast tracking development of nuclear electricity generation in order to enhance the production of affordable and reliable electricity

### **2.3.10 Center for Energy Efficiency and Conservation (CEEC)**

The center was established jointly by GoK and the Kenya Association of Manufacturers to champion energy efficiency and conservation efforts in Kenya

### **2.3.11 National Environment Management Authority (NEMA)**

National Environment Management Authority (NEMA) is the institution with the legal authority to exercise general supervision and coordination over all matters relating to the environment. It is the principal instrument of the government charged with the implementation of all policies relating to the environment. NEMA's functions are more particularly set out in section 9(2) of the EMCA act, 2015.

According to section 68 of the Environmental Management and Coordination Act (EMCA) 2015, The Authority shall be responsible for carrying out environmental audits on all activities that are likely to have a significant effect on the environment.

Environmental Auditing (EA) is a tool for environmental conservation and has been identified as a key requirement for existing facilities to ensure sustainable operations with respect to environmental resources and socio-economic activities in the neighbourhood of the facilities.

The government has established regulations to facilitate the process on Environmental Impact Assessments and Audits. The regulations are contained in the Kenya Gazette Supplement No. 56, legislative supplement No. 31; legal notice No. 101 of 13<sup>th</sup> June 2003.

The authority core functions are:

- Coordinating the various environmental management activities being undertaken by the lead agencies
- Promote the integration of environmental considerations into development policies, plans, programs and projects, with a view to ensuring the proper management and rational utilization of environmental resources, on sustainable yield basis, for the improvement of the quality of human life in Kenya.
- To take stock of the natural resources in Kenya and their utilization and conservation.
- Carry out surveys, which will assist in the proper management and conservation of the environment.
- Advise the Government on legislative and other measures for the management of the environment or the implementation of relevant international conventions, treaties and agreements.
- Undertake and coordinate research, investigation and surveys, collect, collate and disseminate information on the findings of such research, investigations or surveys.
- Mobilize and monitor the use of financial and human resources for environmental management.
- Identify projects and programs for which environmental audit or environmental monitoring must be conducted under this Act.



- Initiate and evolve procedures and safeguards for the prevention of accidents, which may cause environmental degradation and evolve remedial measures where accidents occur e.g. floods, landslides and oil spills.
- Monitor and assess activities, including activities being carried out by relevant lead agencies, in order to ensure that the environment is not degraded by such activities. Management objectives must be adhered to and adequate early warning on impending environmental emergencies is given.

### **2.3.12 National Environmental Council (NEC)**

The National Environment Council established under section 4 of part 3 of the EMCA act consists a board which comprises the Chairman (Minister), PS of the relevant ministry, representatives from public universities, representatives from research institutions, NGO representatives, Director General (Secretary) and such number of members as may, from time to time, be co-opted by the minister to be members of the council.

### **2.3.13 The National Environmental Action Plan Committee**

National Environmental committee is supposed to prepare a national environmental action plan after every 5 years for consideration and adoption by the National Assembly. The NEAP is a compilation of National Environment Action Plans which are prepared by the County environment committee.

### **2.3.14 The County Environmental Committee**

County Environmental Action Plan Committee is charged with the responsibility of preparing a county environmental Action based on the county environmental plan. The County Environmental action plans are further compiled at the national level.

### **2.3.15 The National Environmental Complaints Committee**

The Act (EMCA) has also established a National Environmental Complaints Committee, which provides the administrative mechanism for addressing environmental harm. The Committee has the mandate to investigate complaints relating to environmental damage and degradation. Its' members include representatives from the Law Society of Kenya, NGOs and the business community.

### **2.3.16 Directorate of Occupational Health and Safety**

The institution will be task for registration of the construction site as a work place and eforcing compliance with Occupational Health and Safety Regulations at the construction site

## 2.4 World Bank Environmental and Social Safeguard

Environmental and social standards(ESSs)	Objective of ESSs	Relevancy to the proposed project
<b>ESS1:Assessment and management of environmental and social Risks and Impacts</b>	<ul style="list-style-type: none"> <li>• To identify, evaluate and manage the environment and social risks and impacts of the project in manner consistent with the ESSs</li> <li>• To adopt a mitigation hierarchy approach to:                             <ol style="list-style-type: none"> <li>a) Anticipate and avoid risks and impacts:</li> <li>b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;</li> <li>c) Once risks and impacts have been minimized or reduced, mitigate, and</li> <li>d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.</li> </ol> </li> <li>• To promote improved environmental and social performance, in ways which recognize and enhance borrower capacity</li> </ul>	<p>The EIA report for the proposed distribution component has provided mitigation measures under ESMP</p>
<b>ESS2: Labor and working condition</b>	<ul style="list-style-type: none"> <li>• To promote safety and health at work.</li> <li>• To promote the fair treatment, nondiscrimination and equal opportunity of project workers.</li> </ul>	<ul style="list-style-type: none"> <li>• All workers at site will be provided with the necessary PPEs</li> <li>• Contractor will consider gender parity in employment</li> </ul>

	<ul style="list-style-type: none"> <li>• To protect vulnerable workers.</li> <li>• To prevent the use of all forms of forced labor and child labor.</li> <li>• To support the principles of freedom of association and collective bargaining of project workers in manner consistent with national law.</li> <li>• To provide project workers with accessible means to raise work place.</li> </ul>	<p>of both skilled and unskilled workers</p> <ul style="list-style-type: none"> <li>• All workers employed should have attain the age of 18 years and in possession of a national identification card</li> </ul>
<p><b>ESS3: resource efficiency and pollution prevention and management.</b></p>	<ul style="list-style-type: none"> <li>• To promote the sustainable use of resources, including energy, water and raw materials.</li> <li>• To avoid or minimize project-related emissions of short and long-lived climate pollutants.</li> <li>• To avoid or minimize generation of hazardous and non-hazardous waste.</li> <li>• To minimize and manage the risks and impacts associated with pesticide use.</li> </ul>	<ul style="list-style-type: none"> <li>• The proponent will ensure that the contractor implements the recommendations as stated in EMP</li> </ul>
<p><b>ESS4:community health and safety</b></p>	<ul style="list-style-type: none"> <li>• To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.</li> <li>• To have in place effective measures to address emergency events</li> </ul>	<ul style="list-style-type: none"> <li>• The proponent will strive to create awareness throughout the project life cycle.</li> <li>• Proponent will develop emergency response mechanisms where applicable</li> </ul>
<p><b>ESS5:Land Acquisition, restrictions on Land Use and Involuntary Resettlement</b></p>	<ul style="list-style-type: none"> <li>• To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by</li> </ul>	<ul style="list-style-type: none"> <li>• The project will not involve any resettlement</li> </ul>

	exploring project design alternatives.	
	<ul style="list-style-type: none"> <li>To avoid forced eviction.</li> </ul>	
<b>ESS6: Biodiversity conservation and sustainable management of living natural resource</b>	<ul style="list-style-type: none"> <li>To protect and conserve biodiversity and habitats.</li> <li>To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.</li> <li>To promote the sustainable management of living natural resources.</li> </ul>	<ul style="list-style-type: none"> <li>The report advises the Proponent on physical and environmental aspects, potential impacts, and proposes mitigation measures that need to be implemented and monitored as a basic guideline for the management of environmental and biodiversity aspects in the proposed project area.</li> <li>The proponent will ensure that the biodiversity is conserved and natural resource utilized sustainably throughout the project life cycle.</li> </ul>
<b>ESS7:Indigenous people</b>	<ul style="list-style-type: none"> <li>To avoid adverse impacts of projects on indigenous people.</li> <li>To recognize, respect and preserve the culture, knowledge, and practices of indigenous people.</li> <li>To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture and natural resource- based livelihoods of indigenous people.</li> </ul>	<ul style="list-style-type: none"> <li>This report advises the proponent to respect and preserve the culture and human right of indigenous people</li> </ul>
<b>ESS8:Cultural heritage</b>	<ul style="list-style-type: none"> <li>To protect cultural heritage from adverse impacts of project activities and support its preservation.</li> </ul>	<ul style="list-style-type: none"> <li>This report advice the proponent that not to undertake any event that will directly or indirectly interfere with the cultural heritage.</li> </ul>

		<ul style="list-style-type: none"> <li>To address cultural heritage as an integral aspect of sustainable development.</li> <li>To promote meaningful consultation with stakeholders regarding cultural heritage.</li> <li>To promote the equitable sharing of benefits from the use of cultural heritage.</li> </ul>	<ul style="list-style-type: none"> <li>Proponent will continuously engage the relevant stakeholders during project implementation</li> </ul>
<b>ESS9:</b>	<b>Financial intermediaries</b>	<ul style="list-style-type: none"> <li>To promote good environmental and social management practices in the subprojects the FI finances.</li> <li>To promote good environmental and sound human resources management within the FI.</li> </ul>	<ul style="list-style-type: none"> <li>The report provides recommendations and mitigations for good environmental and social management practices.</li> </ul>
<b>ESS10:</b>	<b>stakeholder engagement and information disclosure.</b>	<ul style="list-style-type: none"> <li>To provide PAPs with accessible and inclusive means to raise issues and grievances, and allow borrowers to respond to and manage such grievances.</li> <li>To ensure the appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format</li> </ul>	<ul style="list-style-type: none"> <li>Proponent will establish proper grievance mechanism to reporting and responding to PAPs grievances.</li> <li>This report advice the proponent to ensure that;             <ol style="list-style-type: none"> <li>The environmental and social information is disseminated correctly and accurately.</li> <li>Make sure that the environmental and social risks and impacts information is factual.</li> </ol> </li> </ul>

## CHAPTER THREE

### PROJECT DESCRIPTION

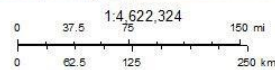
#### 3.1 Project Location

The project will be implemented within Kajiado county. The project will target communities living along the proposed Kenya\_Tanzania\_400kV Interconnector project. Approximately 36 settlement schemes will benefit from the project. Community facilities such as boreholes will also be connected.

Kenya Counties



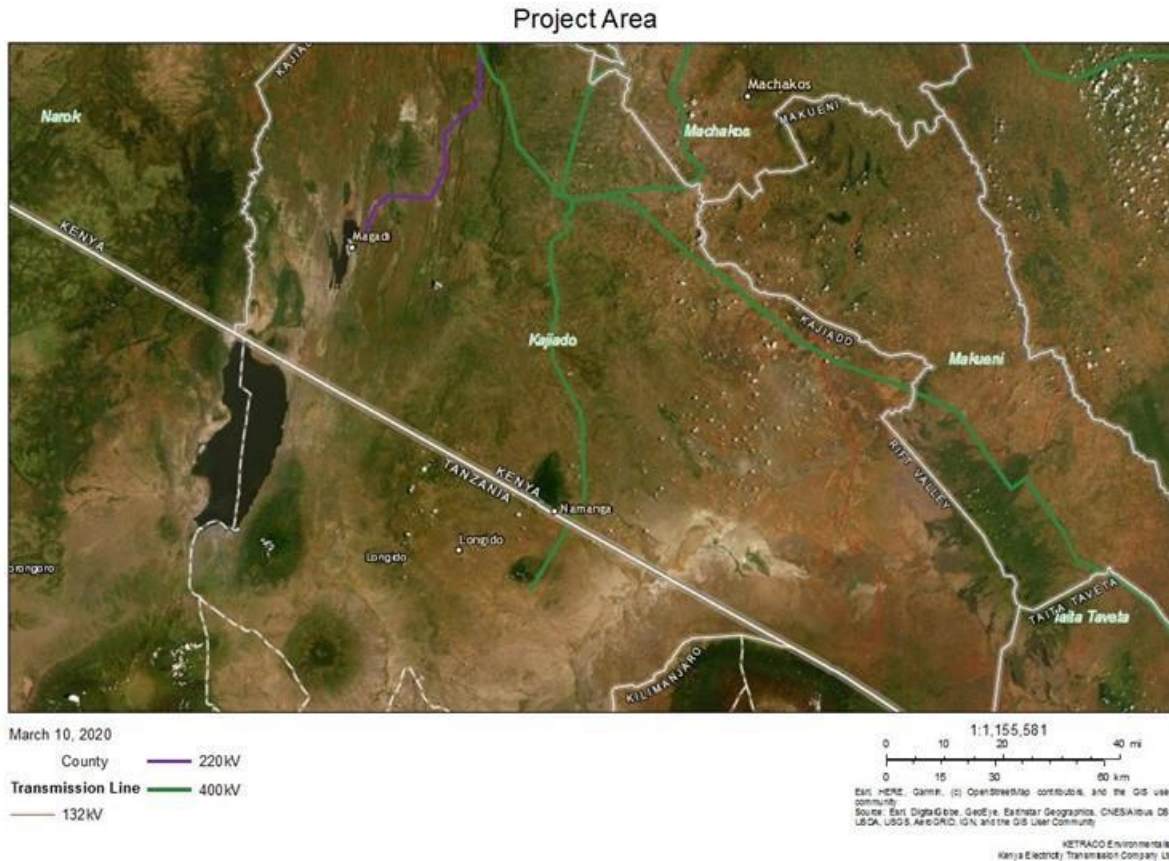
March 10, 2020  
County



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

KETRACO Environmentalist  
Kenya Electricity Transmission Company Ltd

Map 1: Kenya Counties,



Map 2: Project area within Kajiado central

The proposed project will target the project affected people along Kenya-Tanzania 400kV transmission line and Isinya-Namanga 132kV TL as shown in *Map 2* above.

### 3.2 Project Justification

KETRACO is mandated to design, construct, operate and maintain high voltage transmission line. In line to this, KETRACO is implementing two electricity transmission lines in Kajiado Central, Kajiado County. The two transmission lines are; Kenya-Tanzania 400 kV and Isinya Namanga 132 kV. These two project underwent Environmental Impact Assessment Study and the reports thereof approved and licenses issued to that effect.

With the implementation of the two projects, the Project Affected Persons within the wayleaves of the projects in consultation with KETRACO requested to have an electricity distribution component to their households and community amenities in proximity to the transmission lines' wayleave as a Corporate Social Responsibility. It is in this backdrop that KETRACO is proposing to implement this distribution component. Due to this arrangement, there would not compensation for distribution component

wayleave serving the individual Project Affected Persons, but they will be billed for their electricity subsistence consumption as per the normal tariffs determined EPRA.

The proposed project also promotes the government's last Mile Project which aims at facilitating the objective of affordably connecting Kenyan households to the national network grid. This is geared towards achieving universal access to electricity.

### 3.3 Project design

The proposed power distribution project will be designed and constructed according to KPLC Distribution's Standard Specifications for overhead lines of up to 66kV.

The Total Line Length from proposed line will total 571km as follows.

- 450km of 33kV distribution line (ACSR Dog conductor)
- 110km of LV (0.4kV) distribution line (AA HD Bare 50mm<sup>2</sup> conductor)
- 34 number of 33/0.4kV Transformers: 32\*50kVA transformers + 2\*100kVA transformers
- Service connection to consumers: 300 single phase meters to consumers and 30 three phase meter connections to consumers
- Last mile connections included 10km of single phase aluminium cable (10mm<sup>2</sup>) and 2km of ABC three phase connections (4\*25mm<sup>2</sup>)
- 1km of 33kV underground cable shall also be used

The way leave trace shall be five meters on either side of the line. The pole spacing ranges from 50 – 150 meters except where bends may attract closer spacing whereas depressions along valley landscapes will call for long spans and use of HT Poles. The project will not require addition wayleave corridor since it will utilize the existing wayleave corridor of 70 meters for the ongoing construction of Kenya-Tanzania 400KV and Isinya Namanga 132kV transmission line.

The main project's material inputs include concrete poles, insulators, steel cross bars with clamps, stays, conductors and earthings.



### 3.4 Project Components

The distribution line will be supported by concrete poles on which conductors will be mounted. Design features for both components are highlighted below.

#### I. Concrete Poles:

- The concrete poles are designed and manufactured in accordance with Kenya Power's Specifications or equivalent standard on pre-stressed concrete poles.
- The poles are round, Pre-stressed or Reinforced Concrete Poles as per Kenya Power's specifications or equivalent.
- The pole is designed that its strength in transverse direction shall be sufficient to take the load due to wind on conductors, fittings and the pole.
- The surface of the pole is free from loose scale, oil, grease, clay or other material that may have deleterious effect on the bond between the reinforcement and concrete.
- The finished pole has a smooth external surface that is free from honeycombing.
- The poles incorporate an integral earthing system comprising a non-stressed internal earthing copper conductor
- The concrete poles are inspected and tested at the manufacturer's works in presence of KETRACO Engineers to ascertain they are free from defect

#### II. Conductors

**Specifications:** Conductors comprise the core media through which, power transmission takes place. In the design of the proposed distribution line, the Wolf Conductor is preferred on account of higher efficiency of transmission, thus resulting in lower losses of energy and cumulative un-served energy. The conductors recommended for the various sub-project options are Aluminium Conductor Steel Reinforced (ACSR) "Wolf" and "Lynx" conductors which are in accordance with Kenya Power standards.

#### III. Lightning

The power line conductors will be protected by earthwires to dissipate lightning strikes and prevent lightning discharge to nearby objects. In addition to earthing, the public safety is guaranteed in that in case there is a short circuit, the automation system in the Substation automatically de-energizes the affected line in approximately 30 milli-seconds. It is strongly advised that the public keep off any sagging

or ground laying power lines because they could be a hazard. Community policing is strongly recommended and any broken lines, sagging or ground laying lines reported to the nearest Kenya power office directly or through the local administration

### **3.5 Project activities**

#### **3.4.1 Construction activities**

Construction activities will involve the following:

- a) The Contractor shall perform any site investigations in good time as may be necessary for the progress of design and construction on a sound engineering basis.
- b) Supply of Civil work parts, full distribution Line accessories, tools, and delivery to project site.
- c) Civil works on site including construction of access road, Drilling and concrete works
- d) Distribution Line assembly, fitting, erection, loading test, Pole supports, verticality, stringing conductors, energizing the line and testing
- e) Remedying of defects after functional tests
- f) Throughout execution of the works, the contractor shall observe Safety and shall as appropriate, erect warning signs to warn on any potential hazards, ensure proper and efficient use of Personal Protective equipment (PPE) for all on site and observe safe work procedures.
- g) Provision of spare parts, special tools and test equipment
- h) Training of the proponents Operating and maintenance personnel
- i) Post construction clean-up, restoration and landscaping of site followed by commissioning of the distribution line.
- j) Throughout the project life, the Proponent and Contractor shall adhere to all requirements of National Environmental Management Authority (NEMA) and any other applicable legislation regarding Environmental and Socio – economic impacts.

#### **3.4.2 Input Materials**

The distribution Line will be constructed in accordance with current best practice and procedures in the international energy industry that are not expected to compromise the safety of the neighboring communities as well as the general environment and to ensure the longevity and efficient operation of the power line. The following inputs will be required for construction:

- (i) Line conductors
- (ii) Insulators

- (iii) Line cables
- (iv) Earth wires
- (v) Stay wires and rods
- (vi) Bird flappers and aerial sphere balls
- (vii) Concrete poles and crossbars
- (viii) Glass or porcelain disks
- (ix) Cement
- (x) Sand
- (xi) Ballast
- (xii) Hardcore
- (xiii) A construction labour force (of both skilled and unskilled workers) etc.

## CHAPTER FOUR

### BASELINE INFORMATION

#### 4.1 Biophysical environment

##### 4.1.1 Location of the proposed project

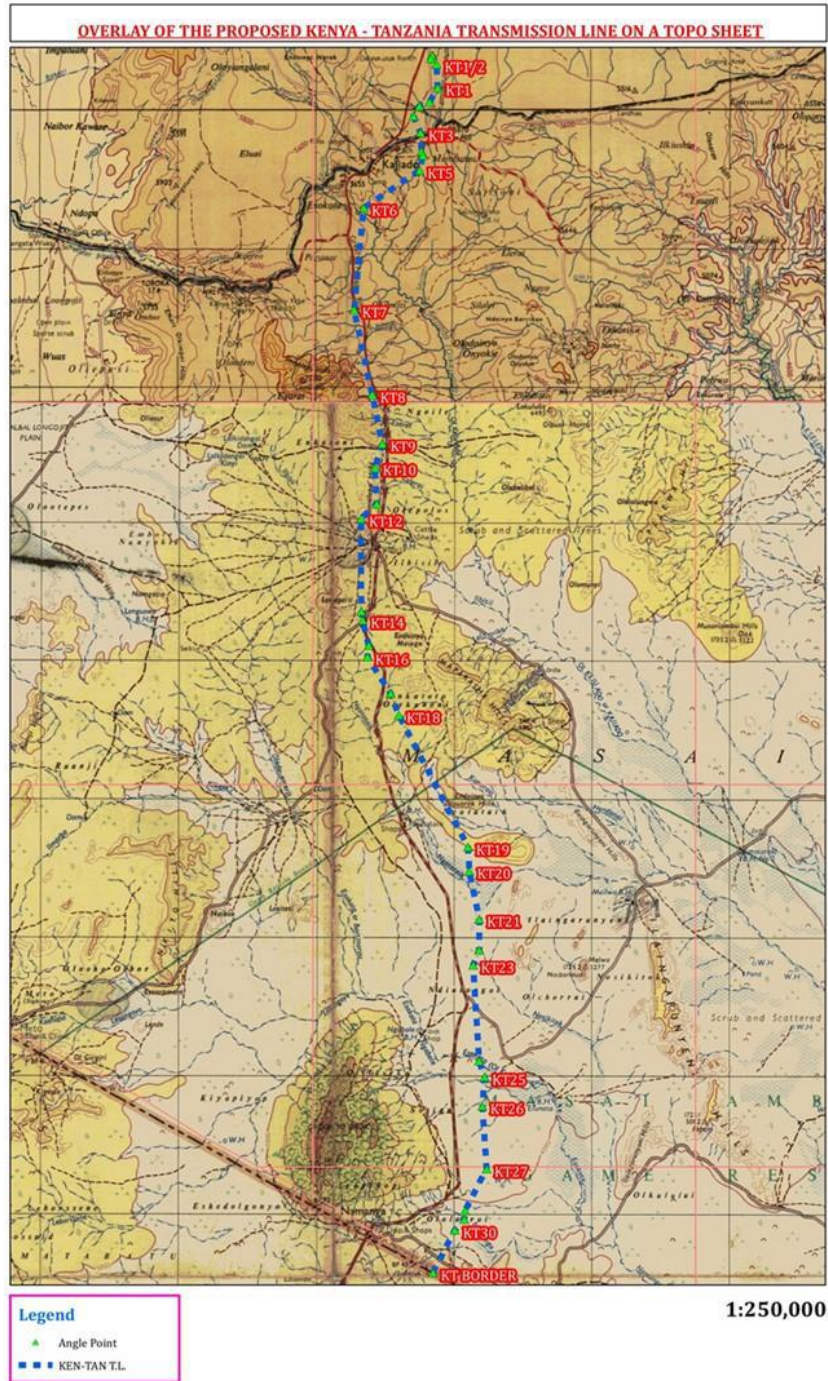


Figure 1: Kenya Tanzania Transmission line topographical map

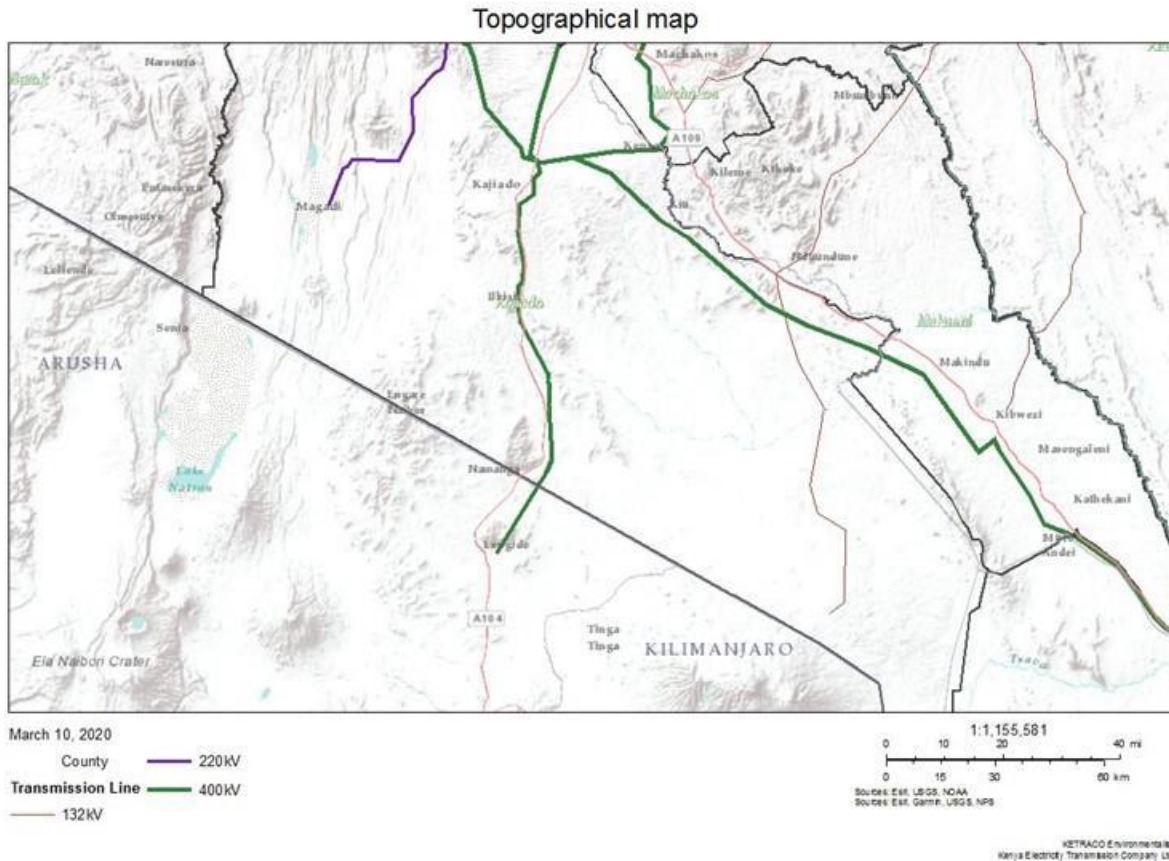
The project traverses through Kajiado County. The proposed project will be constructed along the transmission line to benefit the project affected persons. The locations that will benefit include: - Kaputei North; Dalalekutuk; Idamat; Purko; Longosua; Mailua and Namanga

#### 4.1.2 Topography

The county is characterized by plains, valleys and occasional volcanic hills ranging from an altitude of 500 meters above sea level at Lake Magadi to 2500 meters above sea level in Ngong Hills as shown in *Map 3*. Topographically, the county is divided into three different areas name; Rift Valley, Athi Kapiti plains and Central Broken Ground.



*Photo 1: Kajiado county gently sloping topography*



Map 3: Map showing the overall topography of Kajiado county

#### 4.1.3 Economic

The economic growth and development of the County is mainly driven by livestock rearing among the dominant community, this gives rise to livestock rearing among the dominant community. This gives rise to livestock trading for meat, milk, hides and skins.

The agricultural sector is also thriving with the establishment of horticulture farms for flower and vegetable produce for export.

Lake Magadi is the main source of soda ash in Africa and with the establishment of a factory it provides direct and indirect employment.

Deposits of gypsum, limestone and salt, provides the county with raw materials for cement production.

Sand harvesting, ballast mining and quarrying for building stones also contribute to the county's economy.

The presence of Amboseli National Park located within the county provides the county with the opportunity of tourism though it has not been fully exploited

#### 4.1.4 Climate

Kajiado County lies in the semi-arid and arid zone of Kenya. The temperature ranges between 10°C at Loitokitok, the eastern slopes of Mt Kilimanjaro and 34°C at Lake Magadi. The annual average temperature in the county is 25°C. The coolest period is between July and August, while the hottest months are from November to April.

Rainfall is bimodal and ranges from 500mm to 1250mm per annum. The short rains fall between October and December while the long rains fall between March and May. There is a general rainfall gradient that increases with altitude. The bimodal rainfall pattern is not uniform across the County.

#### 4.1.5 Geology and Soils

Kajiado County comprises the Basement System rock formation which consists of various gneiss, schists, quartzite and crystalline limestone. The Soils in Kajiado County are red, sandy and often shallow soils

#### 4.1.6 Surface and Groundwater Sources

The Isinya – Namanga Way leave does not cross any permanent waterways but it crosses over numerous seasonal streams used as water sources for animals during the rainy season. However, in dry season (December to March), the community rely on shallow wells, water pans and boreholes



Photo 2:Olkejuado river

#### 4.1.7 Vegetation

The predominant vegetation type in the project corridor in Kajiado County is open grassland dotted with dwarf shrubs and perennial herbs, wooded and grassed bushland, woodland and woodland forest



*Photo 3: type of vegetation cover a lot the project area*

#### **4.1.8 Wildlife**

The expansive undisturbed bushland and woodland in the Kenya Section of the project area is sparsely populated. The Amboseli National Park which is home to several wildlife species is approximately 35Km south-east of the transmission line corridor but not fenced. As such it is common to find wild animals especially antelopes, zebras, gazelles, wildebeests and ostriches freely grazing. There are however, no wildlife or migratory birds' corridors in the Isinya – Namanga Section of the Transmission line corridor and the distribution component.

### **4.2 Socio-Economic baseline**

#### **4.2.1 Summary of the Socio-economic Situation in the Project Area**

The project area covers Kajiado County. The main population group in the county is the Masai. The project traverses Kajiado County. The County fall in what is generally referred to as the Arid and Semi-arid lands



(ASALs) in Kenya. The ASALs have low rainfall averaging about 500mm per annum, but poorly spread, particularly occurring within a month in each of the two rainy seasons in any year. Due to the poor rainfall, livelihoods in the county are mainly livestock keeping, although there is crop growing.

According to the 2009 population census, Kajiado County had a population of 687,312 people and a population density of 31 persons to the square kilometer. The county had a poverty rate of 11.6 % in 2009 and was ranked the richest in the country. This is mainly the result of its close proximity to Nairobi and the fact that majority of the people who live in the county have bought land, built houses that they live in and work in Nairobi.

It should be noted that the project under review as it traverses some of the land owned by the Masai who are relatively poor compared to the middle class people who live mainly in Kiserian, Isinya, Rongai and Ngong areas of the county.

Kajiado County is largely pastoralist and the livestock populations are generally high. However, about 41 per cent of the households or nearly 84,803 households in the county are involved in crop farming. The main crops grown include maize and beans, tomatoes and onions, and an assortment of vegetables and fruits.

#### **4.2.2 Socio-Economic of Households in the Project affected Areas**

The Kenya-Tanzania Power Interconnector 400kV Transmission Line Project traverses Kajiado County only. The project affected persons (PAPs) are therefore distributed over a large area between Isinya and Namanga. Their socio-economic characteristics are varied because the affected persons are found in both rural and urban areas. Those in the rural areas are engaged mainly in livestock production and limited subsistence crop farming or both, while those in urban areas are involved in commercial activities as well as crop and/or animal production to a limited extent. Therefore, the livelihoods that will be affected by the project straddle not just the rural – urban divide but also the crop – livestock production divide.

#### **4.2.3 Access to Infrastructure**

The project area is served with a fairly good road network which connects Kajiado and Namanga via Bisil. The road is tarmac. Feeder roads in the project area are murrum in fairly good condition. Piped water is

supplied to the major towns of Kajiado and Namanga. The interior areas have challenges as far as water is concerned. Alternative sources include Wells and Boreholes.

In terms of access to services, Kajiado County is not significantly different from the other counties in Kenya. The access to infrastructure outlook for the county is shown below:

**Table 1: Access to Infrastructure in Kajiado County in 2009**

<b>Improved water (% households 2009)</b>	<b>72.3%</b>
<b>Improved sanitation (% households 2009)</b>	<b>74.2%</b>
<b>Electricity (% households 2009)</b>	<b>39.8%</b>
<b>Paved roads (as % of total roads)</b>	<b>5.9%</b>
<b>Good/fair roads (as % of total roads)</b>	<b>38.4%</b>
<i>Source: KNBS</i>	

#### **4.2.4 Occupation and Income Generation**

Majority of the PAPs are pastoralists keeping cattle, goats, sheep, donkeys, indigenous chicken and camels. Some cultivate subsistence crops such as maize, beans and bananas. There were cases where the household head is either doing small business in the nearby towns or are far off into the cities doing business or employed. Those employed locally work at the shopping centers while others are teachers in the local schools. Majority of the PAPs generate income from livestock keeping, food crop farming and trade.

#### **4.2.5 Energy**

The project area is served with electricity but majority of the homes that are on the ROW do not have electricity connected to individual households. The main source of fuel is charcoal and firewood. Many of the PAPs living within the project area largely use charcoal and firewood for cooking and paraffin and solar panels for lighting. They however requested to be considered for electricity connection.

#### **4.2.6 Issues related to Gender, Poverty and Vulnerable Groups**

A majority of the Household Heads were male while a few are female. Part of the reason for this kind of outlook relates to the fact that the one major population group in the Kajiado County that host the project namely the Maasai are patriarchal and hence property in land and structures are socially defined to belong to male adults and thus the legal owners. These were therefore registered for purposes of valuation and registering for compensation. This calls for concerted effort to mainstream women's views and opinions in the process of paying out compensation and putting together sufficient monitoring processes to ensure that women and children benefit from compensation resources or pay out.

Kajiado County has a poverty rate of 11.6 % in 2009 and was ranked the highest in the country. This is mainly the result of its close proximity to Nairobi and the fact that majority of the people who live in the county have bought land, built houses that they live in and work in Nairobi. It should be noted that the project under review traverses some of the land owned by the Maasai who are relatively poor compared to the middle class people who live mainly in Kiserian, Isinya, Rongai and Ngong areas of the county.

Due the significant population that does not have any formal education, illiteracy is high. They are vulnerable and require special assistance to ensure they do not fall prey to fraudsters on compensation. The households where the household heads are man the woman and child become vulnerable due to patriarchal nature of the society.

#### **4.2.7 Commercial Activities**

The main commercial activity carried in the project area is livestock farming that is largely carried out in Kajiado County. Horticultural and subsistence farming is carried out in in the area around Isinya. Bee keeping, charcoal burning, brick making, sand harvesting and limestone mining are important commercial activities in the county. The major towns like Kajiado and Namanga host a cross section of commercial activities including shops, hotels, cinemas etc and also the administrative centers for the counties

#### **4.2.8 Access to Financial Services**

The project area is served with various financial institution within Namanga and Kajiado towns having branches of virtually all the main banks in Kenya. There is a Kenya Commercial Bank and Equity Bank Branches in Namanga. There are post offices in all the major towns along the project area. The local people

appreciate the presence of this financial institutions and related facilities. These financial institutions will be useful in helping the PAPs have easy access to the compensation money when paid out by KETRACO

## CHAPTER FIVE

### STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

#### 5.1 Introduction

The EMCA Cap 387 calls for effective stakeholder participation and public consultation in the EIA process, this case an ESIA. Public consultations and participation ensures that the views of the affected and interested parties are incorporated as early as possible in the project design and in effect minimizing the potential unexpected opposition of the development project and potential adverse effects to the environment. It is also very beneficial in incorporating the views of the public into the design process for the adoption of the best workable models and systems since the local people know best what suits them.

Stakeholder consultation was undertaken among people living in the environs of the proposed project as an integral part of the ESIA project study. The aim was to ensure that all stakeholder interests were identified and incorporated in project development; at planning, implementation and operation phases. These meetings enabled interested and affected parties to contribute their concerns (views and opinions on the proposed project) which might have been overlooked during the scoping exercise. Findings of stakeholder analysis were very important in predicting impacts and development of ESMP.

#### 5.2 Objectives of stakeholder engagement

The main objective of this exercise was to inform the relevant stakeholders about the project and its' likely effects, which in turn would incorporate their inputs, views and concerns; and thus enable their views to be taken into account during the decision-making. The specific objectives of the consultations were to:

- inform stakeholders
- gain their views, concerns and values
- take account of public inputs in decision making
- influence project design
- obtain local knowledge
- increase public confidence
- improve transparency and accountability in decision-making
- reduce chances of conflict through early identification of contentious issues

### 5.3 Standard and guidance on stakeholder engagement

under the laws of Kenya, several statutes require the participation of stakeholders in projects especially where the project are likely to affect stakeholder livelihood directly or indirectly. Pertinent legislation includes:

- The Constitution of Kenya of 2010
- The Environment Management and Coordination Act (EMCA), Cap 387
- The Environment (Impact Assessment and Audit) Regulations of 2003
- The Occupational Safety and Health Act of 2007

### 5.4 Identification of stakeholders

The first step in the process of public participation process was stakeholder identification (determining the project stakeholders and their key groupings). Stakeholder identification was to determine all organizations and individuals who may be directly (neighboring community, workers on site) or indirectly (County Government of Kajiado, physical planners) affected positively or negatively by the proposed project. In the end, the stakeholders were grouped into two main categories depending on their various needs, interest, and potential influence to the project. These included:

- Primary stakeholders- those directly affected by the project. In this case community members who are directly affected by the project and those likely to benefit from the project. Both men and women were consulted.
- Secondary stakeholders- those indirectly affected by the project but influence development through project implementation. These include the relevant agency, government line ministries and departments, existing established companies and the local administration in Kajiado County.

### 5.5 Tools and Methods of Engagement

A structure questionnaires was used to collect views and opinions from key stakeholders and the general public on the project. It contained sections where the interviews filled her/his opinion on the environmental and socioeconomic aspects on which the project may have an impact on and the measures they may want to see in place to prevent, reduce, avoid or manage the negative impacts.

### 5.6 Approaches to Stakeholder Consultations

As part of the ESIA process for the proposed project, stakeholder consultations were undertaken. A detailed stakeholder's consultation for this study was undertaken from **3<sup>rd</sup> to 16<sup>th</sup> December 2018** and **16<sup>th</sup> to 29<sup>th</sup> February, 2020**. The various interest groups were involved in a participatory process to ensure that all the stakeholders including target beneficiaries and persons affected by the project are involved

through sharing of information, pointing out issues of concern and suggesting solutions on how various areas of conflict can be addressed.

The purpose of these meetings was to ensure that all-important environmental, social, and economic issues relating to the project are clearly understood by all stakeholders to enable them to make informed decisions on the project including endorsement and provision of information and recommendations toward enhancement of positive impact and mitigation of negative impacts. This will go a long way in enhancing ownership and sustainability of the project.

Several meetings were held with various stakeholders including government ministries and departments, institutions within Kajiado County and local community members were consulted through a public forum facilitated by the local chief. Various aspects of the project were passed on to the stakeholders including the scope, infrastructure, expected benefits, and environmental aspects; and their views were sought. The stakeholders were given opportunities to air their views and bring out the issues that were of concern to them. Attendance list of the public consultation meeting held is attached to the report (Appendix IV). The meeting addressed among others issues, including: -

- The project overview
- Socio-economic aspects including anticipated project benefits;
- Community participation in the project;
- Environmental and social issues likely to be affected
- Proposed mitigation measures for identified effects and
- Probable inputs from the community members

### **Key stakeholders Consulted**

The ESIA team identified the following as the lead agencies as regards to the proposed project: -

1. Kajiado County Commissioner
2. Kajiado County Secretary
3. County Director of Health – Kajiado
4. Public Works and Energy, Kajiado County Government
5. Kenya Forest Service-Ecosystem Conservator
6. Ministry of Water Kajiado County

7. Ministry of Public Services, Youth & Gender Affairs – County Director
8. County Director, Environment (NEMA)
9. Department of Environment- Kajiado County
10. Kenya Wildlife Service – Warden Kajiado Station
11. National Land Commission – Kajiado
12. Department of Water, Kajiado County
13. Department of Physical Planning and Environment
14. Department of Public Health

### Public baraza

Three public barazas were held in the first consultation as per the table below: -

No.	Venue	Date	Number
1.	Empeut	05/12/2018	25
2.	Iseuri Primary School	10/12/2018	51
3.	Oliorum Lutheran Primary School	14/12/2018	16

The second consultation were conducted as follow:

No.	Location	Venue	Date
1.	Purko	Bull's Eye	24/02/2020
2.	Mailwa	Tili	25/02/2020
3.	Longosua	Faith Evangelical Free Church	26/02/2020
4.	Ildamat	Duka Moja	27/02/2020
5.	Dalalekutuk	Empeut	28/02/2020

Minutes of meetings are attached as **Appendix III**





Photo 4: Meeting with community committee at Empeut, Kajiado



Photo 5: Public Baraza at Iseuri Primary School



Photo 6: Public baraza at Ildamat location



Photo 7: Public baraza at Bull's Eye Hotel at Purko location



Photo 8: Public baraza at Tili Hotel, Mailwa location



Photo 9: Pubic Baraza at Empeut Hotel, Dalalekutuk Location



Photo 10: Public Baraza at Faith Evangelical church at Longosua Location

### 5.7 Outcome of the Stakeholder consultations

Stakeholders consulted gave both positive and negative views, as well as suggestions for the proponent to consider during construction and operation phases of the proposed distribution lines

Advantages of the project as identified by diverse stakeholders were as follows:

- Project is a manifestation of government's commitment to development in the project area.
- Increased security in the area, due to availability of reliable power supply.
- Introduction of small-scale businesses that depend on power availability.
- The project would result in general enhancement of the living standards of the residents.
- Improved health and education sector.
- Access to cheap and reliable power supply.

- Rise of both direct and indirect skilled and non-skilled employment opportunities in the area.

Disadvantages of the projects were identified as follows:

- Air and noise pollution during construction.
- Possibility of occurrence of accidents on the site during construction.
- possible incidences of electrocution.
- Increase in social vices due to influx of population in the project area as a result of emergence of new industries as well as general development in the area.

### **5.8 How the results of the engagement have been incorporated into the ESIA**

In line with the objective of the public participation and the public participation and consultation exercise, the results of engagement have been incorporated into the ESIA in the following ways:

- a. The socio-economic section of the baseline of the ESIA has been informed by this consultation and engagement process
- b. Impact identification has been informed by the outcomes of the consultation and engagement process;
- c. Development of mitigation measures has been informed by the consultation exercise
- d. Analysis of alteration has been informed by the consultation exercise
- e. The identification and mapping of stakeholders has led to the development of a comprehensive database of stakeholders to be consulted in the future.

## CHAPTER SIX

### ENVIRONMENT AND SOCIAL IMPACTS

#### 6.1 Construction Phase

##### 6.1.1 Positive Impacts

###### a. Informal sector benefits

During construction period the informal sector will benefit from the operations. This will involve kiosk operators who will be selling food to the workers on site. Others will include supply of water and construction materials.

###### b. Job Opportunities

There will be job opportunities especially to casual workers. Employment opportunities benefit both in economic and social sense. In the economic sense it means abundant unskilled labour will be used in economic production. In the social sense these young and energetic otherwise poor people will be engaged in productive employment other than remaining idle. Remaining idle may attract them into social ills like drug abuse and other criminal activities like robberies. Several workers including casual laborers, masons, carpenters, joiners, electricians and plumbers are expected to work on the site for a period that the project will start to the end.

Apart from casual labour, semi-skilled and unskilled labour and formal employees are also expected to obtain gainful employment during the period of construction. KETRACO will ensure that the contractor's employment of casual laborers will conform to the provision of constitution of ensuring at least 30% of employment opportunities are reserved for youth and women.

###### c. Gains in the Local, Regional and National Economy

There will be gains in the local and national economy. Through consumption of locally available materials including: concrete tiles, iron sheets, timber and cement. The consumption of these materials, fuel oil and others will attract taxes including VAT which will be payable to the government. The cost of the materials will be payable directly to the producers.

###### d. Provision of Market for Supply of Building Materials

The project will require supply of large quantities of building materials most of which will be sourced locally within the County and the surrounding areas. The local community will have opportunity to supply

construction material relevant to the project but it should be noted that due to the nature of the project some of the material such as transformers will be imported.

### **6.1.2 Negative Impacts**

#### **a. Noise pollution**

The construction works will most likely be a noisy operation due to the moving machines (mixers, tippers, communicating workers) and incoming vehicles to deliver construction materials and workers to site. The site workers are likely to be affected since noise beyond some level is itself a nuisance and can be controlled within acceptable limits.

#### **b. Oil Spills**

The machines on site may be containing moving parts which will require continuous oiling to minimize the usual corrosion or wear and tear. Possibilities of such oils spilling and contaminating the soil and water on site are real. Likewise, moving vehicles on site may require oil change. But these dangers are contained by maintaining the machinery in specific areas designated for this purpose.

#### **c. Increased water demand**

Both the workers and the construction works will create additional demand for water in addition to the existing demand. Water will be mostly used in the creation of concrete for construction works and drinking.

#### **d. Dust Emissions**

Dust will most likely be generated due to the moving vehicles transporting construction materials to site. Most of the roads serving the site are all weathered roads and there the possibility of dust emission is high.

#### **e. Generation of Exhaust Emissions**

Exhaust emissions are likely to be generated by the construction equipment during the construction phase. Motor vehicles used to mobilize the work force and materials for construction would cause a potentially significant air quality impact by emitting pollutants through exhaust emissions. The impacts of such emissions can be greater in areas where the materials are sourced and at the construction site as a result of frequent gunning of vehicle engines, frequent vehicle turning and slow vehicle movement in the loading and offloading areas.

#### **f. Workers accidents and hazards during construction**

During construction of the proposed project, it is expected that construction workers are likely to have accidental injuries and hazards. Because of the intensive engineering and construction activities including erection, metal grinding and cutting, concrete work, steel erection and welding among others, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges among others.

#### **g. Possible exposure to workers to diseases**

During construction phase, workers are likely to be exposed to diseases from building materials. It is therefore recommended that before the construction commences, there is need for the materials to be well inspected according to the occupational health and safety standards. Workers are required at all time to be equipped with proper PPE.

#### **h. Solid Waste Generation**

During construction solid waste will be generated. These include papers used for packing cement, Plastics and timber remains among others. Dumping around the site will interfere with the aesthetic status of the area. This has a direct effect to the surrounding community. Disposal of the same solid wastes off-site could also be a social inconvenience if done in the wrong places. The off-site effects could be aesthetic, pest breeding, pollution of physical environment, invasion of scavengers and informal recycling communities.

#### **i. Extraction and Use of Building Materials**

Building materials such as hard core, ballast, cement, rough stone and sand required for construction of the proposed project will be obtained from quarries, hardware shops and sand harvesters who extract such materials from natural resource banks such as rivers and land. Since substantial quantities of these materials will be required for construction of the buildings, the availability and sustainability of such resources at the extraction sites will be negatively affected as they are not renewable in the short term. In addition, the sites from which the materials will be extracted may be significantly affected in several ways including landscape changes, displacement of animals and vegetation, poor visual quality and opening of depressions on the surface leading to several human and animal health impacts.

#### **j. Energy Consumption**

The project will consume fossil fuels (mainly diesel) to run transport vehicles and construction machinery. Fossil energy is non-renewable and its excessive use may have serious environmental implications on its availability, price and sustainability.

#### **k. Visual and Aesthetic Impacts**

The physical presence and profile of the proposed project will alter the visual and aesthetic effects of the surrounding area.

### **6.2 Operation Phase**

#### **6.2.1 Positive Impacts**

##### **i. Employment Generation**

Employment opportunities are one of the long-term major impacts of the proposed project that will be realized after construction and during the operation and maintenance of the distribution line. These will involve engineers, technicians, and craftsmen.

##### **ii. Security**

Security will be enhanced within the project area due the increasing in the lighting system

##### **iii. Improved livelihood**

Locals will be able to electrify their homes and therefore be able to work for longer hours. It will also enable the local to introduce value additions to their farm produce

##### **iv. Reduction in respiratory health diseases**

Electricity provides an option for source of energy for cooking. This will reduce dependence on wood as a source of energy which is characterized by release of smoke that leads to respiratory health problems in the long run.

##### **v. Increase in water supply**

Electricity supply will enable the fitting of water pumps to community boreholes and water distribution. This will increase the number of people getting access to clean water and enhance reducing exposure to waterborne diseases.

## **vi. Industrialization**

Electricity supply will enable establishment of both large and small scale industries such as Jua kali sector. This will improve the local economy and a boost country's economy

### **6.2.2 Negative Impacts**

#### **i. General repairs and maintenance**

The distribution line will be subject to maintenance regularly due to wear and tear. This may include replacement of transformers, poles and the conductors.

#### **ii. Electrocutation**

Electrocution is death or serious injury caused by electric shock, electric current passing through the body. This can only happen when there is a contact of body with the conductor. This will be very unlikely to happen; however, residents will have to be cautious with electric cable especially within their homes

## **6.3 Decommissioning Phase**

### **6.3.1 Positive Impacts**

#### **a) Rehabilitation**

Upon decommissioning the project, rehabilitation of the project site will be carried out to restore the site to its original status. This will include replacement of topsoil and re-vegetation which will lead to improved visual quality of the area.

#### **b) Employment Opportunities**

Several employment opportunities will be created for the demolition staff.

### **6.3.2 Negative Impacts**

#### **a) Solid Waste**

Demolition of the project buildings and related infrastructure will result in large quantities of solid waste. The waste will contain the materials used in construction including concrete, metal, drywall, wood, glass, paints, adhesives, sealants and fasteners. Although demolition waste is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment. In addition, even the generally non-toxic chemicals such as chloride, sodium, sulphate and ammonia which



may be released as a result of leaching of demolition waste, are known to lead to degradation of groundwater quality.

#### **b) Dust**

Minimal quantities of dust will be generated during demolition works.

### **6.4 Proposed Mitigation Measures**

The following are proposed mitigation measures to avoid, offset or minimize the identified negative impacts.

#### **i. Noise Pollution**

Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of site and nearby communities.

The contractor will adhere to the EMCA Noise and Excessive Vibration Pollution Control Regulation, 2009 and will be required to implement noise control measures amongst exposed work force and community. This will include provision of hearing protective devices such as ear plugs and ear muffs; avoiding construction or demolition activities during the night, education and awareness programs and creation of a buffer to propagate against noise pollution among other noise control measures.

#### **ii. Generation of Exhaust Emissions**

To mitigate against exhaust emissions, the proponent is advised to:

- sensitize truck drivers and machine operators to switch off engines when not in use;
- regularly service engines and machine parts to increase their efficiency and reduce generation of exhaust emission; and
- where feasible use alternative non-fuel construction equipment.

#### **iii. Dust Emissions**

The proponent will endeavor to minimize the effect of dust on the surrounding environment resulting from site clearance, excavation, spreading of the topsoil and demolition works to ensure protection of

health and safety of workers and communities. Control measures will include, use of PPE; and observing set speed limits among other measures.

#### **iv. Solid and Liquid Waste Generation**

The construction phase will lead to generation of construction wastes from the civil works and operations on the materials involved in the process. These wastes include metal cuttings, rejected materials, plastic paper bags, wood shavings, food wastes, surplus materials, among others. This type of waste poses risks to both human and environmental health because they are either biodegradable like (food waste) or non-biodegradable wastes. Risk to human such as cuttings, piercing and the environmental risk is visual impacts, choking and blockage of drainage systems. The waste will be segregated on site before collection by a license waste handler to designated waste disposal site. Some of the waste material may be reused for other purpose within the site.

To avoid waste generation or to minimize the amount of waste generated, the following measures are recommended; -

- use of an integrated solid waste management system i.e. the 3 R's: Reduction at source, Reuse and Recycle;
- accurately estimate the dimensions and quantities of materials required;
- use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time;
- providing facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage;
- use of building materials that have minimal or no packaging to avoid the generation of excessive packaging waste; providing waste collection bins at designated points on site;
- disposing waste more responsibly by contracting a registered waste handler who will dispose the waste at designated sites or landfills only and in accordance with the existing laws.
- In addition, all drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations;
- construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a regular basis; and

- proper procedures for the management of human waste will be put in place in order to prevent outbreak of diseases;
- place in strategic places signs against littering and dumping of wastes;
- audits waste generation and develop Waste Reduction Action Plans (WRAP).

**v. Oil Spill Hazards**

The proponent will endeavor to prevent petroleum products that might be used in the project which includes bitumen, oils, lubricants and gasoline from contaminating soils and water resources (ground and surface water). To accomplish this, the proponent will; -

- install oil trapping equipment in areas where there is a likelihood of oil spillage;
- collect the used oils and re-use, re-sell, or dispose off appropriately using expertise from licensed waste handlers.
- servicing of equipment be done off the site within designated approved garages.

**vi. Destruction of Existing Vegetation and Habitats**

To ensure minimal destruction of vegetation and habitats, the contractor should ensure vegetation clearance is minimized and localized to areas of construction only.

**vii. Impacts on Workers' and Community Health and Safety**

The contractor will ensure that: -

- all the workers are well equipped with required PPEs to ensure health and safety of the workers and the general public during construction and decommissioning of the proposed project as stipulated in the Occupational Safety and Health Act, 2007.
- Regular training and sensitization of workers

**viii. Incidences of Electrocutation**

To reduce incidences of electrocutation, the proponent will;

- put in place a maintenance system to ensure physical integrity of equipment is maintained;
- deactivate and properly ground live wires before repair works are performed;
- ensure that live wire works is conducted by trained personnel;
- place warning signs on strategic places;
- conduct periodic awareness and sensitization campaigns for the neighboring communities.

**ix. Perceived Danger of Electrostatic and Magnetic force**

However, there will be minimal EMF on the proposed distribution line, the proponent will still conduct education and awareness campaigns to dispel fear among workers and community on the effects of electrostatic and magnetic forces.

**x. Increase in Social Vices**

To minimize project effects on local social set up, the proponent will;

- conduct periodic sensitization forums for employees on ethics, morals, general good behavior and the need for the project to co-exist with the neighbors;
- offer guidance and counseling on HIV/AIDS and other STDs to employees;
- provide condoms to employees; and
- ensure enforcement of KETRACO's policy on sexual harassment and abuse of office.
- The contractor will also be obligated to conduct regular education and training through tool box talks to ensure that expectations of this policy are achieved.

**xi. Worker Influx Management**

Unskilled labour will be sourced locally while skilled labour will be sourced both locally and without. Gender parity will be considered in sharing of these opportunities where possible. During public consultation, the local community acknowledged that they have benefitted from employment and business opportunities which arose from construction of Isinya Substation.

Since majority of the workers will be from the local community, there will be no risk of increase in food prices in local markets. However, there is a risk of workers being underpaid by the subcontractor who is usually not answerable to KETRACO. There will be no risk of cultural misunderstanding/exploitation as non-locals will be staying in nearby town. For this reason, there will be no risk of shortage of accommodation or rent going up. There is real possibility of members of the local community employed in the project engaging more in alcohol consumption and extra marital affairs with their fellow local ladies.

## 6.5 Project Implementation

The Project Implementation Team will be conducting:

- Quarterly ESMP monitoring to conform contractor compliance with ESIA/ESMP and social management provisions of bidding documents
- Regular review of community complaints registers and compliance reports issued by contractors
- Quarterly reporting to the ADB on social performance and compliance issues facing project
- Mobilizing and facilitating consultation meetings with community stakeholders during field visits
- Tracking and recording number and gender of project workers recruited by contractors within /outside communities.

The contractor will

- Fully execute relevant social provisions of ESMP and bidding documents
- Appoint a community focal point to manage complaints and community relations
- Maintain community complaints register and respond to complaints as they arise within a pre-determined timeframe.
- Regularly report to KETRACO's Project Manager on complaints and how they were resolved

## CHAPTER SEVEN

### ANALYSIS OF PROJECT ALTERNATIVES

An environmental impact assessment study is done in order to identify and assess alternative development projects. It is very important that a development project of such magnitude be assessed in order to identify a project alternative which should be based on less negative impacts and offer a better cost-benefit. The “no project” is the important alternative to be analyzed because it helps the proponent to quantify the impacts from the project in alignment with those which would have taken place without the project.

#### 7.1 The “No Project” Option

Baseline information defines the no-action alternative which is crucial in the appraisal of impacts since other alternatives are measured with reference to it. There will be no any significant negative effects on either bio-physical or the socio-culture, an assurance which is outstanding from the qualitative analysis and summary of the proposed site for the project. The Project is crucial to aid in improvement of environmental situations to avoid possible deterioration. The no-project option will limit the occurrence of harmful incidents arising from the project. The no –project option will however have several disadvantages: -

- Population growth will increase demand for electricity thus making consumers to continually suffer from shortage and unstable supply.
- Employment opportunities will be limited due to expansion of business activities that would have been spurred by availability of electric power.
- The failure of electric power will affect the functionality of institutions such as the Konza City, schools, Hospitals, Churches, Mosques etc. which rely on electricity.
- Information flow and Public education through electronic media e.g. Television will also be affected.
- The Government will be seen to have reneged to its promise of providing electric energy to more of its citizens through working and achieving vision 2030.
- There will be loss of Productivity and reduced ability to create wealth.

Generally, the long term positive impacts of the proposed project outweigh the negative effects which can be easily mitigated.

## 7.2 Alternative Materials and processes

### a. Transformer

Highly refined mineral insulating oils are used to cool transformers and provide electrical insulation between live components. Sulfur hexafluoride (SF6) may also be used as a gas insulator for electrical switching equipment and in cables, tubular transmission lines and transformers. Polychlorinated Biphenyls (PCB) can be used as a dielectric fluid to provide electrical insulation. SF6 is a greenhouse gas with a significantly higher Global Warming Potential (GWP) than carbon-dioxide. PCB is a highly toxic substance that is no longer commonly used for electrical insulation. For this project the proponent is advised to use mineral insulating oil for cooling and insulation and to minimize or completely stop the use of SF6 and PCB.

### b. Concrete poles vs wooden poles

The proposed project involves construction of distribution line. Distribution lines use poles unlike the use of pylons because of short stringing span and use of light conductors. Wooden, steel or concrete poles are normally used in construction of distribution line. Various variable use considered when determining the type of poles to be used. In general, the line supports should have the following properties:

- High mechanical strength to withstand the weight of conductors and wind loads etc.
- Light in weight without the loss of mechanical strength.
- Cheap in cost and economical to maintain.
- Longer life.
- Easy accessibility of conductors for maintenance.

Wooden	
Pros	Cons
<ul style="list-style-type: none"> <li>• They are usually cheaper</li> <li>• Easily available</li> <li>• Provide insulating properties</li> <li>• Treated wood poles use less energy and resources, offset fossil fuel use and have a less environmental impact than concrete</li> <li>• limit the accumulation of greenhouse gases</li> </ul>	<ul style="list-style-type: none"> <li>• Results in environmental destruction</li> <li>• The tendency to rot below the ground level</li> <li>• Comparatively smaller life (20-25 years)</li> <li>• less mechanical strength and</li> <li>• require periodical inspection.</li> </ul>

<ul style="list-style-type: none"> <li>promoted efforts towards 10% forest cover</li> </ul>	
<b>Concrete</b>	
<b>Pros</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>they have greater mechanical strength</li> <li>longer life span</li> <li>permit longer span</li> <li>require little maintenance</li> <li>good insulating properties</li> <li>used in areas prone to bush fires and wet or swampy places.</li> </ul>	<ul style="list-style-type: none"> <li>very heavy</li> <li>high cost of transport owing to their heavyweight</li> <li>40% more expensive than wooden pole</li> <li>Fragile</li> <li>Increases greenhouse gas emission</li> </ul>
<b>Fiber Reinforced Polymer (FRP)</b>	
<b>Pros</b>	<b>Cons</b>
<ul style="list-style-type: none"> <li>Lowest life cycle costs</li> <li>Longest expected lifespan of up to 80 yrs.</li> <li>Can be designed to a variety of shapes and forms</li> <li>Light weight compared to treated poles, concrete and steel.</li> <li>Easy to transport and install</li> <li>Maintenance-free and are quite resilient to large overloads</li> <li>Electrically non-conductive</li> <li>Require less energy to manufacture, ship and install</li> <li>Does not release any chemicals into the environment.</li> <li>FRP are biodegradable, recyclable and reusable in control industrial processes</li> </ul>	<ul style="list-style-type: none"> <li>More expensive than wood but less expensive to concrete</li> </ul>

FRP are the most preferred poles to be used due to its economical and environmental sustainability. However, this type is not locally available. Wood is a versatile material for structural purposes and has



been used for a very long time throughout human history. The proposed project will therefore utilize the concrete and wooden poles.

### **7.3 Project Line routing**

#### **Option 1: Use of Wayleave existing corridor**

This option construction of new 33kV and 11kV distribution line along the existing wayleave corridor. This option will minimize the vegetation clearing since vegetation is already cleared for the ongoing construction of 132kV and 400kV transmission line.

However, this option will result in utilization of more unnecessary resources such as conductors and poles.

#### **Option 2: Use of road reserves and existing distribution lines.**

This options involves connecting the project affected person from the existing distribution lines done by Kenya Power and REREC

This option will maximize on the use of available construction material to connect more people and other public facilities. Maintenance of the distribution line will be easily accessible.

*This is the most preferred option.*

### **7.4 The Preferred Alternative**

Following the analysis of the above alternative, it is considered that the proposed project considered all optimal options in the design, location and technology and should be implemented with the guidance of environment Management plan

### **7.5 Proposed development justification**

After assessing and studying the proposed development by KETRACO for both positive and negative impacts and comparing it to possible alternatives as discussed above it has been found to be the most suitable development with all factors considered. There were no foreseeable adverse effects that would justify the non-execution of the project, thus the long term benefits of the project warrant its commission. These benefits include increased supply of electricity to the broader population, the resultant effects of this for domestic and commercial use of electricity and the consequential enhancement of wellbeing of Kenyan

## CHAPTER EIGHT

### ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

#### 8.1 Construction Phase ESMP

Table 2: Construction Phase EMP

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
<b>1. Minimization of Noise and Vibration</b>				
<b>Noise and vibration</b>	<b>1.</b> Sensitize construction vehicle drivers and machinery operators to switch off engines of vehicles or machinery not being used.	KETRACO & Contractor	Entire construction period	0
	<b>2.</b> Sensitize construction drivers to avoid running of vehicle engines or hooting	KETRACO & Contractor	Entire construction period	0
	<b>3.</b> Regular servicing of engines and machine parts to reduce noise generation	KETRACO & Contractor	Entire construction period	100,000
	<b>4.</b> Ensure that all generators and heavy duty equipment are insulated or placed in enclosures (containers) to minimize ambient noise levels.	KETRACO & Contractor	Entire construction period	Design cost
	<b>5.</b> The noisy construction works will entirely be planned to be during day time when most of the neighbours will be at work.	KETRACO & Contractor	Entire construction period	0
	<b>6.</b> Provide necessary PPE to workers who may be exposed to high levels of noise and ensure proper and constant use	KETRACO & Contractor	Entire construction period	Ear plugs and ear muff @500 each

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	7. All construction equipment and machinery to be used must be tested to verify if they are compliant with Kenya and the internationally acceptable standards of noise.	KETRACO & Contractor	Entire construction period	
<b>2. Abate Air Pollution</b>				
<b>Dust emission</b>	a) Ensure strict enforcement of on-site speed limit regulations	KETRACO & Contractor	Entire construction period	0
	b) Avoid excavation works in extremely dry weather			0
	c) Sprinkle water on graded access routes when necessary to reduce dust generation by construction and vehicles			10,000
	d) Stockpiles of earth should be enclosed / covered / watered during dry or windy conditions to reduce dust emissions			0
	e) PPE to be provided to employees and ensure proper and constant use			Dust coats and dust masks@3000 per employee
<b>Exhaust emission</b>	i. Sensitize truck drivers and machine operators to switch off engines when not in use			0

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	ii. Regular servicing of engines and machine parts to reduce exhaust emission generation			0
	iii. Alternative non-fuel construction equipment shall be used where feasible			0
<b>3. Minimize solid and liquid waste generation and ensure efficient waste management during construction</b>				
<b>Increased solid waste generation</b>	1. Use of an integrated solid waste management system i.e. the 3 R's: 1. Reduction at source 2. Reuse 3. Recycle	KETRACO and Contractor	Entire construction period	0
	2. Accurate estimation of the dimensions and quantities of materials required.			0
	3. Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time			0
	4. Provide facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage			Design cost
	5. Use building materials that have minimal or no packaging to avoid the generation of excessive packaging waste			0

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	6. Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers to reduce waste at site			0
	7. Waste collection bins to be provided at designated points on site			10,000
	8. Dispose waste more responsibly by contracting a registered waste handler who will dispose the waste at designated sites or landfills only and in accordance with the existing laws.			10,000/month
<b>4. Minimize Oil Spills</b>				
<b>Oil spills Hazards</b>	a. Install oil trapping equipment in areas where there is a likelihood of oil spillage e.g. during maintenance of vehicles.	KETRACO and Contractor	Continuous	0
	b. In case of an oil spill, immediate clean up measures will be instituted			
	c. Storage and liquid impoundment areas for fuels, raw and in-process material solvents, wastes and finished products should be designed with secondary containment to prevent spills and the contamination of soil, ground and surface water		One-off	10,000

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	d. Collected used oils should be re-used, disposed of appropriately by licensed waste handlers, or be sold for reuse to licensed firms		Continuous	5,000 per month
<b>5. Minimize vegetation disturbance at and or around construction site</b>				
<b>Destruction of existing vegetation and habitat</b>	i. Avoid unnecessary vegetation clearing	KETRACO and Contractor	Continuous	0
	ii. Specify locations for trailers and equipment, and areas of the site which should be kept free of traffic, equipment, and storage.			0
	iii. Designate access routes and parking within the site.			0
	iv. Support community initiatives in tree planting	KETRACO and community	Entire project period	2,000,000
<b>6. Reduce demand for material consumption and ensure efficiency in material consumption</b>				
<b>Increased Water Demand</b>	1. Harness rainwater and storm-water whenever possible for use in dust prevention, gardening and other site specific uses	KETRACO & Contractor	Entire construction period	5,000
	2. Promote recycling and reuse of water as much as possible			0

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	3. Sensitize construction workers to conserve water by avoiding unnecessary use.			0
Increased energy consumption	a. Ensure electrical equipment, appliances and lights are switched off when not being used	KETRACO and Contractor	Entire construction period	0
	b. Encourage households to install LED bulbs lights at all lighting points			5,000
	c. Plan well for transportation of materials to ensure that fossil fuels (diesel, , petrol) are not consumed in excessive amounts			0
Demand of Raw material	i. Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered.	KETRACO & Contractor	Entire construction period	0
	ii. Ensure that damage or loss of materials at the construction site is kept to a minimum through proper storage and use.			
	ii. Encourage material recycling			
<b>7. Minimize occupational health and safety risks</b>				
Impacts on workers' and community health and safety	1. Ensure strict compliance with the Occupational Safety and Health Act (OSHA) 2007	KETRACO, DOHSS and Contractor	Entire construction period	100,000

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)	
	2. Prohibit access by unauthorized personnel into the construction site			0	
	3. Train all employees and regularly sensitize them on safe working procedures			100,000	
	4. Periodic community sensitization of the dangers posed by the project			Quarterly during the entire construction period	50,000
	5. Place warning signs where necessary			Whenever necessary	10,000
	6. Provide necessary PPEs to workers			Continuous	20,000
	<b>8. Reduce soil erosion and storm-water runoff</b>				
	a. Apply soil erosion control measures such as levelling of the project site to reduce run-off velocity and increase infiltration of storm water into the soil.	KETRACO & Contractor	Entire construction period		
	b. Ensure that construction vehicles are restricted to use existing graded roads				
	c. Ensure that any compacted areas are ripped to reduce run-off.				
				40,000	
				5,000 per unit	
<b>9. Fire outbreaks</b>					
<b>Fire safety</b>	i. Conduct a fire risk assessment		First quarter	0	



Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	ii. Ensure compliance with fire safety regulations and install all necessary fire safety equipment	KETRACO, DOHSS and Contractor	Entire construction period	50,000
	iii. Conduct regular trainings and fire drills for employees			10,000
	iv. Periodic maintenance to ensure that, there are;- no overloaded electrical systems; no incorrectly installed wiring; no live naked wires; and fuel store areas are continuously monitored			0
	Build capacity for community on fire related issues including fighting and vigilance	KETRACO and community	Continuous	5,000 per session
<b>10. Visual and aesthetic impacts</b>				
<b>Visual and aesthetic impacts</b>	1. Extensive public consultation during design of the project	KETRACO and community	Planning phase	5,000
	2. Structures at the site should be designed in such a way that they will improve the beauty of the surroundings.			
	3. Restore site area through backfilling, landscaping and planting of trees, shrubs and grass on the open spaces to re-introduce visual barriers,		Continuous	10,000
	4. Design and implement an appropriate landscaping program		Quarter one	20,000

Potential Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
<b>11. Increase in social vices</b>				
<b>Increase in social vices including HIV/AIDS</b>	a. Periodic sensitization forums for employees on ethics, morals; general good behavior and the need for the project to co-exist with the neighbors	Contractor	Entire construction period	0
	b. Guidance and counselling on HIV/AIDS and other STDs to employees	KETRACO and contractor		10,000
	c. Provision of condoms			10,000
	d. Contractor to have a strong policy on sexual harassment and abuse of office guided by proponent's policy on the same	Contractor	Quarter one	0
<b>12. Enforcement of proposed recommended mitigation measures</b>				
<b>Employ EHS personnel</b>	i. Contractor to employ EHS officer who will ensure that all the proposed mitigation measures are implemented	Contractor	Entire construction period	100,000 per month
	ii. KETRACO to conduct quarterly as audit of the implementation of ESMP	KETRACO	Entire construction period	Per diem rates

## 8.2 Operation Phase ESMP

Table 3: Operation Phase EMP

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
<b>1. Abate Air Pollution</b>				
<b>Generation of exhaust emission</b>	1. Vehicle idling time shall be minimised	KETRACO	Entire implementation time	0
	2. Regular servicing of engines and machine parts to reduce exhaust emission generation			
<b>2. Minimization of solid and liquid waste generation and ensuring more efficient waste management</b>				
<b>Solid waste generation</b>	a) Use of an integrated solid waste management system i.e. the 3 R's: 1. Reduction at source 2. Reuse 3. Recycle	KETRACO	Continuous	0
	b) Provide solid waste handling facilities such as rubbish bags and skips		One-off	20,000
	c) Ensure that wastes generated at are efficiently managed through recycling, reuse and proper disposal procedures.		Continuous	0
	d) A private licensed company to be contracted to collect and dispose solid waste on regular intervals			30,000 /year
	e) Place in strategic places signs against littering and dumping of wastes			5,000 /year

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	f) Audits on waste generation and development of Waste Reduction Action Plans (WRAP)			To be determined
<b>3. Reduce demand for material consumption and ensure efficiency in material consumption</b>				
	a) Workers to be sensitized on water conservation techniques.	KETRACO		10,000/year
	b) Ensure taps are not running when not in use			0
	c) Install sensor taps		One-off	30,000
	d) Install a discharge meter at water outlets to determine and monitor total water usage		One-off	10,000
	e) Harness rainwater and storm-water whenever possible		Continuous	0
	f) Create water conservation awareness		Continuous	10,000/year
<b>High demand for energy</b>	a) Switch off electrical equipment, appliances and lights when not being used	KETRACO	Continuous	0
	b) Install occupation sensing lighting at various locations such as storage areas which are not in use all the time		One-off	20,000

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	c) Install occupational sensor bulbs, LED bulbs at all lighting points		One-off	10,000
	d) Monitor energy use during the operation of the project and set targets for efficient energy use		Continuous	2,000/month
	e) Sensitise the workers to be energy efficient			0
<b>4. Minimize occupational health and safety risks</b>				
Impacts on workers' and community health and safety	a) Implement all necessary measures to ensure health and safety of the workers and the general public during operation maintenance of the proposed project as stipulated in the Occupational Safety and Health Act, 2007	KETRACO	Continuous	5,000/month
<b>5. Fire outbreaks</b>				
	a) Ensure compliance with fire safety regulations and install all necessary fire safety equipment	KETRACO; DOHS and Community	Continuous	0
	b) Conduct regular trainings and fire drills for employees			20,000/year

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	<p>c) Periodic maintenance to ensure that, there are;- no overloaded electrical systems; no incorrectly installed wiring; no live naked wires; and fuel store areas are continuously monitored</p>			0
	<p>d) Build capacity for community on fire related issues including fighting and vigilance</p>			20,000 / annum
<b>6. Minimize Electrocutation Incidents</b>				
<b>Electrocutation from electric equipment</b>	<p>a) Put in place a maintenance system to ensure physical integrity of equipment is maintained</p>	KETRACO	Planning stage	0
	<p>b) Deactivating and properly grounding live wires before repair works are performed</p>		Continuous	
	<p>c) Ensure that live wire works is conducted by trained personnel</p>		Continuous	10,000/year
	<p>d) Clear warning signs to be placed on strategic places</p>			

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	e) Personnel should not approach an exposed energized or conductive part unless the personnel is ;-properly insulated from the energized part with gloves or other approved insulation; the energized part is properly insulated from the personnel and other conductive objects; the personnel is properly isolated and insulated from any other conductive object			0
	f) Conduct periodic awareness and sensitization campaigns for the neighbouring communities			10,000/year
<b>7. Electrostatic and magnetic forces</b>				
Perceived danger of Electrostatic and Magnetic force	a) Conduct education and awareness campaigns to dispel fear among workers and community on the effects of electrostatic and magnetic forces	KETRACO	Continuous	20,000 / annum
<b>8. Increase in social vices</b>				
Increase in social vices including HIV/AIDS	a) Periodic sensitization forums for employees on ethics, morals; general good behaviour and the need for the project to co-exist with the neighbours	KETRACO	Continuous	30,000/year

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	<b>b)</b> Guidance and counselling on HIV/AIDS and other STDs to employees			
	<b>c)</b> Provision of condoms			
	<b>d)</b> Enforcement of KETRACO’s policy on sexual harassment and abuse of office			



### 8.3 Decommissioning ESMP

Table 4: Decommissioning EMP

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
<b>1. Reduction of Noise and vibrations</b>				
Increase noise and vibration	a. Demolish mainly during the day. The time that most of the neighbours are out working.	KETRACO Contractor and	Continuous	To be determined
	b. Provide appropriate PPE to workers			
	c. Co-ordinate with relevant agencies and neighbouring communities regarding all demolition activities			
<b>2. Abatement of air pollution</b>				
Generation of dust	a. Watering all active demolition areas as and when necessary to lay dust.	KETRACO Contractor and	Continuous	0
	b. Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard.			
	c. Pave, apply water when necessary, or apply (non-toxic) soil stabilizers on all unpaved areas, parking areas and staging areas at demolition sites.		One-off	10,000

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
	d. Provide appropriate PPE to all workers		Continuous	Dust coats and dust masks@3000 per employee
Generation of exhaust emission	a. Vehicle idling time shall be minimised	KETRACO Contractor	and Continuous	0
	b. Regular servicing of engines and machine parts to reduce exhaust emission generation			
<b>3. Waste management</b>				
Demolition waste	a. Use of an integrated solid waste management system i.e. through a hierarchy of options: 1. Source reduction 2. Reusing 3. Recycling 4. Incineration 5. Sanitary land filling.	KETRACO Contractor	and Continuous	0
	b. All machinery, equipment, structures and partitions that will not be used for other purposes must be removed and recycled/reused as far as possible or they be taken to a licensed waste disposal site	KETRACO Contractor	and One-off	0
	c. Dispose waste more responsibly by contracting a registered waste handler who will dispose the waste at designated sites or landfills only and in accordance with the existing laws.	KETRACO Contractor	and Continuous	Cost borne by the contractor
<b>4. Oil spills</b>				

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
Oil spills Hazards	a. Install oil trapping equipment in areas where there is a likelihood of oil spillage.	KETRACO Contractor and	Continuous	0
	b. In case of an oil spill, immediate clean up measures will be instituted			
<b>5. Impacts on workers' and community health and safety</b>				
Health and Safety for workers' and community members	a. Ensure strict compliance with the Occupational Safety and Health Act (OSHA) 2007	KETRACO DOHSS and Contractor	Continuous	To be determined
	b. Prohibit access by unauthorized personnel into the demolition site			
	c. Place warning signs where necessary			
<b>6. Rehabilitation of project site</b>				
Vegetation disturbance	a. Implement an appropriate re-vegetation programme to restore the site to its original status	KETRACO community and	One-off	100,000
	b. Consider use of indigenous plant species in re-vegetation			

Expected Negative Impacts	Recommended Mitigation Measures	Responsible Party	Time Frame	Cost (Kshs)
<p><b>Community grievances</b></p>	<p><b>a.</b> Quarterly Environmental Management Planning Monitoring will be done where views of the local community will be sort through public consultation meetings</p> <p><b>b.</b> The community will also be encouraged to forward their complaints through KETRACO wayleave assistant who is usually recruited from the local community</p>	<p>KETRACO</p>		

## CHAPTER NINE

### ENVIRONMENTAL AND SOCIAL MONITORING PLAN (ESMoP)

#### 9.1 Introduction

This section of the ESIA sets out the environmental, health & safety and community-related monitoring control and measures that the proponent KETRACO and its' contractors will implement to avoid, minimize and manage potentially adverse environmental, health & safety and community-related risks and impacts identified as part of this ESIA. Similarly, the ESMoP is geared towards ensuring that the project operates in conformance with applicable laws and regulations within Kenya and internationally.

#### 9.2 ESMoP Environmental and Social Monitoring Plan for the proposed distribution line

Table 5: Environmental and social Monitoring Plan

Monitoring scope	Frequency			Methodology	Responsible entity
	Construction	Implementation	Decommissioning		
1. Noise and vibration impacts	Daily observation; monthly noise level analysis		Daily observation; monthly noise level analysis	Noise level analysis; quarterly reports on log of vehicle and machine servicing; trees planted; number of (noise) licences given; PPE provided; and sensitization meetings held	KETRACO and Contractor
2. Impacts on air pollution	Daily dust observation; monthly air quality analysis	Monthly air quality analysis	Daily dust observation; monthly air quality analysis	Daily dust observation; quarterly air sampling and lab analysis; quarterly reports on PPE provided; log of vehicle and machine servicing; sensitization meetings held; frequency of sprinkling water	KETRACO and Contractor

Monitoring scope	Frequency			Methodology	Responsible entity
	Construction	Implementation	Decommissioning		
3. Solid and liquid waste generation	Monthly	Monthly	Monthly	Reports on waste management plans developed; amounts of waste generated; facility provided for handling and storage of waste; methods employed for waste disposal; training meetings held; number of inspections held to identify leaking or blocked pipes	KETRACO and Contractor
4. Oil spills	Daily	Monthly	Daily	Reports of oil trapping equipment installed; number of oil spill incidents and corrective measures taken	KETRACO and Contractor
5. Destruction of existing vegetation and habitats	Daily			Reports on site zoning program; community initiatives held on tree planting; landscaping programme on re-vegetation implemented	KETRACO and Contractor

Monitoring scope	Frequency			Methodology	Responsible entity
	Construction	Implementation	Decommissioning		
6. Demand for material consumption	Monthly	Monthly		Quarterly reports on water use audit; amount of water harnessed from rain or any other source outside of the regular water supply at the site; number of sensitization meetings held; water conservation storage erected; conservation water taps installed, Reports of raw material audits; sources of the raw materials; damaged material, Reports on energy audits held; number of installed energy conservation bulbs; reduction of amount of fuel used	KETRACO and Contractor
7. Health and Safety issues	Daily	Monthly	Daily	Quarterly reports on health and safety plans; SHE training programs; records of any incident, accident; investigation and corrective actions; PPE provided; warnings posted;	KETRACO and Contractor
8. Soil erosion	Daily			Reports on storm water management and soil erosion control plans developed	KETRACO and Contractor
9. Fire outbreaks	Monthly	Monthly		Reports on fire risk assessment held; compliance with OSHA 2007; trainings held;	KETRACO and Contractor

Monitoring scope	Frequency			Methodology	Responsible entity
	Construction	Implementation	Decommissioning		
10. Visual and aesthetic impacts	Quarterly			Reports on public consultation held; landscaping programme designed and implemented	KETRACO and Contractor
11. Electrocutation incidences		Quarterly		Reports on maintenance system developed; electrocution accidents occurrence and corrective measures taken; progress on construction of the perimeter wall; warning signs posted; sensitization workshops held	KETRACO and Contractor
12. Perceived danger of Electrostatic and Magnetic force		Quarterly		Reports on education and awareness campaigns held	KETRACO and Contractor
13. Increase in social vices	Monthly	Monthly		Reports on sensitization forums held; sessions held on guidance and counselling on HIV/AIDS and other STDs; number of condoms issued	KETRACO and Contractor
14. Rehabilitation of project site			Monthly	Reports on re-vegetation programme developed and implemented; number and species of trees planted	KETRACO and Contractor



## CHAPTER NINE

### RECOMMENDATIONS AND CONCLUSION

#### 9.1 Introduction

An Environmental and Social Management Plan (ESMP) outline has been developed to ensure sustainability of the site activities from construction through operation to decommissioning. The plan provides a general outlay of the activities, associated impacts, and mitigation action plans. Implementation timeframes and responsibilities are defined, and where practicable, the cost estimates for recommended measures are also provided.

A monitoring plan has also been developed and highlights some of the environmental performance indicators that should be monitored. Monitoring creates possibilities to call to attention changes and problems in environmental quality. It involves the continuous or periodic review of operational and maintenance activities to determine the effectiveness of recommended mitigation measures. Consequently, trends in environmental degradation or improvement can be established, and previously unforeseen impacts can be identified or pre-empted.

It is quite evident from this study that the construction and operation of the proposed project will bring positive effects including improved supply of electricity, creation of employment opportunities both skilled and unskilled (safety officer, welders, masons, drivers etc.), gains in the local and national economy, provision of market for supply of building materials, Informal sectors benefits, Increase in revenue, Improvement in the quality of life for the workers and community members, and Improved security.

Considering the proposed location, construction, management, mitigation and monitoring plan that will be put in place, the project is considered important, strategic and beneficial and given that no immitigable negative impacts were encountered and that no community objection was received, the project may be allowed to proceed.

## 9.2 Recommendations

Following the impact analysis presented in the previous sections, the following recommendations were made: -

- The proposed project to be implemented in compliance with the relevant legislation and planning requirements
- The proponent to ensure implementation of the mitigation measures provided in the EMP
- The proponent to monitor implementation of the EMP using the developed EMoP
- The proponent to conduct annual Environmental Audits and submit to NEMA
- NEMA to consider, approve and grant an Environmental Impact Assessment License Variation to the proponent

## 9.3 Conclusion

From the foregoing, it is noted that;

- no immitigable negative impacts were encountered
- No objection from the community was received
- Identified potential negative impacts can be mitigated
- Benefits to the community, region, and the country at large are immense

The ESIA team, therefore, recommends to NEMA to consider, approve and grant an Environmental Impact Assessment License to the proponent and the proponent to implement the project with strict adherence to the proposed ESMP

## REFERENCE

1. Kenya Gazette Supplement Acts 2000, Environmental Management and Coordination Cap 387. Government Printer, Nairobi
2. Kenya gazette supplement number 56. Environmental Impact Assessment and Audit Regulations 2003. Government printer, Nairobi
3. Kenya gazette supplement number Environmental Management and Coordination (Emissions Control) Regulations, 2006 Government printer, Nairobi
4. Kenya gazette supplement Environmental Management and Coordination (Water Quality) Regulations, 2006
5. Kenya gazette supplement Environmental Management and Coordination (Waste Management) Regulations, 2006
6. Kenya gazette supplement Environmental Management and Coordination (Excessive Noise and Vibration Control) Regulations, 2009
7. Kenya gazette supplement, Special Issue 51, Legal Notice number 19; Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009 Government printer, Nairobi
8. Kenya Gazette Supplement Acts Building Code 2000 Government Printer, Nairobi
9. Kenya Gazette Supplement Acts Land Planning Act (Cap. 303) Government Printer, Nairobi
10. Kenya Gazette Supplement Acts Local Authority Act (Cap. 265) Government Printer
11. Kenya Gazette Supplement Acts Penal Code Act (Cap. 63) Government Printer, Nairobi
12. Kenya Gazette Supplement Acts Physical Planning Act, 1999 Government printer, Nairobi
13. Kenya Gazette Supplement Acts Public Health Act (Cap. 242) government printer, Nairobi.
14. The World Bank Safeguard Policies
15. Kajiado County Integrated Development Plan 2015

## APPENDICES



## APPENDIX I: Key Informant Questionnaires

**KEY INFORMANT/COMMUNITY QUESTIONNAIRE  
PROPOSED RURAL ELECTRIFICATION ALONG 400kV KENYA-TANZANIA POWER  
INTERCONNECTOR PROJECT (KTPIP), LOT K2, KAJIADO COUNTY**

**Please complete and return to either of the addresses above**

Kenya Electricity Transmission Company Limited (KETRACO) is a 100% Government owned state corporation that was incorporated on 2<sup>nd</sup> December 2008 and registered under the Companies Act, Cap 486 pursuant to Sessional Paper No. 4 of 2004 on Energy. Its mandate is to plan, design, construct, own, operate and maintain high voltage electricity transmission lines and regional power interconnectors that forms the backbone of the National Transmission Grid, in line with Kenya Vision 2030. The voltage rating of the transmission lines and its associated substation include 132kV, 220kV, 400kV and 500kV (HVDC)

The company proposes to construct distribution lines, as part of CSR to boost power supply and reliability. The project is intended to benefit the community living along the proposed wayleave corridor for construction of 400kV transmission line.

To ensure that the project is implemented in an environmentally and socially sound manner, the Proponent (KETRACO) is conducting an Environmental and Social Impact Assessment (ESIA) for the proposed project. This will help us obtain information that will be used to identify potential environmental and socioeconomic impacts of the proposed project and hence propose adequate mitigation measures to be adhered to during project implementation.

Participation of interested and affected parties in the ESIA is a requirement of the Environmental Impact Assessment and Coordination Act, Cap 387. As an identified stakeholder, you are requested to document your views, opinions and concerns regarding the proposed project.

This questionnaire acts as a guide for the respondent to provide relevant information on the proposed project. All the information obtained shall be used entirely for the proposed study and shall be treated confidentially. We appreciate your cooperation and thanks for your willingness to participate in this exercise.

**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *Allowing of migrating birds route*
- b) *subsidize of land due to improved power*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *Improved electricity*
- b) *improved business environment*
- c) *increase in price of land*
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions or measures to mitigate problems identified in question 2 above?

- a) *Coated wires to prevent electrocution of birds*
- b) *Land spacing plan to ensure land substitution subsidize*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....

4. In your opinion, should the project be implemented? Yes [] No [ ]

If YES/NO, why?

*advantages outweigh disadvantages*

.....

.....

.....

5. Do you have any other comments regarding this project?

*N/A*

.....

.....

.....

6. Please provide your contact details for purposes of authentication.

Name:	<i>Mutemwa W. Mwangi</i>	Sector/Organisation:	<i>KWS</i>
Telephone & Address:	<i>0713 472474</i> <i>Box 74</i> <i>Kajiado</i>		
Signature	<i>[Signature]</i>	Stamp	

Thank you for your participation



**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) *Connectivity to the local community*
- b) *Possibility of increase in job opportunities*
- c) *Improvement of business due to power connections*
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *Clearing of vegetation reducing tree cover*
- b) *Interference with Biodiversity & wildlife movements*
- c) *Possibility of noise pollution during installation*
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions or measures to mitigate problems identified in question 2 above?

- a) *Minimal clearing where necessary*
- b) *Minimal interference while digging*
- c) *Avoid wildlife corridors and water points*
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....

4. In your opinion, should the project be implemented? Yes [] No []

If YES/NO, why?

The YES will be beneficial to the community.

5. Do you have any other comments regarding this project?

Hope the project will boost the economy of the county and the country at large.

6. Please provide your contact details for purposes of authentication.

Name:	PETER KIOKO	Sector/Organisation:	KES
Telephone & Address:	0710873577 Box 229 - KAJIADO		
Signature		Stamp	

Thank you for your participation

**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) To conserve any destroyed plants → Tree planting
- b) Mitigation of soil erosion in areas soil erosion is prone.
- c) Training of locals on new skills & technologies.
- d) Employment of locals & unskilled
- e) Business during construction of p/lines
- f) Interaction of locals with new tribes & cultures.
- g) Market of local available goods.
- h) Scholarships for local learners.
- i) Social responsibilities incentives for locals.
- j) Locals can benefit from power connection

2. In your opinion, what **Environmental, Social and Economic** negative impacts do you think will result from the proposed project?

- a) Displacement of people.
- b) Enhancement of soil erosion from big holes dug.
- c) Diseases outbreak due many people interaction.
- d) erosion of local culture/tradition.
- e) Bad behavioural habits due to mix cultures.
- f) School drop-outs due to readily cash
- g) Resistance from locals.
- h) political interference.
- i)

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) putting in place mitigation to prevent soil erosion
- b) HIV & AIDS awareness.
- c) Avoiding employing under-age
- d) Consults leaders, & locals before kick-off of the project.
- e)
- f) Drawing an MOU with locals thro their leaders.
- g) Consults County leadership on the project.

i) .....

4. In your opinion, should the project be implemented? Yes [] No []

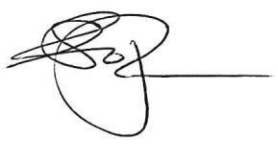
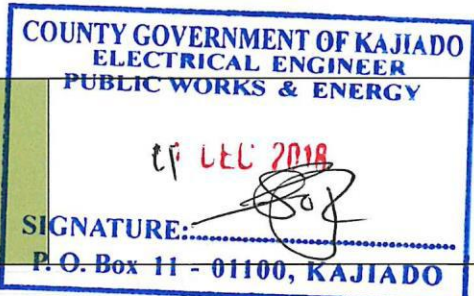
IF YES/NO, why?

⇒ Because it's County & National govt to have all the house holds connected with power (electricity).  
⇒ Also ~~to~~ power connection with spur development in rural areas.

5. Do you have any other comments regarding this project?

⇒ Would suggest that house-holders should be given priority since public utilities are taken care of by Rural-Electrification Authority.  
⇒ would also suggest that politics should not be given any chance to control these projects.

6. Please provide your contact details for purposes of authentication.

Name:	S. Siteln	Sector/Organisation:	public works Energy -
Telephone & Address:	0725389298		
Signature		Stamp	

Thank you for your participation

**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Improve access to quality health services - Refrigeration of drugs; vaccines
- b) Improve security
- c) Enable pumping of water
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Anticipate None
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) .....
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- i) .....

i) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

It will minimize dependance on thermal energy

5. Do you have any other comments regarding this project?

Project to be implemented.

6. Please provide your contact details for purposes of authentication.

Name:	DR. EZEKIEL KARIKONDI	Sector/Organisation:	HEALTH
Telephone & Address:	0728114560 cdhicc@kajiado.org		
Signature		Stamp	

Thank you for your participation



**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Project will creat employment if implemented
- b) Security will be improved due to lighting
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) None
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) N/A
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

i) .....

4. In your opinion, should the project be implemented? Yes [] No []

If YES/NO, why?

The project has positive impacts to the area residents.

5. Do you have any other comments regarding this project?

.....

6. Please provide your contact details for purposes of authentication.

Name:	P. Kimata	Sector/Organisation:	Kajiado County Water Director
Telephone & Address:	0722736265 pkimata@gmail.com		
Signature		Stamp	

Thank you for your participation



**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Will improve lighting of families hence improving private security
- b) Will help reduce use of paraffin hence reduce pollution
- c) Will stimulate various economic activities e.g. welding
- d) Will help create job opportunities for youths
- e) Lighting markets will help reduce insecurity
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Land under transmission lines will not be used for construction of buildings and planting of tall trees.
- b) .....
- c) Construction may lead to destruction of flora and fauna
- d) Resettlement of people living under the path of the line
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) The land can be used for pasture & other activities
- b) Rehabilitation of affected areas.
- c) Trying to avoid the lines from passing in settled areas
- d) .....
- e) .....
- f) .....
- g) .....

i) .....

4. In your opinion, should the project be implemented? Yes [  ] No [  ]


If YES/NO, why?

The economy of areas connected to electricity will improve. Clean energy will help reduce pollution!

5. Do you have any other comments regarding this project?

Engage local youths in the project to empower them economically.

6. Please provide your contact details for purposes of authentication.

Name:	RICHARD MOMANYI	Sector/Organisation:	MINISTRY OF PUBLIC SERVICE, YOUTH & GENDER AFFAIRS - COUNTY YOUTH OFFICER
Telephone & Address:	0724634494 / 0733743441		
Signature		Stamp	

Thank you for your participation

**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) 1. creation of employment.
- b) 2. Revenue generation.
- c) Infrastructure development.
- d) Clean energy.
- e) alternative source of energy.
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Sound Pollution: - Noise
- b) Solid waste generations.
- c) displacement of people incase the line passes
- d) through people's lands.
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) Use of protective gears - P.P.E's
- b) Contract a private garbage collector.
- c) Time of construction to be limited from
- d) 6:00am to 6:00pm.
- e) Compensations on these lands.
- f) .....
- g) .....
- h) .....
- i) .....

i) .....

4. In your opinion, should the project be implemented? Yes [] No []



If YES/NO, why?

It should be implemented because it will enable many people to get electricity and also it is a source of clean energy.

5. Do you have any other comments regarding this project?

No.

6. Please provide your contact details for purposes of authentication.

Name:	Virian Mochipei	Sector/Organisation:	
Telephone & Address:	0713494942 10 Kajiado:	Kajiado County Government: Environment officer:	
Signature		Stamp	

Thank you for your participation

**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *It might lead to more human settlement leading to decrease in wildlife*
- b) *habitat*
- c) *lighting for all establishments*
- d) *better business environment*
- e) *more settlements*
- f) *more protection of humans from wildlife*
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *Might lead to more human settlement leading to decrease in wildlife habitat*
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) *To strictly adhere to the county spatial plan.*
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

i) .....

4. In your opinion, should the project be implemented? Yes [] No [  ]


If YES/NO, why?

*The advantages outweighs disadvantages*

5. Do you have any other comments regarding this project?

*n/a*

6. Please provide your contact details for purposes of authentication.

Name:	<i>Mutemwa W. Mwanjiru</i>	Sector/Organisation:	<i>KWS</i>
Telephone & Address:	<i>74 Kajiado</i>		
Signature	<i>[Signature]</i>	Stamp	

Thank you for your participation

**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Employment opportunities
- b) Increased local incomes for workers/Business pple
- c) Increased revenue for County Government
- d) Improved infrastructure
- e) Training opportunities
- f) Improved social amenities
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Destruction of vegetation
- b) Increased crime rates due to pop<sup>n</sup> increases
- c) Waste (solid) generated
- d) Noise/dust emission from machinery
- e) Injury to human/livestock/wildlife
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) Proper disposal of any solid/liquid waste
- b) Minimal destruction of vegetation
- c) Minimise noise levels/dust emission
- d) Civil education/awareness creation
- e) Properly secure the site to avoid
- f) human/livestock/wildlife injury
- g) .....
- h) .....

i) .....

4. In your opinion, should the project be implemented? Yes  No



If YES/NO, why?

.....  
.....  
.....  
.....

5. Do you have any other comments regarding this project?

.....  
.....  
.....  
.....

6. Please provide your contact details for purposes of authentication.

Name:	Boniface Katumo	Sector/Organisation:	Agriculture
Telephone & Address:	Tel: 07 24 79 44 42		
Signature		Stamp	

Thank you for your participation





## APPENDIX II: Community questionnaires



**KENYA ELECTRICITY TRANSMISSION CO. LTD.**

KAWI COMPLEX. BLOCK B.  
POPO LANE. OFF RED CROSS ROAD. SOUTH C.  
P. O. Box 34942 – 00100, NAIROBI  
Phone: 020 4956000, 0719018000, 0732128000  
Web: www.ketraco.co.ke • email: info@ketraco.co.ke

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *The entire community will easily accessed etc*
- b) *It will increase the value of the area.*
- c) *It will increased Environmental, social and Economic in the area*
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) .....
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) .....

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

It help community members in many projects.

5. Do you have any other comments regarding this project?

I will suggest the CSR should not follow heat. It should follow registered road or ways, to benefite a large number of community members.

NAME	JOSEPH L. NGUYEN	LOCATION	Sagilani
EMAIL	hactatonguyen@gmail.com	OCCUPATION	chief
ID NO.	5373820	TEL NO	0722594437

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) It will raise the standard/value of Lands.
- b) It will accelerate the access to Kenya power.
- c) It will promote the state of our country.
- d) All households will be lit.
- e) Will create more technological standards.
- f) Will be used for Bholes or pumping water.
- g) Will help in Domestic uses e.g. cooking, laundry.
- h) Will help in T.V's, phones, computers etc.
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Might reflect more heat or power.
- b) Will interfere with the daily activities.
- c) Many people don't know how to use.
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified in question 2** above?

- a) People to be sensitized on the uses.

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

because of the benefits listed above

5. Do you have any other comments regarding this project?

To be implemented to  
soonest.

NAME	Naheshon Ntuseo	LOCATION	ESINTA
EMAIL	Maovanntuseo@gmail.com	OCCUPATION	CHEF
ID NO.	11384376	TEL NO	0721696686

Thank you for your participation

COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) General development and valuation <sup>will be</sup> ~~improved~~
- b) and general public security will be high
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) - No negative impact expected unless if
- b) done in unproper manner
- c) .....
- d) - Should go through the feeder roads
- e) which are mapped.
- f) .....
- g) - Should cover the general public not
- h) the people affected by the Ketraco
- i) Project.

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) .....

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [  ] No [  ]

If YES/NO, why?

Important to everybody but kindly should be supplied through the general Kenya power connection not the KETACO wayleave connection.

5. Do you have any other comments regarding this project?

.....

.....

.....

.....

NAME		LOCATION	
EMAIL		OCCUPATION	
ID NO.		TEL NO	

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) The Project will benefits the Community if the line will leaf the 70 Metre Corridor way leaf.
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) The negative impacts will result from the Proposed project when it strictly Passes from the way leaf. It will Surve few Members. And leave out Public Utilities
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) I Suggest that Many transformas to be kept and avoid Six hundred



- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

.....

.....

.....

5. Do you have any other comments regarding this project?

I request the Project Manager to honour what he told us in the Meeting and implement the project immediately by using the mapped roads on sketched map.

NAME	Stephen Taporu	LOCATION	Sajilou
EMAIL		OCCUPATION	Farmer
ID NO.	0088597	TEL NO	0721816651

Thank you for your participation



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COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) It bring light
- b) It help those in Agriculture
- c) .....
- d) It help for easy Communication
- e) .....
- f) .....
- g) .....
- h) .....
- i) ..... 1

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) .....
- b) It might bring Shocked
- c) .....
- d) It can cause death through lightning
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) Should educated on the effect of it and how to use it

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

YES.  
Initiate development.

5. Do you have any other comments regarding this project?

NO.

NAME	Peninah Marangk	LOCATION	Salikoni <del>Atatekutuk South</del>
EMAIL		OCCUPATION	
ID NO.	37370646	TEL NO	

Thank you for your participation



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**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) .....
- b) *Bring light*
- c) .....
- d) *easy communication*
- e) .....
- f) *help people to advance their Agriculture.*
- g) .....
- h) *It encourage for development growth*
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) .....
- b) *Might cause death through lightning*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) *Put ~~his~~ ancestors*

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

yes, Because it will help us

5. Do you have any other comments regarding this project?

No.

<b>NAME</b>	AURET ENE NTOONTO	<b>LOCATION</b>	DALALEKUTUK SOUTH
<b>EMAIL</b>		<b>OCCUPATION</b>	FARMERS
<b>ID NO.</b>	9680503	<b>TEL NO</b>	0702554406

Thank you for your participation



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**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Lighting the village.
- b) Accessibility to electricity
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) May attract crime eg stealing of transformers.
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) Will encourage community policing.

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

Improve our security  
 .....  
 .....  
 .....

5. Do you have any other comments regarding this project?

No.  
 .....  
 .....  
 .....

<b>NAME</b>	KASENCHI OLE OLEOPDI	<b>LOCATION</b>	ILDALALEKUTUK
<b>EMAIL</b>	-	<b>OCCUPATION</b>	FARMER
<b>ID NO.</b>	0086746	<b>TEL NO</b>	-

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Due to the available electricity, it
- b) \*It will bring benefit of, borehole
- c) pumping water. also increase irrigation, to due
- d) to pump water around the area.
- e) it will reduce deforestation. deforestation - ~~state~~
- f) #
- g) public develop utility
- h) public utility.
- i) Raise the living standard of the people around.

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) ~~fire break out~~
- b) fire break out.
- c)
- d)
- e)
- f)
- g)
- h)
- i)

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) There should be a certain group



- c) when it occurs.
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

Yes because it ~~is~~ raises ~~to~~ the living standard of the people around.

5. Do you have any other comments regarding this project?

No.

<b>NAME</b>	<u>Lawrence Lenlo</u>	<b>LOCATION</b>	<u>Dalalekputuk. <del>#11111</del></u>
<b>EMAIL</b>	<u>rencapashy@gmail.com.</u>	<b>OCCUPATION</b>	<u>farmer.</u>
<b>ID NO.</b>	<u>33529475</u>	<b>TEL NO</b>	<u>0708873668</u>

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) .....
- b) Social benefits include employment
- c) creation.
- d) .....
- e) It will open up the area. Internal
- f) of economic development.
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic** negative impacts do you think will result from the proposed project?

- a) .....
- b) Generate Radiation which is not
- c) good to human living within the
- d) project.
- e) .....
- f) The employment opportunities are
- g) short term, therefore not reliable
- h) solutions.
- i) .....

3. Do you have any suggestions of **measures to mitigate** problems identified in question 2 above?

- a) .....

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [  ] No [  ]

If YES/NO, why?

It's a government project therefore we support it fully.

5. Do you have any other comments regarding this project?

Kindly pay us our money  
our patience is running out.

NAME	DANIEL SEKETO OLEMPAKE	LOCATION	<del>ISEUR</del> FARMER
EMAIL	—	OCCUPATION	FARMER
ID NO.	0087136	TEL NO	0727370771

Thank you for your participation



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**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *It will benefit the community*
- b) *It will help schools*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *There will have negative*
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) *I have no problems*

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

*Yes* .....

.....

.....

.....

5. Do you have any other comments regarding this project?

*No other comments* .....

.....

.....

.....

NAME	<i>Simon Ankuo</i>	LOCATION	<i>15eni</i>
EMAIL		OCCUPATION	
ID NO.	<i>22411529</i>	TEL NO	<i>072-8733920</i>

Thank you for your participation



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**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *The project will benefit the community*
- b) *We appreciate for the project*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *There is no negative impacts*
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) .....

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

~~Yes~~ Yes for the project be implemented  
as soon as possible

5. Do you have any other comments regarding this project?

.....  
 .....  
 .....

NAME	Santara Misra	LOCATION	Santara
EMAIL		OCCUPATION	Farmer
ID NO.		TEL NO	

Thank you for your participation



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**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *The project will benefit the community*
- b) *We appreciate for the project*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *There is no negative impacts*
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) .....



- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [] No []

If YES/NO, why?

Yes the project be implemented  
as soon as possible

5. Do you have any other comments regarding this project?

We need the project to benefit the  
community in large.

NAME	Pat Mpoke	LOCATION	Saffloni
EMAIL		OCCUPATION	Pastor
ID NO.	<del>0720814677</del> 3929488	TEL NO	0720814677

Thank you for your participation



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COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) SECURITY ISSUE
- b) DEVELOPMENT ASPECT
- c) LIGHTING HOMES & COMMUNITY / PUBLIC UTILITY
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) ELECTRIC SHOCKS
- b) MACHINERY SHORT CIRCUITS (DOMESTIC)
- c) ELECTRIC CURRENT FLUCTUATION
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) ~~CLOSE MAINTENANCE~~ <sup>AND</sup> TO REPAIR LINE CHECKING

- c) IN CASE OF FALLING POSTS-
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [✓] No [ ]

If YES/NO, why?

.....

.....

.....

5. Do you have any other comments regarding this project?

- ① SHOULD START IMMEDIATELY
  - ② ENGAGE LOCAL COMMUNITY FOR SKILL & UNSKILLED LABOUR
- .....
- .....

NAME	ELIAS KETON	LOCATION	(SAJILON)
EMAIL	eliasketon1@gmail.com	OCCUPATION	FARMER
ID NO.	1344823	TEL NO	0722355183

Thank you for your participation



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COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) Availability of clean energy hence environmental conservation
- b) Economic benefits - Opening up of employment opportunities
- c) Will enhance security, because of lighting. Availability
- d) Education: will improve standard because pupils will
- e) have non-interrupted source of lighting.
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) Impassers; impassers imposing us K.P.L.C.
- b) May take advantage of low-level of
- Education on the community
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) Proper identification documents & budgets
- for all assets under the project

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [] No [  ]

If YES/NO, why?

.....

.....

.....

5. Do you have any other comments regarding this project?

*IT should be implemented.*

.....

.....

.....

NAME	<i>SHANKVIJUK MOSIANI</i>	LOCATION	<i>KAJIADO.</i>
EMAIL		OCCUPATION	<i>FARMER/BUSINESSMAN</i>
ID NO.	<i>22195031</i>	TEL NO	<i>0707513080.</i>

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) .....
- b) Development of urban centers
- c) Promote communication
- d) Improve living standard
- e) Growth of industrialisation
- f) Promote trade
- g) Improve / Promote transport
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) .....
- b) Dispute among the community
- c) land alienation since
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) No

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

Yes

5. Do you have any other comments regarding this project?

No

<b>NAME</b>	Sairo Leishonda .	<b>LOCATION</b>	ISEURI
<b>EMAIL</b>	<del>Sairo</del> Sairo.leishonda@gmail.com	<b>OCCUPATION</b>	farmer.
<b>ID NO.</b>	36460615	<b>TEL NO</b>	0714333767

Thank you for your participation

COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) .....
- b) *Vijana Watapata Kazi. lakini*
- c) *Short term jobs.*
- d) .....
- e) *Tunapata shina biashara na yake*
- f) *ya mashamba itenda juu.*
- g) .....
- h) .....
- i) *Habadelisha Mawka ya wakazi wa kapa.*

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) .....
- b) *The 400kv line will increase chances*
- c) *of people getting cancer.*
- d) .....
- e) *Sisi tunaogopa hii shina kubwa*
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified in question 2** above?

- a) *Eliminishi wenge mashamba*
- b) *Kulimbia hii shina*



- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [] No [ ]

If YES/NO, why?

It benefits the society.

5. Do you have any other comments regarding this project?

No.

<b>NAME</b>	NAILENYA MOSIANY	<b>LOCATION</b>	ISEURI
<b>EMAIL</b>		<b>OCCUPATION</b>	
<b>ID NO.</b>	0087519	<b>TEL NO</b>	0775 966 864

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Upgrading of land value
- b) availability of power
- c) Boosting income through techn
- d) ology innovation empowerment.
- e) Reduces more environmental det
- f) riations via the source of energy
- g) for cooking, heating etc.
- h) Reduction of respiratory related
- i) air quality

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Cutting or felling down of trees
- b) A thought or perceived idea of radi
- c) ation
- d) Maybe an increase in global war
- e) ming due to the green vegetation
- f) destruction of indigenous trees.
- g) The line has been migrating for
- h) time immemorial leaving certain
- i) people blaming the committee

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) At least some environmental special
- etc etc train handle in a certain

- c) preservation measures
- d) At least some workshops on the
- e) wise and proper use of funds or interest
- f) members on bright futures projects.
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

It will grant a grand solution and effect the four government agenda partly - affordable health care food and ~~affordable~~ manufacturing ~~affordable~~ and affordable housing.

5. Do you have any other comments regarding this project?

The slow movement of a lion is not for cowardice, it's calculating the next step.

NAME	JOSPHAT NKRI	LOCATION	SAJI KORI
EMAIL	josphatnkr@gmail.com	OCCUPATION	ADMINISTRATOR (JLT - CHIEF)
ID NO.	12952 @ 91	TEL NO	0721581957

Thank you for your participation



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COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) It improves the development of the country in large
- b) Many people will get job through KETRACO employment.
- c) It will reach to all remote areas in the country.
- d) The power will change the lifestyle of many Kenyans
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) When animals come into contact with the wire it will -
- b) cause trouble eg shocks
- c) The power may cause effects through lightning
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) The area covered with the towers should be fenced
- b) to avoid any effects to animals

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

It is beneficial to the country

5. Do you have any other comments regarding this project?

If possible let the power reach in very remote areas

NAME	DANIEL SOITARA	LOCATION	ILDAMAT
EMAIL	Dansoitakolas@gmail.com	OCCUPATION	TEACHER
ID NO.	31948707	TEL NO	0701 797 389

Thank you for your participation



KENYA ELECTRICITY TRANSMISSION CO. LTD.

Josphat Lubat  
KONGO

KAWI COMPLEX. BLOCK B.  
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COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

W

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

W

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) Helps our school children in school
- b) Helps in our Homestead.
- c) Helps in boreholes
- d) Helps in hospitals in our Area
- e) Every efficient for any kind work
- f) i.e - for welding
- g) - Hair-cutting (Kinyo)
- h) - for fridges
- i) -

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) - We know that the project
- b) has Advantages and disadvantages
- c) - But Advantages is the higher
- d) side
- e)
- f)
- g)
- h)
- i)

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) No

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

yes, Because we have  
 Agreed with members of Ketraco

5. Do you have any other comments regarding this project?

- Already electricity is the Area  
 - why not connected to the ~~Communit~~ <sup>Community</sup>  
 - Not only the beneficiaries but Ikdamat  
 at large to be connected

NAME	JOSPHAT LUBI KONGO	LOCATION	IKDAMAT
EMAIL	Josphat.kongo@gmail.com	OCCUPATION	BUSINESS MAN
ID NO.	12652148	TEL NO	0724 66 77 98

Thank you for your participation



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**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) *It creates employment*
- b) *It is economical in used of public utility like boreholes*
- c) *It brings security in homes*
- d) *It brings development with local society*
- e) *It used in industrialisation*
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) *If ~~not~~ used in ~~correct~~ <sup>bad</sup> manner may result to shock.*
- b) *To the users they must have a weariness*
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) *If placed wrongly it may result to death, so it must be placed in a correct and way to*



- c) Make it have a good used.
- d) this rural electrification to be ~~soon~~ <sup>directly</sup> diverted from
- e) the current electricity.
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [] No [  ]

If YES/NO, why?

For the use of public utility and owners  
for the cause of development.

5. Do you have any other comments regarding this project?

To my opinion ~~there~~ <sup>is</sup> no proposed this to the  
benefit of the community.

<b>NAME</b>	JACKSON KOILA NATIRA KOBAM	<b>LOCATION</b>	ILDAMAT
<b>EMAIL</b>	Jack Koila @. Yahoo. com.	<b>OCCUPATION</b>	BUSINESS
<b>ID NO.</b>	28645209	<b>TEL NO</b>	0725955452

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) Help youth, and individuals initiate Jua Kali project
- b) Domestic use eg cooking, etc
- c) security due to security lights or fences.
- d) low maintenance cost.
- e) environmental friendly.
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) Shock from naked wires
- b) some times fire break outs
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) Sensitization of members by  
kwa kwa a b kwa

- c) ..... wiring of houses and public
- d) ..... utilities by professionals and,
- e) ..... approved individuals or companies
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

yes - Because the Advantages  
are more than disadvantages

5. Do you have any other comments regarding this project?

NB // As the project goes on  
proper security of transformers  
should be considered.

NAME	Philip Kilucung	LOCATION	12dmat.
EMAIL	kilucungphilip@gmail.com	OCCUPATION	Teacher
ID NO.	22980024	TEL NO	0715107039

Thank you for your participation



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### COMMUNITY QUESTIONNAIRE

#### PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) HOME USE LIKE LIGHTS COOKING
- b) WELDING IN CENTERS, BOIRE HOLS
- c) SCHOOLS AND SO MANY OTHERS,
- d) HEALTH CENTRES
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic** negative impacts do you think will result from the proposed project?

- a) NONE AND LESS CARELESSNESS
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) No.

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

YES.  
IT WILL BENEFIT  
THE COMMUNITY.

5. Do you have any other comments regarding this project?

PLEASE DO THE NECESSARY  
FOR THE COMMUNITY TO BE  
BENEFITED.

NAME	STEPHEN. N. KOBAYASHI	LOCATION	IKADAMATI
EMAIL	N/A	OCCUPATION	FARMER.
ID NO.	6115605	TEL NO	0717711433

Thank you for your participation

COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic benefits** do you think will arise from the proposed project?

- a) ..... Helps us for Homestead
- b) ..... Helps for our School children
- c) ..... Helps for boreholes
- d) ..... Helps for Hospitals
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic negative impacts** do you think will result from the proposed project?

- a) .....
- b) ..... Negative impacts
- c) ..... less disadvantages
- d) ..... like lightning causes
- e) ..... death
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) .....

- c) .....
- d) .....
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

yes, We had Agreed as members plus Ketraco

5. Do you have any other comments regarding this project?

- Has good Advantages  
- Less disadvantages

NAME	SALAL KIPEEN	LOCATION	1h Somat
EMAIL	0724 715444	OCCUPATION	FARMER
ID NO.	13 44 799	TEL NO	0724 715444

Thank you for your participation

**COMMUNITY QUESTIONNAIRE**

**PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

Please complete and return to either of the addresses above

**COMMENTS** (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) .....
- b) *It bring a milestone to the community.*
- c) *people will see alot of benefit from*
- d) *this project*
- e) *children will be able to see they work*
- f) *during darkness*
- g) .....
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic** negative impacts do you think will result from the proposed project?

- a) .....
- b) *Actually no negative impacts if the*
- c) *concern authority take pre caution against*
- d) *it.*
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of **measures to mitigate problems identified** in question 2 above?

- a) *concern people should take necessary*



- c) .....
- d) Measure for Control. of.
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

To bring assistance to the people

5. Do you have any other comments regarding this project?

This project should help all the Community, and the should be use to connect all people with electricity.

<b>NAME</b>	Meshaikh S. Tikan	<b>LOCATION</b>	Idamat
<b>EMAIL</b>	298 KAJIAD@	<b>OCCUPATION</b>	Ohk, koriti
<b>ID NO.</b>	14607750	<b>TEL NO</b>	0720264581

Thank you for your participation

COMMUNITY QUESTIONNAIRE

PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE

Please complete and return to either of the addresses above

COMMENTS (please use separate sheets if you wish) Do you prefer to have the question as far and wide broad?

1. In your opinion, what Environmental, Social and Economic benefits do you think will arise from the proposed project?

- a) To use the normal high line to connect all villages.
- b) Each public utility to be connected
- c) public school should be given first priority.
- d) The connectors should reach all the people
- e) without prejudice of any sort.
- f) This project will actually bring a lot of development
- g) to the community.
- h) It will give people more advantage to open
- i) their business, especial in schools where children will be able to do their work in schools.

2. In your opinion, what Environmental, Social and Economic negative impacts do you think will result from the proposed project?

- a) Unless regular wire, were left open to
- b) community.
- c) - It can result in deaths if no covering or
- d) safety wire left open.
- e) .....
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) At only to notify the community about the

- c) To ensure there no naked wire which will be open.
- d) Everything should be put safety.
- e) .....
- f) .....
- g) .....

4. In your opinion, should the project be implemented? Yes  No

If YES/NO, why?

This is because it will benefit the people all together. especial to bring light to the environment.

5. Do you have any other comments regarding this project?

This project will bring a milestone and give the community a rise up and light up the community

NAME	John SABAYA TIKAD	LOCATION	Ih DANAT
EMAIL	Chairman john.tikad@gmail.com	OCCUPATION	Legal Assistance
ID NO.	13620618	TEL NO	0724 318513

Thank you for your participation

0720 936524



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**KEY INFORMANT/COMMUNITY QUESTIONNAIRE  
PROPOSED KENYA-TANZANIA INTERCONNECTOR PROJECT AND ASSOCIATED DISTRIBUTION LINE**

**Please complete and return to either of the addresses above**

Kenya Electricity Transmission Company Limited (KETRACO) is a 100% Government owned state corporation that was incorporated on 2<sup>nd</sup> December 2008 and registered under the Companies Act, Cap 486 pursuant to Sessional Paper No. 4 of 2004 on Energy. Its mandate is to plan, design, construct, own, operate and maintain high voltage electricity transmission lines and regional power interconnectors that forms the backbone of the National Transmission Grid, in line with Kenya Vision 2030. The voltage rating of the transmission lines and its associated substation include 132kV, 220kV, 400kV and 500kV (HVDC)

Environmental and Social Impact Study for proposed KTPIP was done and license (Reg. 0019999) issued on 12<sup>th</sup> November, 2013. However, the scope of the study did not incorporate the distribution line component.

To ensure that the project is implemented in an environmentally and socially sound manner, the Proponent (KETRACO) is conducting an Environmental and Social Impact Assessment (ESIA) in order to update the ESIA done for the proposed KTPIP project. This will help us obtain information that will be used to identify potential impacts of the proposed project and hence propose adequate mitigation measures to be adhered to during project implementation.

Participation of interested and affected parties in the ESIA is a requirement of the Environmental Impact Assessment and Coordination Act, Cap 387. As an identified stakeholder, you are requested to document your views, opinions and concerns regarding the proposed project.

This questionnaire acts as a guide for the respondent to provide relevant information on the proposed project. All the information obtained shall be used entirely for the proposed study and shall be treated confidentially. We appreciate your cooperation and thanks for your willingness to participate in this exercise.



**COMMENTS** (please use separate sheets if you wish)

1. In your opinion, what **Environmental, Social and Economic** benefits do you think will arise from the proposed project?

- a) - The project will improve the power access
- b) to power to local people.
- c) - Access to electric power will support the
- d) development of S.M.E in the region.
- e) - S.M.E Development will create employment
- f) and thus improving the lives of local
- g) communities.
- h) .....
- i) .....

2. In your opinion, what **Environmental, Social and Economic** negative impacts do you think will result from the proposed project?

- a) - The project may involve clearance
- b) of vegetation which disturbs the
- c) habitat of local animals.
- d) - Loss of vegetation clearance of natural
- e) vegetation is a threat of biodiversity
- f) .....
- g) .....
- h) .....
- i) .....

3. Do you have any suggestions of measures to mitigate problems identified in question 2 above?

- a) - A Detailed Impact assessment need to
- b) be carried out before the commencement
- c) of the project.
- d) .....
- e) - Any loss of vegetation should be compens-
- f) ated by planting more trees and shrubs
- g) in the region.
- h) .....
- i) .....

i) .....

4. In your opinion, should the project be implemented? Yes [ ] No [ ]

If YES/NO, why?

Yes. The positive benefits outweigh the negative one further more; the negative benefits can be mitigated.

5. Do you have any other comments regarding this project?

- Kenya forest Service is willing to provide any assistance especially on matters regarding forestry.

6. Please provide your contact details for purposes of authentication.

Name:	Joseph M. MACHARIA	Sector/Organisation:	Kenya forest Service
Telephone & Address:	229 KAJIADO		
Signature		Stamp	

Thank you for your participation

## **APPENDIX III: Minutes of meeting**

**ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED RURAL ELECTRIFICATION  
ALONG KENYA-TANZANIA POWER INTERCONNECTOR PROJECT IN KAJIADO COUNTY**

**PUBLIC CONSULTATION MEETING MINUTES**

**Venue:** Bull's Eye Hotel, Purko; Kajiado County

**Date:** 24<sup>th</sup> February, 2020

**OPENING**

The meeting was called to order at 11:00 am 24<sup>th</sup> February, 2020 at Bull's Eye conference room by Assistant County Commissioner, Mrs. Zuhura Mambo

**ATTENDANCE**

Attached.

**AGENDA**

The agenda was as follows:

- a. Introduction
- b. Background of the project
- c. Need for environmental impact assessment study
- d. Questions and answers
- e. AOB
- f. Adjournment

**MEETING NOTES, DECISIONS AND KEY ACTION ITEMS**

Min No.	Discussion
<b>Min 01/2020</b>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• The chief led the introduction of all community leaders, administrative leaders and the ESIA team in attendance</li> </ul>
<b>Min 02/2020</b>	<p><b>Background of the project</b></p> <ul style="list-style-type: none"> <li>• The ESIA team led by Mr. Ng'enh brief the members present on the background of the project, component and scope of the project.</li> </ul>
<b>Min 03/2020</b>	<p><b>Need for environmental Impact Assessment (EIA) study</b></p> <ul style="list-style-type: none"> <li>• Members present were informed on the importance of conducting an environmental impact assessment of the proposed project by Mrs. Linet Mbova</li> <li>• It was pointed out that EIA is a planning tool that influences the design of the proposed project</li> <li>• Members present were informed that EIA identifies both positive and negative impacts of the project as well as proposing mitigation measures that can eliminate or reduce the effects of negative impacts</li> <li>• Members were also informed on the EIA process</li> </ul>



Min 04/2020	<b>Questions and answers</b>			
	<b>N0.</b>	<b>Name</b>	<b>Question / Comments/ Issue</b>	<b>RESPONSE</b>
	1.	Letoya Eakok	Appreciate the need of the project in the area. Are there any employment opportunities for the locals?	Members were informed that the locals will be considered for available job opportunities. It was added that youths, women and people with disabilities will also be considered.
	2.	Oyie Kotenek	Pointed out that his name was missing in the list of beneficiaries of the project	He was informed Mr. Felix, Wayleave Officer who was present will follow up on his issue
	3.	Emily Siyiai	Are there hidden cost or deduction that will impact on wayleave compensation for high voltage project?	Members present were informed that the connection will be free. The only cost that will be incurred by the beneficiaries will be payment of consumed power units
4.	Ntimama Naikumi	Pointed out that the area is covered with indigenous trees which has medicinal value and therefore should not be cut  What is the wayleave corridor width of the project?	Members were informed that the project will utilize the existing wayleave corridor and road reserves. This will minimize the number of indigenous trees being cut.  Members were informed that the project will not require additional wayleave corridor and will only utilize existing wayleave corridor of 70 meters and road reserve	

	5.	Moses Mushati	Insisted that locals should be considered in permanent employment opportunities What are other impacts of the project?	It was insisted that the local will be considered in available job opportunities that comes with the project. The ESIA team expounded on other negative impact of the project and majorly on Electro Magnetic Frequency (EMF).
	6.	Naikumi	Welcomed the project and appreciated it	
	7.	Judith Kaitwe	Requested that the local be notified before the contractor access their land  Will the vegetation that will be cut be compensated?  Urged that the construction materials that will be used be of high standards.	This was noted  Members were informed that any vegetation that will be cut will be compensated using approved rate. This was noted
	8.	Amos Mbusia	Where will the proposed project pass?	Members were informed that the project involve connecting electricity to PAPs homestead. The Project will utilize the wayleave corridor and existing road reserve.
	9.	Habakuk	Urged for further discussion on community social responsibility project  Insisted that there should be proper communication structure between the contractor and the locals.	This was noted
<b>Min 05/2020</b>	<b>Any other Business</b> No other issues were raised			

<b>Min</b> <b>06/2020</b>	<b>Adjournment</b> Meeting was adjourned at 2.15pm by ACC1

**ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED RURAL ELECTRIFICATION  
ALONG KENYA-TANZANIA POWER INTERCONNECTOR PROJECT IN KAJIADO COUNTY**

**PUBLIC CONSULTATION MEETING MINUTES**

**Venue:** Tili Hotel, Mailwa; Kajiado County

**Date:** 25<sup>th</sup> February, 2020

**OPENING**

The meeting was called to order at 11:00 am 25<sup>th</sup> February, 2020 at Tili hotel conference room by Assistant County Commissioner, Mr. Komora

**ATTENDANCE**

Attached.

**AGENDA**

The agenda was as follows:

- a. Introduction
- b. Background of the project
- c. Need for environmental impact assessment study
- d. Questions and answers
- e. AOB
- f. Adjournment

**MEETING NOTES, DECISIONS AND KEY ACTION ITEMS**

Min No.	Discussion
<b>Min 01/2020</b>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• The chief led the introduction of all community leaders, administrative leaders and the ESIA team in attendance</li> </ul>
<b>Min 02/2020</b>	<p><b>Background of the project</b></p> <ul style="list-style-type: none"> <li>• The ESIA team led by Mrs. Mbova brief the members present on the background of the project, component and scope of the project.</li> </ul>
<b>Min 03/2020</b>	<p><b>Need for environmental Impact Assessment (EIA) study</b></p> <ul style="list-style-type: none"> <li>• Members present were informed on the importance of conducting an environmental impact assessment of the proposed project by Mrs. Linet Mbova</li> <li>• It was pointed out that EIA is a planning tool that influences the design of the proposed project</li> <li>• Members present were informed that EIA identifies both positive and negative impacts of the project as well as proposing mitigation measures that can eliminate or reduce the effects of negative impacts</li> <li>• Members were also informed on the EIA process</li> </ul>

Min 04/2020	<b>Questions and answers</b>		
	<b>N0.</b>	<b>Name</b>	<b>Question / Comments/ Issue</b>
			<b>RESPONSE</b>
	10.	Stanley Barmet	<ul style="list-style-type: none"> <li>Requested that public institution within the project area be connected</li> <li>Suppose someone is already connected with electricity?</li> <li>Will vegetation cleared be compensated?</li> <li>Available employment should be communicated to the community through Office of the Chief</li> </ul>
			<ul style="list-style-type: none"> <li>Those who have already electricity in their homestead won't benefit from the project</li> <li>Yes, crops and tree will be compensated.</li> </ul>
11.	Milia Persoloi	<ul style="list-style-type: none"> <li>Appreciated the project</li> </ul>	
12.	Ole Kanjori Macha	<ul style="list-style-type: none"> <li>What is the wayleave corridor width of the proposed project?</li> </ul>	The proposed project will utilize the existing wayleave corridor and road reserves.
13.	Thomas Musyoka	<ul style="list-style-type: none"> <li>Community need to be consulted when deciding on the CSR projects to be implemented in the region.</li> <li>He pointed out that different communities have different priority projects</li> </ul>	Members were informed that KETRACO is a government parastatal under the ministry of Energy and therefore undertakes its mandate through government funding from the ministry.
14.	Alice Tonge	<ul style="list-style-type: none"> <li>Appreciated the project</li> </ul>	
Min 05/2020	<b>Any other Business</b> No other issues were raised		
Min 06/2020	<b>Adjournment</b> Meeting was adjourned at 1.45pm by ACC2		

**ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED RURAL ELECTRIFICATION  
ALONG KENYA-TANZANIA POWER INTERCONNECTOR PROJECT IN KAJIADO COUNTY**

**PUBLIC CONSULTATION MEETING MINUTES**

**Venue:** Faith Evangelical Free Church, Bisil; Kajiado County

**Date:** 26<sup>th</sup> February, 2020

**OPENING**

The meeting was called to order at 11:00 am 26<sup>th</sup> February, 2020 at Faith Evangelical Free Church by Assistant County Commissioner, Mrs. Zuhura Mambo

**ATTENDANCE**

Attached.

**AGENDA**

The agenda was as follows:

- a. Introduction
- b. Background of the project
- c. Need for environmental impact assessment study
- d. Questions and answers
- e. AOB
- f. Adjournment

**MEETING NOTES, DECISIONS AND KEY ACTION ITEMS**

Min No.	Discussion
<b>Min 01/2020</b>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• The chief led the introduction of all community leaders, administrative leaders and the ESIA team in attendance</li> </ul>
<b>Min 02/2020</b>	<p><b>Background of the project</b></p> <ul style="list-style-type: none"> <li>• The ESIA team led by Mrs. Mbova brief the members present on the background of the project, component and scope of the project.</li> </ul>
<b>Min 03/2020</b>	<p><b>Need for environmental Impact Assessment (EIA) study</b></p> <ul style="list-style-type: none"> <li>• Members present were informed on the importance of conducting an environmental impact assessment of the proposed project by Mrs. Linet Mbova</li> <li>• It was pointed out that EIA is a planning tool that influences the design of the proposed project</li> <li>• Members present were informed that EIA identifies both positive and negative impacts of the project as well as proposing mitigation measures that can eliminate or reduce the effects of negative impacts</li> <li>• Members were also informed on the EIA process</li> </ul>

Min 04/2020	Questions and answers			
	N0.	Name	Question / Comments/ Issue	RESPONSE
	15.	Evans	<ul style="list-style-type: none"> <li>Requested KETRACO to provide hard copies ESIA reports for the ongoing construction of 400kV Transmission Line.</li> <li>Requested that once the report is ready should be shared with the community to review it.</li> <li>What is the wayleave corridor width of the proposed project?</li> <li>How far will the project benefit the locals?</li> </ul>	<ul style="list-style-type: none"> <li>This was noted and will be actioned</li> <li>Members were informed that once the report will be ready will be submitted to NEMA for review. NEMA will circulate copies lead agencies and over NEMA and KETRACO website</li> <li>Members were informed that the proposed project will utilize existing wayleave corridor and road reserve and therefore will not require additional wayleave</li> <li>Proposed project is will benefit PAPs for the Kenya-Tanzania project and Isinya-Namanga Project.</li> </ul>
	16.	Seriam	<ul style="list-style-type: none"> <li>urge projects to be undertaken one at a time and further sensitization to be undertaken.</li> </ul>	
	17.	Joseph	<ul style="list-style-type: none"> <li>Requested that there should be agreement with KETRACO on how the project should be undertaken.</li> </ul>	
	18.	Abdi	<ul style="list-style-type: none"> <li>How will those already connected with electricity benefit?</li> </ul>	Members were informed that the project will target those who have not been connected to electricity.
	19.	Tantikioi	<ul style="list-style-type: none"> <li>Appreciated the project, but urge the implementation of the project to be delayed until</li> </ul>	

			KETRACO and the PAPs agree on compensation of land for wayleave.	
<b>Min 05/2020</b>	<b>Any other Business</b> No other issues were raised			
<b>Min 06/2020</b>	<b>Adjournment</b> Meeting was adjourned at 1.34pm by ACC1			



**ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED RURAL ELECTRIFICATION  
ALONG KENYA-TANZANIA POWER INTERCONNECTOR PROJECT IN KAJIADO COUNTY**

**PUBLIC CONSULTATION MEETING MINUTES**

**Venue:** Duka Moja; Kajiado County

**Date:** 27<sup>th</sup> February, 2020

**OPENING**

The meeting was called to order at 10:30 am 27<sup>th</sup> February, 2020 at Duka Moja by Assistant County Commissioner, Mrs. Zuhura Mambo

**ATTENDANCE**

Attached.

**AGENDA**

The agenda was as follows:

- a. Introduction
- b. Background of the project
- c. Need for environmental impact assessment study
- d. Questions and answers
- e. AOB
- f. Adjournment

**MEETING NOTES, DECISIONS AND KEY ACTION ITEMS**

Min No.	Discussion
<b>Min 01/2020</b>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• The chief led the introduction of all community leaders, administrative leaders and the ESIA team in attendance</li> </ul>
<b>Min 02/2020</b>	<p><b>Background of the project</b></p> <ul style="list-style-type: none"> <li>• The ESIA team led by Mrs. Mbova brief the members present on the background of the project, component and scope of the project.</li> </ul>
<b>Min 03/2020</b>	<p><b>Need for environmental Impact Assessment (EIA) study</b></p> <ul style="list-style-type: none"> <li>• Members present were informed on the importance of conducting an environmental impact assessment of the proposed project by Mrs. Linet Mbova</li> <li>• It was pointed out that EIA is a planning tool that influences the design of the proposed project</li> <li>• Members present were informed that EIA identifies both positive and negative impacts of the project as well as proposing mitigation measures that can eliminate or reduce the effects of negative impacts</li> <li>• Members were also informed on the EIA process</li> </ul>

Min 04/2020	Questions and answers			
	N0.	Name	Question / Comments/ Issue	RESPONSE
	20.	Stephen Kobai	<ul style="list-style-type: none"> <li>Requested to be consulted with community on public facilities to benefit from the project such as Borehole.</li> <li>Appreciated the project</li> </ul>	<ul style="list-style-type: none"> <li>Members were informed that there will be continuous consultation with the community on the project.</li> </ul>
	21.	Jackson Kobai	<ul style="list-style-type: none"> <li>Raised that his name was missing in the list of PAPs to benefit from the project.</li> <li>Requested that all homestead within a parcel being traversed to benefit from the project.</li> </ul>	<ul style="list-style-type: none"> <li>This was noted</li> </ul>
	22.	Metiaki	<ul style="list-style-type: none"> <li>Requested that bush clearing be conducted in the existing wayleave corridor</li> </ul>	
	23.	Josephat Konko	<ul style="list-style-type: none"> <li>Requested for employment of two liaison officer to coordinate communication between PAPs, contractor and KETRACO</li> <li>Requested that school close to the project area be connected with electricity.</li> </ul>	
	24.	Meshack	<ul style="list-style-type: none"> <li>Requested that the project to benefit communities within the project area for a radius of 12kms</li> <li>Insisted that project should be implemented once everyone have been compensated for wayleave.</li> <li>Raised that there had been vegetation cleared that had not been counted.</li> </ul>	
	25.	Jonathan Risa	<ul style="list-style-type: none"> <li>Will the vegetation cleared be compensated?</li> </ul>	<ul style="list-style-type: none"> <li>Members were informed that the cleared</li> </ul>

			<ul style="list-style-type: none"> <li>Will the wayleave corridor be increased?</li> </ul>	<ul style="list-style-type: none"> <li>vegetation will be compensated</li> <li>Members were informed that there will be no additional wayleave corridor to the project.</li> </ul>
	26.	Area MCA	<ul style="list-style-type: none"> <li>Urge that compensation for wayleave should be considerate</li> <li>Requested that the community should be consulted on the public projects to benefit.</li> </ul>	
<b>Min 05/2020</b>	<b>Any other Business</b> No other issues were raised			
<b>Min 06/2020</b>	<b>Adjournment</b> Meeting was adjourned at 2.03pm by ACC1			

**ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED RURAL ELECTRIFICATION  
ALONG KENYA-TANZANIA POWER INTERCONNECTOR PROJECT IN KAJIADO COUNTY**

**PUBLIC CONSULTATION MEETING MINUTES**

**Venue:** Empeut Hotel; Kajiado town, Kajiado County

**Date:** 28<sup>th</sup> February, 2020

**OPENING**

The meeting was called to order at 11:00 am 28<sup>th</sup> February, 2020 at Empeut by Area Chief,

**ATTENDANCE**

Attached.

**AGENDA**

The agenda was as follows:

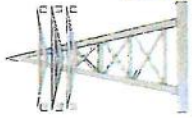
- a. Introduction
- b. Background of the project
- c. Need for environmental impact assessment study
- d. Questions and answers
- e. AOB
- f. Adjournment

**MEETING NOTES, DECISIONS AND KEY ACTION ITEMS**

Min No.	Discussion
<b>Min 01/2020</b>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• The chief led the introduction of all community leaders, administrative leaders and the ESIA team in attendance</li> </ul>
<b>Min 02/2020</b>	<p><b>Background of the project</b></p> <ul style="list-style-type: none"> <li>• The ESIA team led by Mrs. Mbova brief the members present on the background of the project, component and scope of the project.</li> </ul>
<b>Min 03/2020</b>	<p><b>Need for environmental Impact Assessment (EIA) study</b></p> <ul style="list-style-type: none"> <li>• Members present were informed on the importance of conducting an environmental impact assessment of the proposed project by Mrs. Linet Mbova</li> <li>• It was pointed out that EIA is a planning tool that influences the design of the proposed project</li> <li>• Members present were informed that EIA identifies both positive and negative impacts of the project as well as proposing mitigation measures that can eliminate or reduce the effects of negative impacts</li> <li>• Members were also informed on the EIA process</li> </ul>

<b>Min 04/2020</b>	<b>Questions and answers</b>			
	<b>N0.</b>	<b>Name</b>	<b>Question / Comments/ Issue</b>	<b>RESPONSE</b>
	27.	Elijah Mbogi	<ul style="list-style-type: none"> <li>Appreciated the project</li> <li>Requested the project to also benefit neighbors</li> </ul>	
	28.	Joshua	<ul style="list-style-type: none"> <li>Requested that the project should benefit connection to public institutions such as Itare primary school</li> </ul>	
	29.	Bishop Keroka	<ul style="list-style-type: none"> <li>Requested that the project should connect community projects such as boreholes to electricity</li> </ul>	
	30.	Area Chief	<ul style="list-style-type: none"> <li>Requested for sketch map for the project area</li> </ul>	
<b>Min 05/2020</b>	<b>Any other Business</b>			
	No other issues were raised			
<b>Min 06/2020</b>	<b>Adjournment</b>			
	Meeting was adjourned at 1.24pm by ACC2			

## APPENDIX IV: Attendance Sheets



**KETRACO**  
Kenya Electricity Transmission Company Limited  
Building a World Class National Grid

Venue: Acc Office.

**MEETING ATTENDANCE SHEET**

**Project:** Proposed Rural Electrification along 400kV Kenya-Tanzania (K7PIP)  
**Assignment:** ESIA Consultation. **Date:** 18/09/2020

No.	Name	ID. No.	Telephone	Signature
1.	Constance K. Njenga	27069256	0729422206	
2.	Thome Okumbo	26962679	0720332665	
3.	Felix TETO	31758766	0706070807	
4.	Kinet Mhaya	25172801	0733838081	
5.	Ray Mwangi	20773178	0728538926	
6.	Stephen Komora	28467209	0716013522	
7.	John S. Jacon	26935975	0705585644	
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**KETRACO**  
Kenya Electricity Transmission Company Limited  
Building a World Class National Grid

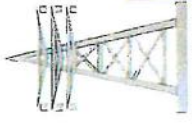
Purko Location  
Venue - Bull's eye - Purko  
Kajiado County.

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KTPIP Lot K2  
Assignment: ESIA Consultation Meeting Date: 24.02.2020

No.	Name	ID. No.	Telephone	Signature
1.	Kisem Permasari farmuat	1309328	0727528397	<i>[Signature]</i>
2.	JUDITH N. KAEUNA	3929147	0722266988	<i>[Signature]</i>
3.	DICKSON LEMEN	29769883	0728142577	<i>[Signature]</i>
4.	James parsalot	37340861	0745345827	<i>[Signature]</i>
5.	Jonathan mijomai	34546942	0794131195	<i>[Signature]</i>
6.	KISAI LESHIGA	0089931	0724177930	<i>[Signature]</i>
7.	Iha Leshunke			
8.	VICTOR TUKERO KIPURY	20046618	0712721775	<i>[Signature]</i>
9.	NASIRYA NDUNYAI MPOSIA	0090130		<i>[Signature]</i>
10.	KUNITH S KIPURY	2365820	0721811395	<i>[Signature]</i>





**KETRACO**  
Kenya Electricity Transmission Company Limited  
Building a World Class National Grid

Purko Location  
Venue: Bulls Eye

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KIPIP LOT K2  
Assignment: ESIA Consultation Date: 24/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	CYRUS GINDA	89021269	0727 269813	<i>[Signature]</i>
2.	Sam T. Nankuni	6115333	0721941175	<i>[Signature]</i>
3.	JOSEPH W. KESERUO	9208432	0727-720111	<i>[Signature]</i>
4.	MOSES L. MARASWA	3929286	0720875664	<i>[Signature]</i>
5.	EZEKIEL N. RIKOINET	22310855	0721997526	<i>[Signature]</i>
6.	MARY J. MAREN	14473253	0723853909	<i>[Signature]</i>
7.	MOSES P. MPEKE	5373162	0720801605	<i>[Signature]</i>
8.	AMOS NAIKUXI	11587414	0720452355	<i>[Signature]</i>
9.	Daniel Kipwony	1347628	0723341881	<i>[Signature]</i>
10.	NTERI M KI RAIKA	07599211	0728172840	<i>[Signature]</i>



**KETRACO**  
Kenya Electricity Transmission Company Limited  
*Building a World Class National Grid*

Venue: Purko Location  
Bulls eye hotel

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along 400kv T-L  
Assignment: ESIA consultation Meeting Date: 24/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	PITUP NKEYASHA	23719236	0727593264	<i>Pitup</i>
2.	JOSAL SIRERE	9209668	0724594846	<i>Josal</i>
3.	KONENE KERTIZA	12650935	0702495024	<i>Konene</i>
4.	MUSANKA KERTELA	1308561	0723370450	<i>Musanka</i>
5.	NYAMBURA M	0089757	0722689106 <del>0089757</del>	<i>Nyambura</i>
6.	Agnes memusi	5506507	0725036037	<i>Agnes</i>
7.	MOSES LESITHWA	7406233	0721410513	<i>Moses</i>
8.	ITA LESITHWA			<i>Ita</i>
9.	LETUYA SANKOK			<i>Letuya</i>
10.	TAYANI LETUYA			<i>Tayani</i>



**KETRACO**  
Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Purko Location.  
Venue: Bull's eye hotel

### MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along 400kv L07 K2

Assignment: EIA Consultation Meeting Date: 24/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	MUKANA MUSA	6116598	0725977909	
2.	Kipindui Mbusia	0089854		
3.	Amos Mpusia	20070619	0716574979	<del>Amos</del>
4.	Rukati Lekuti	6116207		
5.	Muatsi Lekuti Lekuria	0088347		
6.	Simon Meloki	24233957	0703118808	<del>Simon</del>
7.	Meloki Kibaaia			
8.	CHARLES SIAMETO	6115855	0724403728	<del>Charles</del>
9.	VINCENT LETEPAN	35983724	0708174735	<del>Vincent</del>
10.	John NAKKANI	5373244	0723486493	<del>John</del>



**KETRACO**  
Kenya Electricity Transmission Company Limited  
*Building a World Class National Grid*

Venue - Bull's eye - Purka  
Kajiado County.

**MEETING ATTENDANCE SHEET**







Project: Proposed Rural Electrification along KIPID 107 K2  
Assignment: ESA consultation Meeting Date: 24/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	Peter KISAI	637826		<i>[Signature]</i>
2.	Nelson Somare Kipungu	22606700	0712005187	<i>[Signature]</i>
3.	Shadrack Seitoh	34031612	0740795238	<i>[Signature]</i>
4.	Motimama Nakuni	14475828	0710633941	<i>[Signature]</i>
5.	Kisaike Scidiny			
6.	TUMANA LEANAH			
7.	KASHA MPAWA			
8.	Mesai RUKASI			
9.	BENARD LESHINKA	34030236	0706282048	
10.	Ayoti RUPHI			

Venue - bull's eye - Purko

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KIPUP LO7 KY  
 Assignment: ESIA Consultation Date: 29.02.2020

No.	Name	ID. No.	Telephone	Signature
1.	Constantine K. Ng'endo	27569256	0729422206	
2.	Felix TETO	31758766	0706070807	
3.	Vivienne Delucumbi	26962679	0720332665	
4.	HARRY SURAGE	27773178	0720538926	
5.	Linet Mbaria	25172801	0733838051	
6.	Zuhura R. Mumbo	21099216	0720280288	
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**KETRACO**  
Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venue: Malwa Location

MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along K7PIP Lot K2

Assignment: EIA Consultation Date: 25.03.2020

No.	Name	ID. No.	Telephone	Signature
1.	Mepukori Kidemi	24234080	0728348261	
2.	EULEEN KARUA	7980405	0724436626	
3.	PETER WAUGH	7277257	0722-702882	
4.	PASCALINE NGONYO	32757370	0724319574	
5.	Wambugu Kapinji	6452368	0722864688	
6.	Thomas Muryika	9635933	0728211973	
7.	Eric Mwendu	2243773	0723602324	
8.	Benson Masilo	24875574	076534111	
9.	JAMES MOKI	11726304	0728695582	
10.	Mwajekel Miatu	9655749	0790733531	



**KETRACO**

Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venue: Mailwa location

MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along KTRIP Lot K2

Assignment: EIA Consultation Date: 25/02/2022

No.	Name	ID. No.	Telephone	Signature
1.	SUMITR OLE MOORE	12951853	0718681779	
2.	MAYAH OLE KANJOI	9655031	0729728538	
3.	MIRIAM RICHARD KOTTEE	26631969	0708427027	
4.	PAUL MAINCHIL	0088856	0727872611	
5.	Miriam Murea	31061270	0707812948	
6.	PAPAI Mwidem	247503647	0700695924	
7.	LESAY TENYI	22446953	0727211786	
8.	TIRINA OLE KALONGO	9367076		
9.	PAUL NKOMIA	29497612	0705505761	
10.	TASIRI OLO SIRONKA	260075244	0705120731	



**KETRACO**

Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venue: Mauilwa Location

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KTRIP Lot K2

Assignment: ESIA Consultation Date: 25/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	LAWRENCE SITUANG	14607821	0722872183	
2.	TOBIKO NKULANA		0726884277	
3.	PATRICIA LUNYE OLE MILIA	21258373	0728736256	
4.	LESUS OLE MILIA	21616711	0700176201	
5.	SIMINTEI OLE KOSIKI	9367458	0728006042	
6.	STANLEY PAMEI	0091461	072777484	
7.	NKOSHUNNY OLE PASUA	24093307	0710720332	
8.	Penina Safo	8842162	0722992995	
9.	Mason ole Mito	12650610	0715157539	
10.	SIMINTEI OLE Maita	<del>NE18063317</del>	0716351280	

11586347









Venue: Mailwa location

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KTRIP LOT K2

Assignment: ESIA Consultation Date: 25/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	TIPAPA NKOMIA	20163965	07008720366	
2.	SHUNG'FYA OLE SIRONKA	26022482	0715466386	
3.	SOMDIAE LEMUNIKE	5373419	40740336712	
4.	PENGTI LEMUNIKE	26031083	0724049839	
5.	TAJEU SIRONKA	24428009	0712659680	
6.	ALICE TONKEI	9208312	0720255508	
7.	KISIAMU SANKA	12650533	0746314027	
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**KETRACO**

Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venerable Basil

MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along KTRIP Lot K2.....

Assignment: EIA Consultation..... Date: 26/02/2020.....

No.	Name	ID. No.	Telephone	Signature
1.	Saitobi Larima	26629353	070756590	
2.	Samuel Sinitila	23841659	0725811771	
3.	Kepalon Paato	2841559	0720881477	
4.	Kerhque Soine	35071770	071396528	
5.	Miliara Miraa		0716007959	
6.	Reingod Sakuba	12953070	0797080981	
7.	James Igadanga	28080608	0713257114	
8.	Ohopoi Soine	0088661	0779126604	
9.	Toshi Tadeu	2601338	0720840164	
10.	JEREMIAH OCUKI	23027357	0716933864	



**KETRACO**

Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venue - Basil

MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along K7 PIP Lot K2

Assignment: ESI Consultation Date: 26/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	GSHOKI JAMES		0792037316	
2.	NKUNKAT MOLEI TAJEU		07	
3.	N'ULALA NOAH		0718362446	
4.	JOHN TAJEU		0723366081	
5.	SAIPRAMU SEMKUNYA	20003124	SAMI W/L	0727774574
6.	KEMPUA LOMUYA		0724722975	
7.	Samporo Lekumol	11126681	0724141468	
8.	Tajeu Lemashamet	26662041	0713680564	
9.	PANAI MOLA		0720665100	
10.				






**KETRACO**  
Kenya Electricity Transmission Company Limited  
*Building a World Class National Grid*

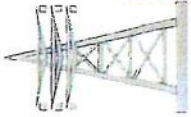
Venue: Betsil

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along K7PIP Lot K2

Assignment: EIA Consultation Date: 26/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	KISPAK KEMEN	24920714	0725233371	
2.	JAMES MOILE	11726304	0728695582	
3.	Penis Kshil.	9209070	0722924785	Penis
4.	Mtasilka Atemel	24375574	07276541	
5.	Nkaitu Neki	8655843	0729388522	NK
6.	Lekina Leondo Kio			
7.	KAJARO JOSEPH		0729332507	
8.	KASANE KEREIO		0726166118	
9.	MAKO KEREIO		0723552282	
10.	TAJEU KEREIO		0713680564	



**KETRACO**

Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venue - Britil

MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along KTRIP L07 K2

Assignment: EIA Consultation Date: 26/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	Zuhora Mumbo	21099216	0720280288	
2.	AMBROSE M. KUNYU	25444701	0716077653	
3.	GIBSON M. PARANKA	21861318	0726-079-042	
4.	Ronald L. Musilola	1265027	0721460028	
5.	JOSEPH O. NIENKESI	12953091	0723073208	
6.	NATHANIEL OACHUMA	14475679	0721-932161	
7.	Caroline Ncharo	12650227	0720642759	
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**KETRACO**  
Kenya Electricity Transmission Company Limited  
*Building a World Class National Grid*

MEETING ATTENDANCE SHEET  
Newae - Basi

Project: Proposed Rural Electrification along K7.P1.P Kot K2.....  
Assignment: ESA CONSULTATION..... Date: 26/02/2020.....

No.	Name	ID. No.	Telephone	Signature
1.	Miriam Sinitia			
2.	James Kerato Mposioro	1308955	0792037316	
3.	TAIKO KEBOTO	28856345	0723552280	
4.	Layen Sentikwa Malei	25668541		
5.	Joseph Olopoi Saire	0088661	0799126604	
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**KETRACO**  
Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

Venue: Duka Moga  
Iladamat Location

### MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along KTRP L57 K2

Assignment: BIA Consultation Date: 27.02.2020

No.	Name	ID. No.	Telephone	Signature
1. AC1	Zuhura Mambu	21099216	0720 280 288	
2. AC2	FIDELIS BABU	14467204	0728 - 861950	
3.	Hon Samuel Temu M-CA	20019202	0722 - 839875	
4.	JAMES S. K. KOBAAI	6116013	0720 997408	
5. K.C. KIPRO KIPRO	GERTRUDE K. MBOGO	24618380	0722-438044	
6.	JONATHAN NANGAZE	61161740	0721 717 365	
7.	Constantine - K. Njleny	27069256	0729 422206	
8.	Linet Mbova	25172801	0733 8 38081	
9.	Mary Mwangi	2773178	0728538926	
10.	FELIX TETO	31758766	0706070807	



**KETRACO**  
Kenya Electricity Transmission Company Limited  
"Empowering a World Class National Grid"

Venue: Duka Meja  
Ildamat Location

### MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along KTRIP Lot ka.....  
Assignment: ESIA Consultation..... Date: 27/02/2020.....

No.	Name	ID. No.	Telephone	Signature
1.	John Tukan	13610618	0724318513	
2.	Nick Sabaya	36597476	0792037325	
3.	Bramuel Sabal		0748779017	
4.	Robert Kashimiri	22023019	0798632717	
5.	Lemayian Karungi	23431453	0714135483	
6.	Marge Mekiaki	9831272	0422235256	
7.	Walterton Kampusong		0100693189	
8.	Kampaine Sitelu		0725629626	
9.	James DANAT	13086079	0728684474	
10.	Joseph MARIKHE	5373072	0719772886	





**KETRACO**  
Kenya Electricity Transmission Company Limited  
"Building a World Class Functional Grid"

Venue: Duka Meja  
Udamat location

**MEETING ATTENDANCE SHEET**

Project: ... Praposed Rural Electrification along KTRIP Lot ka

Assignment: ... E.SIA Consultation Date: 27.03.2020

No.	Name	ID. No.	Telephone	Signature
1.1	RICHARD KAMPANE	20240351	0790 020663	[Signature]
2.	STEPHEN N. KOBANI	6115805	0707711433	[Signature]
3.	JEREMIAH LENKINA	11681260	0713347982	[Signature]
4.	JAMES SAKKURI	9208427	0728733384	[Signature]
5.	METIARI SIFON FIRA	21904606	0722684913	[Signature]
6.	MESHACK S. NICA	14607750	0720264581	[Signature]
7.	JACKSON KOIGA KOBACAI	28645209	0725955452	[Signature]
8.	JOSPHAT LUBY KONGA	12652148	0724667778	[Signature]
9.	GALAL KUPPER	1344790 <del>202397645</del>	0724715444	[Signature]
10.	WILLIAM DEYATA NEMAYAKISHA	22301976	0723309355	[Signature]



Venue: Duka Meja  
Udamat Location

MEETING ATTENDANCE SHEET

Project: Proposed Rural Electrification along KTRIP Lot K2

Assignment: E.S.A Consultation Date: 27/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	JONATHAN G. OKE RISA	10403289	0717895301	[Signature]
2.	SWTARO KAMPANE	28354239	0726063556	[Signature]
3.	Samuel Risa	26050725	0713515654	[Signature]
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**KETRACO**

Kenya Electricity Transmission Company Limited  
*"Building a World Class National Grid"*

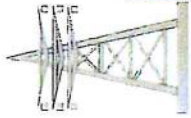
Venue - Empeit  
Da lale kutuk Location

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KTRIP 107 K2

Assignment: FEIA Consultation Date: 28.02.2020

No.	Name	ID. No.	Telephone	Signature
1.	JOSEPH L. NGUYU	5373820	0722594437	
2.	LEONARD L. LESINKO	5364812	0798 054342	
3.	John Kivoka	10883534	0721582330	
4.	Elijah mpoke	3929458	0720814677	
5.	Fred Kivoma	266124756	0710632513	
6.	Sadio olemoiny	22195831	0707513000	
7.	DANIEL MPOKE	0087136	072737074	
8.	<del>SOTTOSON MPOKE</del>	<del>0290938</del>	<del>0722821795</del>	<del></del>
9.	Kamishuna Kishoyan	22603009	0710275755	
10.	Richard mpoke	24336018	0724687760	



**KETRACO**  
Kenya Electricity Transmission Company Limited  
"Building a World Class National Grid"

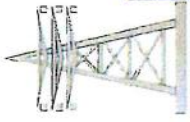
Venue: Empeut  
Dalalekutuk Location

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KTRIP LOT K2

Assignment: EIA consultation Date: 28.03.2020

No.	Name	ID. No.	Telephone	Signature
1.	WAILENTA MOSIANT KASHU	0087519	0742228306	[Signature]
2.	MANTA SHANGWA NGA	0090380	0754098502	[Signature]
3.	Shangwa ole Nkai	0093012	0754098502	[Signature]
4.	Seitara ole mosany	008647	0726118595	[Signature]
5.	DAVID BAPAIWA KAPANDA	0087085	0725165574	[Signature]
6.	KUYA OLE LOITAI	0027586	0724130058	[Signature]
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**KETRACO**

Kenya Electricity Transmission Company Limited  
Building a World Class National Grid

Venue: Empeut  
Dalalekutuk Location

**MEETING ATTENDANCE SHEET**

Project: Proposed Rural Electrification along KTRIP L07 K2

Assignment: ESIA Consultation Date: 28/02/2020

No.	Name	ID. No.	Telephone	Signature
1.	Zuhura Mambou	21099216	0720280288	AR Lambo
2.	FIDELIS BABY	14463204	0728661950	Fy
3.	Benjamin An Luo - V/Chairman	6116152	0722699786	Benjamin
4.	JOSPHAT NKAH	12752691	0721581937	Ka
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PUBLIC CONSULTATION MEETING

ATTENDANCE SHEET

Project: KTRIP LOT K2 ..... Venue: Kiunga Lethen Prime Date: 14/12/2018

No.	Name	Designation	Telephone	Signature
1.	John Tikan	Chairman	0724318513	[Signature]
2.	Philip Kilukung	Secretary	0715107039	[Signature]
3.	Michael Kilgaye	member	0729325637	[Signature]
4.	Jackson Koiya	Treasurer	0725955452	[Signature]
5.	Josphat kelbi Tikan	Member	0724667798	[Signature]
6.	Kampaine Sitely	member	0725639636	[Signature]
7.	Salal kipeen	member	072415444	[Signature]
8.	Mesha cic Tikan	Member	0720264581	[Signature]
9.	Stephen Kobasi	Member	0717711433	[Signature]
10.	WAKVRE TIKAN	member	0718539905	[Signature]
11.	NIKARY RISSAY	member	0717751735	[Signature]
12.	Joseph Muthunlei	Member	0726752960	[Signature]
13.	Sivere Sitelu	Member	0704425313	[Signature]
14.	Shu Pasusha Sitelu	Member	0721483550	[Signature]
15.	Lekina Kobase	Member	0713347982	[Signature]
16.	Daniel soitara	Member	0701797389	[Signature]
17.				



PUBLIC CONSULTATION MEETING

ATTENDANCE SHEET

Project: KENYA-TANZANIA TRANSMISSION LINE Venue: SEURIPRIMARY SCHOOL Date: 10/12/2018

No.	Name	Designation	Telephone	Signature
1.	Sosio Die Masiany		0727218833	[Signature]
2.	Elias K. Koton		0722355183	[Signature]
3.	Richard P. Nkai		0724330677	[Signature]
4.	Simon Ankund		0728733920	[Signature]
5.	Simila		-	[Signature]
6.	Jackline Naini		-	[Signature]
7.	Nasaru Nailenya		-	[Signature]
8.	Phoebe Lamo	KETRACO	0720367170	[Signature]
9.	NANCY MOINKET	KETRACO	0720216216	[Signature]
10.	YVONNE ODHAMBO	KETRACO	0720332265	[Signature]
11.	Tillo Madras	KETRACO	0928315386	[Signature]
12.	Constantine -K. Nglench	KETRACO	0729422206	[Signature]
13.	DANIEL SEKETO OLE MPOKE	MEMBER	0727370771	[Signature]
14.	DAVID MOINDI	KETRACO	0720936524	[Signature]
15.	Sairo Lusitorua		0714323767	[Signature]
16.	Peninah Maranku		0703799275	[Signature]
17.	KIPINDI KAPOSEI		079651970	[Signature]
















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PUBLIC CONSULTATION MEETING

ATTENDANCE SHEET

Project: KENYA-TANZANIA TRANSMISSION LINE Venue: ISEURI PRIMARY SCHOOL Date: 10/12/2018

No.	Name	Designation	Telephone	Signature
1.	Josephine KIROKA		0702554466	
2.	ANN Kinyapi		0703169058	
3.	Damaris Rempeyan			
4.	Naicho Molokwa			
5.	Kamushine Kishoyian		0710-875755	
6.	SHAKUTUK MESHAYI		0707513080	
7.	Saimon KORIPI PAISHA		0723008618	
8.	KINTALEL KE-TON		0723022224	
9.	Piango Rakoi		0718266574	
10.	Namajiana Kuuuoni		<del>0705877666</del>	
11.	Lawrence Lesle		0705877666	
12.	SECINTA MUTHOMI		0727710635	
13.	Daniel Kikayaya		0702492703	
14.	Mjeri Eric mbarike		079951973	
15.	Parsimeu Makarat		072-516366	
16.	Daudi Mfubi		0707473760	
17.	Pheux Masi lenkongo		0790219414	



PUBLIC CONSULTATION MEETING

ATTENDANCE SHEET



Project: KENYA - TANZANIA TRANSMISSION LINE Venue: KESURI DARI, SGT Date: 10<sup>TH</sup> DECEMBER, 2018

No.	Name	Designation	Telephone	Signature
1.	Pst Ben Anker	V. Chairman	0722 699756	<i>[Signature]</i>
2.	Naikenya Mosiary Biman		0775 986 864	<i>[Signature]</i>
3.	Nahashou Ntugero	CHIEF	0721696686	<i>[Signature]</i>
4.	KISHWATIA MOSTANY	Mzee Kaji	0719606633 0775-986864	<i>[Signature]</i>
5.	Pst Elgah mpolke	pastor	0720814677	<i>[Signature]</i>
6.	Joseph L. Nanyu	chief	072594437	<i>[Signature]</i>
7.	LEONARD L. LESUKO	CHIEF	0798054342	<i>[Signature]</i>
8.	Thazophilus Sairo	Member	0721546230	<i>[Signature]</i>
9.	KARSAWA DLOORIKINYOKI MARIYI	member	0704840274	<i>[Signature]</i>
10.	ATAKSON SAXITA	member	0720 345 364	<i>[Signature]</i>
11.	SOITARA OLE MOSIANY	member	0726118595	<i>[Signature]</i>
12.	SAYIANWA KANGIWI	MEMBER	0727-720288	<i>[Signature]</i>
13.	WUAI SAIDIMO	MEMBER	0724547234	<i>[Signature]</i>
14.	ESHAAS DATIANG	MEMBER	0723542630	<i>[Signature]</i>
15.	KASEECHILOLE I EPOI	MEMBER		<i>[Signature]</i>
16.	DORU SIAMIA HARADYIA	KETRACO	0713-648726	<i>[Signature]</i>
17.	KATHI AUKU	MEMBER	0721851196	<i>[Signature]</i>

PUBLIC CONSULTATION MEETING

ATTENDANCE SHEET

Project: KTRIP & Distribution Commitment Venue: Empate Kajado Date: 05/11/2018

No.	Name	Designation	Telephone	Signature
1.	Joseph L. Ngunyi	Chief	0722594487	
2.	Tomas Musyoko	Metepato/Mabug	0728211973	
3.	DANIEL M. KUPAI	SNK CHIEF	0722337210	
4.	JAMES S. K. KOBAAH	AG CHIEF	0720997408	
5.	MAPORA NTUSERO	CHIEF	0721696686	
6.	NELTON M. MOKIE	Chairman Mabug	0722578130	
7.	SAMUEL MOSIANGI	FARMER	0712488889	
8.	JOSEPH NKAH	ASSI-CHIEF	0721981937	
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PUBLIC CONSULTATION MEETING

ATTENDANCE SHEET

Project: KTRIP 9 Distribution component... Venue: EMPLOY. KAJIUMBO... Date: 05/12/2018

No.	Name	Designation	Telephone	Signature
1.	FELIX TETO	WAYLEAVE OFFICER	0706070807	[Signature]
2.	Pst Ben Aniluo	V. Chenyua	0722699786	[Signature]
3.	Ronald Musokoto	Snr Chief Bossi	0721760028	[Signature]
4.	KANTHOR SHUAKA	CHIEF NOSIHIWA	0729769000	[Signature]
5.	RIANS KARANJO	LORNGOSWA CHAIR	0722391379	[Signature]
6.	STEPHEN TAFERU	RID SNR. CHIEF	0721816651	[Signature]
7.	MAINGE MEJIAKI	ILDAMAT CHAIR	07222235756	[Signature]
8.	HERBOMWIKI OJE SANKOL	Purko chairman	0723868778	[Signature]
9.	PAUL SIZET	CHAIRMAN Genl.	0721694568	[Signature]
10.	Nyenne Elluambo	Kotaco	0720322665	[Signature]
11.	DORIS SIAMA NKAROYIA	RETRACO	0713-648726	[Signature]
12.	Jillo Ali Madras	KEIPACO	0728315386	[Signature]
13.	Constautine K. Ngendo	KEIPACO	0729422206	[Signature]
14.	David Kestichu	SECURITY	0722880237	[Signature]
15.	David Moinchi	ENV. Espat Kotaco	0720936524	[Signature]
16.	LEONARD L. KESAKO	CHIEF	0795054342	[Signature]
17.	John S Tildan	ILdamat chair	0724378113	[Signature]



## APPENDIX V: Practicing License

FORM 7

(r.15(2))



**NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)  
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT**

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

License No : NEMA/EIA/ERPL/11605

Application Reference No: NEMA/EIA/EL/15708

M/S **Caleb Mathews Okoth Mango**

(individual or firm) of address

P.O. Box 35089-00200, Nairobi

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**

registration number **260**

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

Issued Date: **1/9/2020**

Expiry Date: **12/31/2020**

Signature.....

(Seal)

**Director General  
The National Environment Management  
Authority**

#### Conditions For Licensing

1. This license expires on 31<sup>st</sup> December of the year it is issued.
2. The expert shall comply with code of practice and Professional Ethics for EIA/EA experts.
3. The expert shall comply with the attached conditions.

#### General Conditions

1. All Environment Experts certified and registered in the accordance with the provision of relevant Regulations, may establish professional associations to complement and implement the objectives of the Code of Practice.
2. An Expert shall act professionally, accurately, fairly and in an unbiased manner in undertaking his work.
3. The Director General, in consultation with relevant stakeholders, may from time to time issue guidelines for the proper conduct of registered Environmental Impact and Audit Experts.
4. Every Environmental Expert shall each year attend at least two relevant seminars organized by the authority for the purposes of improving the professional expertise of its members.
5. No Expert shall exploit the inexperience, lack of understanding, illiteracy or other lack of technical knowledge in environmental matters of a project proponent, owner or the public, for his personal gain.

#### Receiving Instructions

1. No Environmental Expert shall act for any project proponent unless he has received written instructions form such project proponent or his authorized agent.
2. An Environmental Expert shall not unreasonably delay the carrying out of instructions received from the project proponent of his authorized agent.
3. An Environmental Expert shall discharge his responsibilities to the project proponent with due diligence and integrity.
4. An Environment Expert may terminate a contract on carrying out an environmental impact assessment or audit as stipulated in section 8 of the Code of Practice and Professional Ethics of EIA/EA Experts.

#### Carrying out an EIA/EA

1. An Environmental Expert shall follow relevant regulations or guidelines and directives issued by the Authority.
2. As Environmental Expert shall take due care and diligence to collect the relevant data to address the significant environmental issues in the various stages of the assessment or audit process and fully acknowledge the source of any data that is not the result of his findings.
3. Environmental Expert shall consult widely with all the relevant agencies, stakeholders, interested parties and the general public on all the matters that likely to affect them.
4. An Environmental Impact Assessment or Audit Report shall be based on the Terms of Reference of the Assignment and shall include all the matters relevant to the findings of the study, all the relevant matters are required by statutory provisions, and must be guided by professional standards and judgments.

#### Responsibility of Lead Environmental Experts

1. (1) An Environmental Lead Expert shall be responsible for the documents prepared by him/her on behalf of the project proponent.  
(2) An Environmental Expert shall guide the proponent throughout the preparation of the environmental impact assessment and/or environmental audit, and/or during implementation of the Environmental Management Plan.  
(3) An Environmental Expert shall disclose to a client or employer any relationships of conflicting or competing interests that may influence his judgment prior to the carrying out of work.

#### Misconduct of Environmental Experts

1. An Environmental Expert who contrivances a provision of Code of Practice and Professional Ethics shall be deemed to have committed professional misconduct and shall be subject to disciplinary action by the Authority as appropriate and as stipulated in the Code of Practice and Professional Ethics of Environmental Experts.

#### Disciplinary Action

1. Where an Environmental Expert is found to have committed professional misconduct by the Environmental Experts' Advisory Committee/Authority shall be punished as stated under section 19 of the code of Practice and Professional Ethics.

#### Appeals

1. (1) An Expert aggrieved by the decision of the Authority may apply for the review of such decision in the High Court.  
(2) if an application for judicial review shall not have been filed at the expiry of 30 days from the date of the decision of the Authority, the director General may publicize the disciplinary action taken against the Expert.

