KENYA ELECTRICITY TRANSMISSION COMPANY

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR

PROPOSED MARSABIT - ISIOLO 220kV POWER TRANSMISSION LINE

ESIA STUDY REPORT

FEBRUARY 2017

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FACT SHEET

Assignment Name	Proposed Marsabit - Isiolo 220kV Power Transmission Line
Type of Facilities	224 km double single circuit 220 kV overhead transmission line interconnection from a proposed 400 kV/220 kV Marsabit Substation to a proposed 220/132kV Isiolo substation. 20 km single circuit 132kV overhead transmission line interconnection from a proposed 220/132kV Isiolo Substation to an existing 132 kV Isiolo Substation
Financier	China International Water & Electric Corp P.O. BOX 38653-00100, NAIROBI
Location	Between Marsabit to Isiolo substations the line traverses through Hulahula, Karare, Kamboe, Log Logo, Laisamis and Merille locations in Marsabit county, Sereolipi and Waso locations in Samburu county, Ngare mara, Isiolo Central and Isiolo West locations in Isiolo county. The 20 km 132kV Isiolo transmission line Start from Isiolo West location to Kithima Location in Meru County
Name and address of the Proponent	Kenya electricity transmission company Kawi complex, block B, South C, P. O. Box 34942 – 00100, Nairobi. Email: info@ketraco.co.ke Mobile phone: (+254) 719 018000
Start Date	October 2016
Completion Date	January 2017
LEAD EXPERT	Vitalis Too Enwag Company Ltd. P.O Box 990-00200, Nairobi Email: vitalistoo@yahoo.co.uk
Lead expert license No.	1871

CERTIFICATION

This ESIA study report was done in accordance with the requirements of the Environmental (Impact Assessment and Audit) Regulations, 2003, pursuant to The Environmental Management and Coordination Act, (EMCA) 1999 and acceptable international standards.

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(Official stamp)

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Lastly, we appreciate the contribution of the local communities and other stakeholders for their cooperation and willingness to give their views and comments concerning the proposed project during our public meetings and interviews as part of the public participation process.

ACRONYMS AND ABBREVIATIONS

DOHS	Directorate of Occupational Health & Safety
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management Coordination Act
EMP	Environmental Management Plan
ERC	Energy Regulatory Commission
ESIA	Environmental & Social Impact Assessment
ESMP	Environmental & Social Management Plan
IUCN	International Union for Conservation of Nature
KETRACO	Kenya Electricity Transmission Company
MW	Mega Watts
NEMA	National Environment Management Authority
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
kV	Kilo Volt

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1.0: INTRODUCTION

1.1 Purpose

This is an Environmental and Social Impact Assessment (ESIA) study report compiled by ENWAG Company at the request of China Water and Electricity Company limited (CWE). The report is for the proposed power transmission line from Marsabit to Isiolo. The proposed project consists of the construction of a new 224 km double single circuit 220 kV overhead transmission line interconnection from Marsabit to Isiolo. It starts from a proposed substation in Hula hula near Marsabit town and travels southwards to a proposed substation in Isiolo and 20 km single circuit 132kV overhead transmission line interconnection from a proposed 220/132kV Isiolo Substation to an existing 132 kV Isiolo Substation

1.2 Background

This study report is for the proposed Marsabit-Isiolo transmission line. The line is to carry 220 kV of electric power to a substation near Isiolo town. According to the EMCA act of 1999, a project of the proposed magnitude requires an Environmental Impact assessment (EIA).

The Environmental Management and Co-ordination Act (EMCA) of 1999 created the national body that oversees the implementation of the provisions of the act and alongside other interested parties like the financiers, this study report is done in fulfilment of the requirements of the act. The second schedule lists the projects that require the study and the electricity transmission lines of this magnitude fall in the list. Together with the related substations, they fall under the 'electrical infrastructure' as is on the list.

The study herein was conducted with the aim of ensuring that the environmental and social impacts of the project on the communities it interacts with- both positive and negative- during construction and at operation are identified and mitigation measures put in place at the planning stage.

The study report also contains a summary of the project and the responsibilities of the different stakeholders at every stage of its implementation.

1.3 Objective of the assignment

A) Main Objective

This assignment set out to study and come up with a detailed Environmental and Social Impact Assessment study report that addressed both the positive and negative anticipated Environmental and Social impacts of the proposed transmission line and come up with mitigation measures of the identified impacts.

B) Specific objectives

The following were the specific objectives that helped achieve the main objective.

- Identification of probable environmental and social impacts of the proposed Marsabit-Isiolo transmission line.
- Identifying mitigation measures for the impacts identified.
- Identify project alternatives where necessary.
- Collect views of the affected persons on the proposed project. Prepare an Environmental and Social Impact Assessment study report as is required by the EMCA act of 1999.

1.4 Scope

The scope of the services the consultant provided included the following

- Public participation meetings.
  This was done through public consultation meetings where the area chiefs and were the main facilitators.
- Identifying and meeting key informants in the region of the proposed project.
  The informants, mainly leaders and opinion leaders were met at their respective offices.
- Identifying the key institutional and regulatory arrangements as relates the project
  The institutions were identified as per the requirements of ESIA. Some of the institutions consulted included; county environment officers, local authorities, county cultural officers, county livestock officers, lands officers, water officers among others.
- Literature review
  The review made the task clearer in the sense that the guiding frameworks were studied and the policy of the institutions related to the study identified. The guidance of the legal framework was studied too.

1.4 Methodology

1.4.1 Understanding the transmission line route

The first step in environmental assessment of the proposed project is to understand the proposed line route based on map, also analyse the direct and indirect environmental impacts; which is so important to determine the scope and depth of the study.

1.4.2. Data collection

Required data is gathered based on the activities and main components of the project as well as characteristics of the study area which was done through desk and field study.

i. Desk study

- Review of environmental laws, regulations and standards, all environmental Acts, laws and regulations of Kenya and national and international standards, related to the project and potential pollutions were reviewed. In addition, all national protected areas were analysed to see if any was affected by the project.
- Search in reputable internet websites
- Getting data and information from proponent about designs of the project and maps of the area. A description of the project was done in the report and all project activities in construction and operation phases separately with emphasize on destructive activities on environmental parameters were identified.

ii. Field Study

Considering the proposed project traverses through four (4) counties, the visit was focused on the route. The visits were made to identify and study the environment of the project region from the important viewpoints such as flora and fauna species and habitats. To identify the fauna species and collecting sufficient data from the region, the study area was evaluated on the basis of the region transects considered.

Collecting the data and information on the basis of the desk and field studies, leads to perfect understanding of the rules, regulations and standards of the environment and the organizational structure of the related organs, as well as the project and its components, the existing status of the study area environment comprising physical-chemical, biological-ecological and economical-social and cultural parameters.

1.4.3 Environmental Baseline Study (EBS)

EBS was provided based on the gathered data in desk and field studies. In fact EBS is a survey about present status of the environment of the project. In this step, Physio-chemical, Biological-Ecological and Sociological characteristics of the environment are studied.

The main parameters of physical study include:

- Meteorology (main factors of climate and air quality)
- Topography and landscape
- Geology (mostly in terms of potential effect on ground water)

To understand the present condition of pollution in the study area, questionnaires were administered to the local people, along with field studies and obtaining information from public *barazas.*

The main parameters of Biological-ecological study include:

- Flora
- Fauna (important and threatened fauna species, biodiversity, possible migration routes)
- Habitats (habitat types, vulnerable habitats and protected areas)

The main parameters of Sociological study include:

- Social criteria (population, education)
- Economic criteria (employment, economic activities, land use, infrastructure)
- Cultural criteria (language, religion, cultural heritage)

It is worth to mention that Resettlement Action Plan (RAP) will be carried out later to determine the project cultural & socio – economic effects such as land acquisition, dispossession of cultural heritage.

1.4.4 Environmental Impact Assessment (EIA)

The approach of ESIA study is:

- To determine all positive and negative environmental impacts of the project for construction and operation phases separately, Analysis and assessment,
- Environmental Management Plan (EMP) including mitigation plan

First of all, the possible environmental impacts (negative and positive) in construction and operation phases are identified and classified based on the recognition of the environment, project activities.

After identifying the impacts, the best assessment method was selected based on the project characteristics, scale of work, availability of data and information and time schedule of the study; and impacts were assessed and analyzed through a proper assessment method.

2.0 PROJECT DESCRIPTION

2.1 Nature of the Project

The proposed project consists of the construction of a new 224 km double circuit 220 kV overhead transmission line interconnection from Marsabit to Isiolo. It starts from a proposed substation in Hula hula near Marsabit town and travels southwards to a proposed substation in Isiolo West Location. The 20km single circuit 132kV overhead transmission line will run from a proposed 220/132kV Isiolo West Substation to an existing 132 kV Isiolo Substation in Kithima Location, Meru County.

The project is designed to connect Marsabit to the national power grid and also to boost power connectivity in Isiolo town and it's the environs. Implementation of the project will be an important undertaking for the development of the Isiolo Resort City proposed under the Vision 2030 development strategy.

Kenya Electricity Transmission Company (KETRACO) wishes to construct a transmission line from a proposed Marsabit substation to a proposed Isiolo substation 224km long traversing through Hulahula, Karare, Kamboe, Log Logo, Laisamis and Merille locations in Marsabit county, Sereolipi and Waso locations in Samburu county, Ngaremara, Isiolo Central and Isiolo West locations in Isiolo county. The 20 km 132kV Isiolo transmission line Start from proposed Isiolo Substation in Isiolo West location to the Existing Isiolo Substation in Kithima Location in Meru County (near Isiolo town). The proposed Marsabit - Isiolo project involves the construction and operation of an Overhead Transmission Line (OHTL) of 220kV and Isiolo 132kV transmission line.

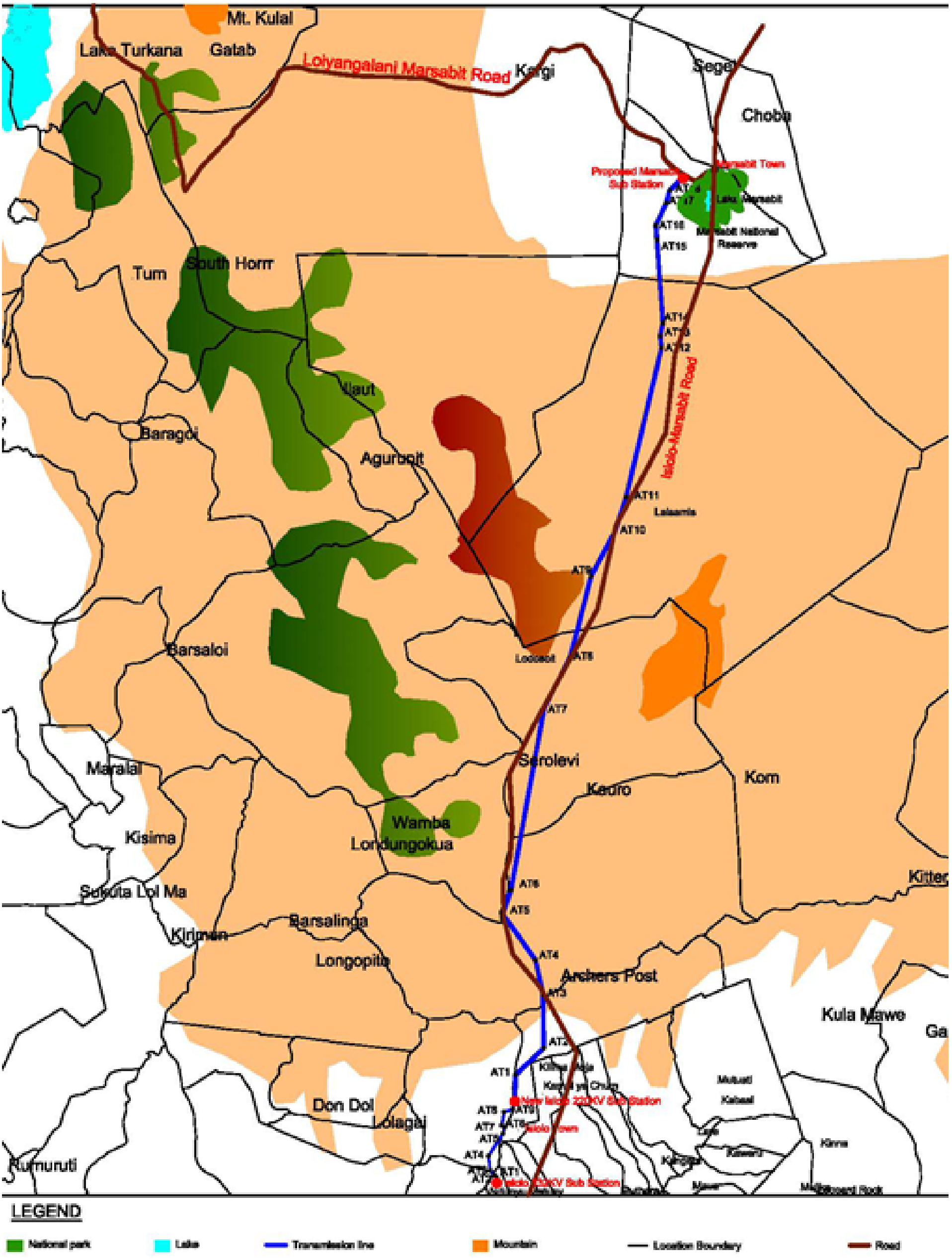

Figure 2-1: Proposed Marsabit Isiolo Line

The transmission line path has varying topography between Marsabit and Isiolo Most of the landscape along the proposed route is generally flat with few small hills and valleys. The line traverses through community group ranches and community wildlife conservancies. Most of the vegetation in the proposed line route are short acacia species and other short shrubs adaptive to dry conditions. It is only in Hula hula where tall exotic trees such as cypress, grevillea and Tasmanian blue gum are grown. It is anticipated that the contraction of the Overhead Transmission Line will have minimal impact on the wildlife.

Plate 2-1; Ostrich Birds close to the Isiolo – Marsabit Road near Merille Shopping Center

Plate 2-2; Shrub Lands growing near Sereolipi Center near the Proposed Line Route

The region experiences low rainfall throughout the year of average between 500-800mm. This is also evident from the figure above since the type of vegetation shown thrives within the average rainfall indicated above.

Water shortage in the area has been reduced by constructing a number of boreholes which solar pumped, some electricity and kijitos (wind pumped) and water pans for livestock use.

2.2 Transmission Line Design

2.2.1 General Summary of Line Paths

All coordinates of initial paths of all lines in the Project are provided by KETRACO as shown below and thereafter, it conducted site investigation along the provided paths.

Table 2-1: Corner Coordinates of New Isiolo -Marsabit 220kV same tower double-circuit line path

New Isiolo -Marsabit 220kV same tower double-circuit line		
COORDINATE SYSTEM: UTM; ARC1960		
ITEMS	**EASTINGS**	**NORTHINGS**
Dead-end near ISIOLO SS	341816.028	46301.362
AT1	341886.098	51889.002
AT2	348406.531	58023.511
AT3	348212.124	70192.594
AT4	346487.172	78010.342
AT5	339038.175	88416.356
AT6	340876.717	93969.257
AT7	348529.075	135380.802
AT8	354526.618	146999.019
AT9	359261.220	165282.191
AT10	364660.345	175356.714
AT11	367158.547	182786.521
AT12	375375.332	217181.073
AT13	375073.393	219893.232
AT14	375706.410	222848.412
AT15	374343.827	241719.583
AT16	374083.373	244962.958
AT17	376482.221	250071.194
AT18	377264.328	252943.288
Dead-end near MARSABIT SS	380012.566	255672.647

Table 2-2: Corner Coordinates of New Isiolo -Isiolo 132kVsingle circuit line path

New Isiolo -Isiolo 132kV single circuit line		
COORDINATE SYSTEM: UTM; ARC1960		
ITEMS	**EASTINGS**	**NORTHINGS**
Dead-end near Existing ISIOLO 132kV SS	337680.132	28274.222
AT1	337502.201	28735.855
AT2	336990.444	29140.143
AT3	336122.242	30208.761
AT4	336901.000	33247.000
AT5	339094.697	38627.604
AT6	339375.959	39965.619
AT7	338790.663	40419.361
AT8	339303.079	43482.042
AT9	341281.668	44086.156
Dead-end near NEW ISIOLO 220kV SS	341473.891	45330.854

2.2.2 Design of Transmission Line

1. Design Procedure

The design of transmission line was done according to the following flow chart:

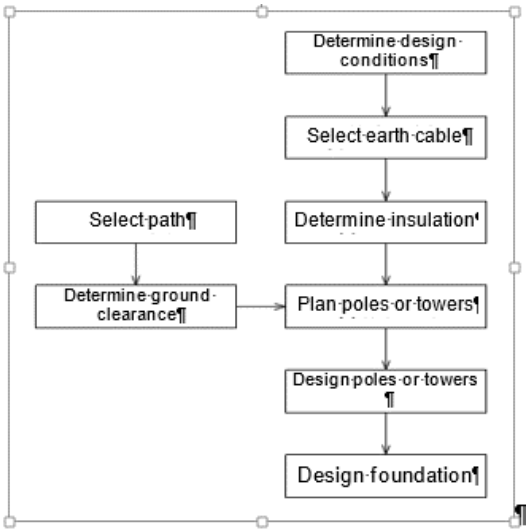

Figure 2-2: Transmission Line Design Flow Chart

2. Design Conditions

a. Design Meteorological Conditions

The combination of meteorological conditions for the design of the Project is given in the table below.

Table 2-3: Meteorological Conditions for Design of Transmission Lines

Project Operation Conditions	Temperature °C	Wind Velocity (m/s)	Frost Thickness (mm)
Highest temp.	45	0	0
Lowest temp.	0	0	0
Max. frosting	-	-	-
Design wind velocity	15	36 (3s)	0
Annual mean temp.	25	0	0
Atmospheric over-voltage	15	15	0
Operation over-voltage	25	20	0
Installation	10	10	0

2.2.3 Earth Cable

The earth cable used in the transmission lines is ACSR. The spacing of double split conductor is 400mm. For models of conductors, see the table below.

Conductor models and characteristics are provided in the table below.

Table 2-4: Canary Conductor Performance Parameters for 220kV

Description		Unit	Specification
Construction	Aluminum	Strands/Dia. mm	54/3.279
	Steel	Strands/Dia. mm	7/3.279
Cross Area	Aluminum	mm^2	456.06
	Steel	mm^2	59.10
	Total	mm^2	515.16
Outside diameter (OD)		mm	29.51
DC resistance		Ω/km	≤0.06351
Calculated tensile breaking strength		N	140950
Calculated weight		kg/km	1724

Table 2-5: Lynx Conductor Performance Parameters for 132kV

Description		Unit	Specification
Construction	Aluminum	Strands/Dia.	30/2.79
	Steel	Strands/Dia.	7/2.79
Cross Area	Aluminum	mm^2	183.4
	Steel	mm^2	42.8
	Total	mm^2	226.2
Outside diameter (OD)		mm	19.53
DC resistance		Ω/km	≤0.1576
Calculated tensile breaking strength		N	79800
Calculated weight		kg/km	842

220kV line earth cable: one 48-core OPGW.

132kV line earth cable: one 48-core OPGW.

Earth cable models and characteristics are given in the table below.

Table 2-6: OPGW-48 Performance Parameters

No. of cores		48
International standard No.		IEE 1138, IEC 60794-4-1
Wave	nm	1550
Cross area		221.02
Outside diameter (OD)		19.4
Unit weight	kg/km	<850
Rated tension strength	Newton	≥ 93,000
Equivalent Young modulus	N/mm2	≥ 70,000

Table 2-7: ACS No.7/8 Awg Performance Parameters

Standard: ASTM B416

Title of standard		No.7/8 Awg
Standard		ASTM
Type		ACS
Cross area	mm^2	58.56
Outside Diameter (OD)	mm	9.78
Unit weight	kg/km	390
Rated tension strength	kN	70.81
Equivalent Young modulus	N/mm2	162000
Linear elongation coefficient	/°C	12.96×10^{-6}

2.2.4 Insulator-Strings and Fittings

i. Insulator strings and Earth Cable-strings

Insulator-strings are long-rod composite ones and fittings are constructed of metal materials conforming to the respective IEC requirements.

ii. Types of Insulators

Insulators are constructed into an aerodynamic shape and so designed to minimise the contamination of dust and other solid adhesion. Insulator-string will determine the size of tower head.

Long-rod composite insulators are constructed of boron RTV silicon rubber, conforming to technical parameter requirements and duly approved by the Engineer. The materials for composite insulators shall be of recognised quality and made to accepted mix design. The materials shall be tested to meet technical and

testing requirement given in IEC61109. Insulator material type test report shall be submitted for review.

Straight line tower insulators are usually of suspension type. Suspension insulator shall be supplied with replaceable shield ring. Suspension and tension support of the type designated in technical parameter table shall be used for phase-conductor. Yoke plate is used to fix split conductor.

Composite long rod insulators shall be supplied with caps and pins in accordance with IEC61466-1 requirements.

iii. Grading Rings

Grading rings are constructed of recognised galvanised mild steel or aluminium and fitted on all suspension and tension insulator-strings. The device is fixed onto insulator fitting but not directly installed on conductor clamp or insulator head. The device shall be so designed to reasonably reduce the damage to conductor and fittings by flashover. The usual shape and type of active end are so designed not to limit the replacement of insulator when the line is alive.

Grading rings are necessary for 220kV and above transmission line system. For application in 220kV system, grading rings are assembled at end of suspension insulators.

iv. Fittings

Suspension and strain clamps used for conductor and earth cable should be of recognised type and light in weight. All clamps shall be so designed to avoid the possibility of strand separation or single strand deformation.

Sufficient load carrying area shall be maintained between fitting in order to avoid point contact as much as possible.

All bolts and nuts shall meet the requirements for bolts and nuts used in tower installation and shall be secured by anti-theft bolts except where specified otherwise. The mechanical strength of fitting shall conform to requirements and minimum failure load of each member shall be clearly provided in construction drawings.

All steel members shall be constructed of steel, ductile cast iron or forged cast iron and galvanised and shall have sufficient strength, wear resistant and withstand repeated vibration. Split pins shall be constructed of nonferrous metal or stainless steel and designed into self-locking type.

Tension string fittings shall be so designed to meet the requirement for replacing strain clamps and hangers of strings.

- Conductor Suspension Clamps

Suspension clamps shall be light in weight as much as possible, constructed of aluminium alloy and so designed to avoid the possibility of strand deformation and individual strand separation and enable conductor to turn freely vertically.

Except for jumper strings, suspension clamps shall be supplied with pre-stranded wire of suitable size to be installed on the conductor to stop complete conductor falling with pre-stranded wire when the load is less than 2500kg. Special attention shall be paid to corona loss of different parts of fittings.

- Conductor strain clamps

Strain clamps are of compression type. Each clamp shall be supplied with galvanised steel U-shape or ball-shaped fitting, aluminium cap and aluminium jumper press, bolted secured jump line and terminal.

- Earth cable suspension clamps

A set of earth cable suspension clamp shall include a suspension clamp, fitting and tie-cable hung on top of towers. Centrally rotating suspension clamp is constructed of forged cast iron, ductile cast iron or drop-forged steel.

The tie-cable is constructed of galvanised steel strand and connected with steel tower steel material for grounding.

- Earth cable strain clamps

A set of earth cable strain clamp includes two clamps and a jump line clamp. The set is hung on tower hanging point and jump line clamp is fixed on top of the tower.

Strain clamp is suitable for OPGW and constructed of galvanised forged cast iron, ductile cast iron or drop-forged steel. Jump line clamp is so designed to enable two pieces of jump line to be securely connected to the towers.

Ultimate breaking strength of earth cable strain fitting shall be not less than 95% of earth cable rated breaking strength. Its minimum slip load shall be not less than 50% of earth cable rated breaking strength.

2.2.5 Lightning Protection and Grounding

i. Lightning protection measures

Thunder lighting activity is strong locally. To reduce lightning strike trip rate; single earth cable is installed for 220kV and 132kV line and towers and earth cable-outside conduct protection angle is not over 30°; tower span middle clearance S between conductor and earth cable shall be $S \geq 0.012L+1$.

ii. Types of pole/tower grounding devices

Each pole/tower is earthed. Pole/tower grounding device is of horizontal radial type. Grounding resistance is suitably reduced at both end incoming and outgoing cable sections in order to improve lightning protection.

2.2.6 Conductor Transposition and Phase Commutation

Conductor at both sides of double-circuit steel towers in the Project is arrayed in negative phase sequence in order to reduce electromagnetic impact and unbalanced current.

When the transmission line is over 200km, an entire transposition will be applied in order to reduce the unbalanced current at the time of normal operation of neutral direct grounded grid and safeguard the normal operations of electrical equipment. In transposition of double circuit conductor, transposition will be performed for each circuit three times. See Figure 1.1 for circulated transposition.

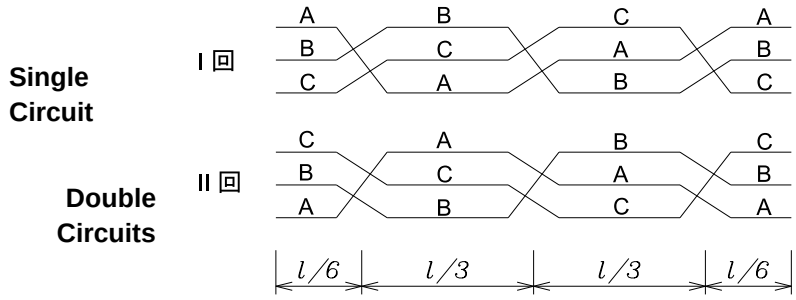

Figure 2-3: An Entire Circulated Transposition of Line

2.2.7 Cross-over and Ground Clearance

Minimum ground clearance of conductor and cross-over clearance shall conform to the requirements given in Table 2.8 (max. sag refers to sag of the conductor at +75℃).

Table 2-8: Minimum Ground Clearance and Cross-over Clearance

Type of Cross-over	220kV	132kV
Ordinary ground	7.5	6.4
Cross over road	8.0	8.0
Cross over the highest OPGW or grounding wire at the lowest conductor span with low voltage rating	3.7	3.2
Cross over the line on which a person can stand at the lowest conductor san with low voltage rating	4.6	3.8
Cross-over railway	8.5	8.5
Cross over electrified railway, structures or frames or other structures on which a person can stand	6.1	6.1
Road or another road on which another mobile crane can be operated	11.5	11.1

Wall, structure or other structure on which a person can stand or against which a ladder can lean	5.3	5.3
Street light	3.5	3.5

2.2.8 Steel Tower

i. Overview

All towers are self-standing grid steel towers. 220kV double circuit overhead line towers are constructed of drum type and bird-bone towers are used for 132kV single circuit transmission line. Steel towers shall be so designed that conductor, earth wire and all fittings can be hung by insulators under every working condition.

Two pieces of earth wire are used for protection of double-circuit transmission line; One piece of earth wire hung on top of towers is used for protection of single circuit transmission line. See Table of Characteristic Parameters for earth wire parameters. Double-circuit terminal towers can hold 4 pieces of earth wire and single circuit terminal tower can hold two. Suspension fittings are used on straight line towers and strain fitting on strain towers for clamping earth wire.

ii. Type of Poles/Towers

Types of poles/towers for 220kV and 132kV line are planned as follows:

Table 2-9: Poles/Towers Plan

Type	Condition	Corner Angle Degree	Type of String
S	Straight	0° - 2°	Suspension
LA	Corner	0° - 10°	Strain
MA	Corner	10° - 30°	Strain
HA	Corner	30° - 60°	Strain
DE	Terminal	60° - 90°(0° - 45°)	Strain (terminal)

Standard height steel tower is supposed on the basis of the basic span, maximum conductor sag and specified normal ground clearance at highest ambient temperature.

iii. Use of Standard Towers

For lines of different voltage rating, designed standard towers are as follows:

When the line path is straight, S towers and suspension insulator-string are usually used.

When the line corner angle is not over 2°, suspension insulator-string are also usually used, but neighbouring spans shall be reduced.

When the line corner angle is over 2°, corner towers and strain strings are used.

LA towers may be used as strain straight line towers.

Terminal towers DE and strain strings are used at transmission line terminal. DE towers are designed to withstand all specified load no matter whether down conductor is suspended. Down conductor may extend at any angle of DE tower, but it shall deviate from tower central line by over 45° horizontally. Terminal tower and substation gantries or down conductor between anchor tower structures shall be in slack span and slack strain strings are usually used at both ends.

2.2.9 Foundation

i. Overview

The design of all standard foundation and special foundation meets the load requirements of the above towers. Cement content and the water-cement ratio of tower foundation concrete shall be determined by approved mix design and conform to BS EN206-1. Tower foundation structural design shall follow BS EN1992 or any other equivalent standard.

For self-standing towers, anchor bolt secured plug-in angle steel is used for connection between foundation and towers. Tower leg loads transferred through plug-in angle steel to concrete foundation. For each tower type, plug-in angle steel shall be designed into a standard shape regardless of the actual situation. Plug-in angle steel shall be completely wrapped in foundation concrete slab and touch foundation bottom. Plug-in angle steel is part of the foundation and it has same safety coefficient as foundation.

Except for foundation reinforcement, all underground steel structure, whether part of tower or part of the foundation, shall be galvanised and completely wrapped in concrete at least 300mm below ground and to concrete bottom, in concrete thickness of 75mm. When it is necessary, steel structure or foundation concrete shall be protected in approved manner. The cover of foundation reinforcement is not less than 50mm.

The type of foundation for particular tower shall be determined with optimum economic alternative and duly approved. Special foundation and extended type are designed only when required and followed with due approval.

ii. Types of Foundation

Following types of tower foundation are designed at the stage according to geological conditions of the lines and types of towers discussed above:

a. RCC slab foundation

RCC slab foundation is initially determined the standard tower foundation in the Project according to geological conditions. Foundation pit is excavated by hands or in mechanical means and concrete is cast in-situ. Plug-in angle steel is directly embedded into concrete and load is transferred through angle steel and bolts to concrete slab.

Under any circumstance, foundation bottom stress shall be not over allowed bearing capacity of the foundation. Eccentricity resulting from any dual way load shall be not over one third area range of foundation bottom centre. Under any circumstance, foundation bottom void area resulting from eccentricity shall be not over 25% of total foundation bottom area.

b. Rock bolted foundation

In rocky areas, rock bolted foundation may be used when surface rock or shallow ground rock is hard. Rock bolts are made of not less than 25mm diameter. deformed bar. They are directly inserted into drilled holes and the holes are then grouted. No., depth, spacing and other parameters of rock bolts are determined according to rock mass quality.

c. Special foundation

Special foundations are usually designed for particular towers and adjusted according to actual geological conditions of towers. Special foundation other than standard foundation shall be designed when allowed bearing capacity of the foundation is found very low during the study of the Project soil and its classification when particle soil fissure ground water table is very high or in case of other situation. Special foundation usually has the following two types: deep hole concrete piles with cap (drilled and concreted, or penetrated) or concrete raft foundation.

Piled foundation comprises many bored piled or precast penetrated piles and its depth is determined by geological conditions at towers. The bearing capacity of piled foundation is determined by pile head load capacity or soil shear strength on effective pile side area within pile depth depending on whether piles are end-bearing piles or friction piles. Soil mass below pile cap is not considered to have a contribution to piled foundation bearing capacity.

When tower soil mass is disturbed by other civil works or within backfilled area, raft slab foundation may be selected. The foundation comprises four main pillars and joint concrete slab. The four pillars are well positioned.

3.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Environmental Policy Framework

3.1.1. The National Environmental Action Plan (NEAP) 1994

According to this plan, it's recognised that the development projects on the environment i.e. industrial, economic and social development programs that do not take care of environmental considerations in their operations are not sustainable. Under the NEAP process, EIA was introduced and among the key targets recognised were the industrialists, business community and local authorities.

3.1.2.Sessional paper No. 6 (1999)

Policy guidelines on environment and development – the key policy objectives of this paper include:

- Ensuring that all development projects at the inception stage and programs, as well as policies consider environmental considerations.
- Ensuring that an ESIA study report is prepared for any undertaking or development project before implementation.
- Coming up with effluent treatment standards that will conform with acceptable health guidelines
- It's important to note that issues of wastewater management and human settlements are given prominence and therefore, the policy recommends re-use and recycling of residues i.e. wastewater, use of low waste generation technologies and increasing public awareness on benefits of a clean environment. It also recognises the role of stakeholders in all these initiatives within their localities.
- The paper encourages better planning in rural and urban areas in the provision of needs i.e. water, drainage system, waste disposal facilities et al.

3.2 Overview of Relevant Legislation

The EIA for this project is conducted in accordance with the requirements of the Environmental Management and Co-ordination Act, No. 8 of 1999 and the Environmental (Impact Assessment and Audit Regulations, 2003) Legal Notice No.101. In addition, the study takes into account other legislation related to the project. These include Energy Act 2006, the Public Health Act Cap 242, the Physical Planning Act, the local Government Act Cap 265, the Forest Act (2005) and the World Bank guidelines on EIA procedures.

For a long time, legal provisions touching various aspects of environmental protection and management were scattered in 77 different statutes. This set up did not offer adequate protection of the environment mainly due to weak legal and institutional framework and conflicts between the various Statutes and sectors. In

(1999), a Bill to provide for the establishment of a comprehensive legal and institutional framework for the management and protection of the environment was enacted into law as the Environmental Management and Co-ordination Act, 1999 and received Presidential assent on 6th January 2000. This Act has addressed the shortcomings of the previous legislation in that it has instituted controls and set up effective institutions.

3.2.1. The Environmental Management and Co-ordination Act, 1999

The main objective of EMCA (1999) and the related Regulations is to provide for the establishment of an appropriate legal and institutional framework including procedures for the management of the environment in Kenya. The Act further aims to improve the legal and administrative coordination of the diverse sectoral initiatives in the field of the environment so as to enhance the national capacity for its effective management. In addition, Act seeks to harmonise all the 77 sector-specific legislation touching on the environment in a manner designed to ensure the protection of the environment. This is in line with national objectives and sustainable development goals enunciated in Agenda 21 of the Earth Summit. As such, in terms of environmental management, EMCA (1999) provides a comprehensive and an appropriately harmonised legal and institutional framework for the handling of all environmental issues in Kenya and supersedes all sectoral laws.

Part VI of EMCA (1999) makes provision for the carrying out of EIA. It is mandatory for any person being a proponent of a project, to submit a study report to NEMA in a prescribed format. After perusing the proponent report, and NEMA is satisfied that the proposed project is likely to have significant negative impacts on the environment, it will direct the proponent of the project to undertake at his or her own expense an environmental impact assessment study and prepare a report. NEMA shall publish such a report and invite comments thereon from the public before deciding to issue an environmental impact license. The NEMA, at any time after issuing the environmental impact assessment license, may direct the proponent to submit a fresh environmental impact study where there is a substantial change in the project or where environmental threats, not earlier foreseen, have emerged.

Some key Sections of the Act relevant to the proposed project are:

Section 3 – Entitlement to Clean and Healthy Environment.

The proposed power transmission line project shall maintain a clean and healthy environment and the proponent and its contractors have a duty to safeguard and enhance environmental management in accordance with sub-sections 1, 2, 3, 4, and 5.

Section 50 – Biological Diversity

The proposed water project shall ensure that at the operation phases, conservation of biological diversity shall be observed as prescribed in (a) to (g) of this section.

Section 51 & 52 – Biological resources

The project shall enforce all measures to ensure conservation of biological resources both *in situ* and *ex situ* to ensure species threatened with extinction are protected.

Section 78 – Air quality

The proponent shall enforce air quality standards and be maintained as per NEMA's Standard and Enforcement Review Committee requirements.

Section 87 – Handling and Disposal of Wastes

The proponent shall adhere to the disposal of wastes requirement in such a manner as not to cause pollution to the environment or ill health.

Section 102 – Excess Noise

Noise during construction of the project especially from the construction vehicles and machinery is prohibited and shall be maintained to the desirable levels as is also pointed out in Cap 394.

The subsidiary legislations under EMCA 1999 is discussed in detailed as follows:

i. **Environmental Management and Co-ordination (Water Quality) Regulations 2006:** The New Water Quality Regulations provide for the protection of lakes, rivers, streams, springs, wells, and other water sources. The regulations also stipulate that all industries should refrain from any actions, which may directly or indirectly cause water pollution. All industries are therefore required to refrain from discharging effluent into water bodies. This regulation gives a minimum distance from a water body for which any development may be undertaken and as such affect the proposed projects with regards to the choice of line route.
ii. **Environmental Management and Co-ordination (Waste Management) Regulations 2006:** The Waste Management Regulations sets out standards for handling, transportation and disposal of various types of wastes. The regulations stipulate the need for facilities to undertake, in order of preference, waste minimisation or cleaner production, waste segregation, recycling or composting. These regulations provide guidelines on how to store, transport and dispose of any wastes generated during the construction and maintenance phases of the transmission lines. Some of these wastes may fall under the hazardous wastes category and thus require particular disposal arrangements.
iii. **Environmental Management and Coordination (Conservation of Biodiversity, Access to Genetic Resources and Benefit Sharing) Regulations 2006:** The

Conservation of Biodiversity Act Sections 5-9 provides for the protection of endangered species, creation of an inventory, and monitoring of their status, protection of environmentally significant areas, provision of access permits, material transfer agreements and benefit sharing. These regulations will guide the routing of the transmission line with a view to avoiding areas of environmental significance and protection of endangered species.

iv. **Environmental Management and Co-ordination (Noise and Excessive Vibrations) Regulations 2009:** These have recently been gazetted. The regulations define noise as any undesirable sound that is intrinsically objectionable or that may cause adverse effects on human health or the environment. The regulations prohibit any person from making or causing 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.

v. **Environmental Management and Co-ordination (Fossil Fuel Emission Control) Regulations 2006:** The Fossil Fuel Emission Control Regulations provide for acceptable emission standards in Kenya. Section 4 of the regulations states that any internal combustion engine for motor vehicles and generators must comply with the emission standards provided for in the First Schedule of those regulations. Hence anyone who operates such engines whether on the road, street, public highway or any premises, which emits smoke in excess of the emissions standard in the First Schedule contravenes the regulations and is liable to prosecution. Section 8 provides that any person intending to use any fuel catalysts other than those permitted by the authority to disclose it and seek prior approval. Establishments (including construction sites) that use generators as alternative sources of energy must take account of the regulation on the emission standards.

vi. **Environmental Management and Coordination (Air Quality) Regulations, 2008**: These regulations provide for the safeguarding of the ambient air quality and give guidelines to prevent and control air pollution. The first and seventh schedules of the regulations provide a list with associated emission limits of prohibited, controlled, and uncontrolled air pollutants. The regulations also give ambient air quality tolerance limits. The regulations will be particularly relevant to the construction works (including transportation).

vii. **Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009.** These regulations provide for the protection of all wetlands on both private and public land. The regulations provide for sustainable exploitation of wetlands and are aimed at maintaining both the wetlands and hydrological, ecological, social and economic functions and services.

3.2.2. The Environmental Impact Assessment and Audit Regulations 2003(Legal Notice No. 101)

Regulation 24 – EIA licence: - Environmental Impact License shall be issued after the authority approves the study report under regulations 23, and shall be issued in form and accompanied by the prescribed fee of 0.1% of the total cost of the project.

Regulation 28 – false or incorrect information: -Substantial change or modification and when project poses an environmental threat or revelation that information or data given by the license were false, incorrect or intended to mislead.

Regulation 24 – Annual Environmental Audit: - Annual environmental auditing after presentation of an EIA study report shall be undertaken by the licensee to ensure the implementation of environmental management plan is audited on regular basis, an audit report submitted to NEMA annually and ensuring that the criteria to audit is based on environmental management plan developed during the EIA process or after the initial audit.

Regulation 40 - Monitoring changes after project implementation

Monitoring by NEMA and Lead Agencies shall be done to establish any possible changes in the environment and their possible impacts, immediate and long-term effects of its operations, identify and determine parameters and measurable indicators and conduct changes that occurred after implementation.

> *The proposed project must have an ESIA license before implementation. The proponent has* commissioned *this ESIA study since the proposed project is listed in Second Schedule of EMCA, 1999.*

3.2.3. The Energy Act, 2006

The main sector-specific law that regulates the electricity sub-sector in Kenya is the Energy Act, 2006. The Act establishes the Ministry of Energy (MoE), Energy Regulatory Commission (ERC), Kenya Electricity Generating Company (KenGen), Kenya Power and Lighting Company (KPLC) and Kenya Electricity Transmission Company (KETRACO).

The Energy Act, 2006 provides for the way an electricity supply licensee is permitted to enter land for purposes of constructing electric lines. It highlights the process of establishing wayleaves and compensation for wayleaves, how complaints relating to compensation can be settled and the issue of compulsory acquisition of land for wayleaves purposes. Several other statutes complement the Energy Act in the regulation of the electricity sub-sector.

This Act will be triggered through entering of land for purposes of wayleaves establishment and for the construction of transmission line. The ESIA Study was partly been undertaken in fulfilment of requirements of the Energy Act.

3.2.4. The Forests Act, 2005

The Forests Act, 2005 provides for the establishment, control and regulation of Forests. The Act created a new semi-autonomous body, the Kenya Forest Service (KFS) and supportive institutions for management and conservation of all types of forests. This Act mandates the KFS to conserve and manage all forests. It also sets out the roles and responsibilities of communities in managing forests. KFS is also responsible for formulating policies regarding the management, conservation and use of all types of forest areas in the country. The Act embraces the concept of participatory forest management and gives particular consideration to the formation of forest community associations, which are recognised as partners in management. It enables members of forest communities to enter into a partnership with KFS through registered Community Forest Associations. It also allows lease arrangements by interested groups to supplement government efforts in plantation forest.

3.2.5. The Agricultural Act

Legislative control over soil conversation and land development are mainly controlled by this Act, and many of the provisions can be generally applied beyond those lands suitable for agriculture. The administration of the Act can impose land conservation orders on lands to control the cultivation, grazing and clearing. These controls may be necessary to protect the land against soil erosion, to protect fertility, and to maintain catchments. Local authorities are generally empowered to administer these sections of the Act, and the District Agricultural Committee is entitled to make regulations relating to these controls. The Agriculture Act is the principal land use statute covering, inter-alia, soil conservation and agricultural land use in general.

The Agricultural Land-Use Rules under Cap 318 are clear on activities proscribed in riparian areas and it's essential that the proposed construction of transmission line does not contradict requirements of this Act.

3.2.6. The Wildlife Conservation and Management Act, Cap 376

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. Section 9 of the Act states that 'the Director of Wildlife Conservation shall, through the officers of the service, control, manage and maintain all national parks'. It also states that within the National Park, the Director may:

- Reserve or set aside any portion of the park as a breeding place for animals or as nurseries for vegetation;
- Authorise the construction of such roads, bridges, airfields, buildings and fences, the provision of such water supplies, and the carrying out of such other works, as may be necessary for the purposes of the park;
- With the approval of the Minister, let sites for the erection of hotels, or other accommodation for the visitors to the park provided that nothing in any document connected with the letting shall be construed as in any manner abridging the overall control of the Park by the Service, or as preventing the Director from giving directions as to the manner in which the premises concerned shall be managed.

The Proponent shall implement the proposed measures in this document towards protection and conservation of wildlife in the project areas.

3.2.7. Way leave Act 292

The Act provides for certain undertakings to be constructed e.g. transmission lines, pipelines, canals, pathways etc., through, over or under any lands. This project is under the provision of the Act. Section 3 of the Act states that the Government may carry any works through, over or under any land whatsoever, provided it shall not interfere with any existing buildings or structures of an on-going activity.

In accordance with the Act (Section 4), notice will be given to community members before carrying out works and it shall provide a full description of the intended works and targeted place for inspection. Any damages caused by the works would then be compensated to the owner as per the section.

This will be the main legislation guiding wayleaves agreements, compensation for loss or damage to assets, loss of earnings and general inconvenience.

3.2.8. Trust Lands Act (Cap 288)

Some proportion of the land through which the proposed transmission line traverses falls under the Trust Land Act. Trust lands and those living within the jurisdiction of such land have received special consideration under the new Constitution of Kenya, 2010 and therefore in considering compensation and resettlement under the Act special considerations will be made to address provisions which will be triggered by issues of acquisition, compensation and disadvantaged persons.

3.3 Institutional Framework

3.3.1. Ministry of Energy and petroleum

The Ministry of Energy and petroleum is responsible for all the issues related to energy in the Republic of Kenya. The Ministry is in charge of enforcement of the

Energy Act, 2006. The energy sector is mainly made up of two sub-sectors; electricity and petroleum sub-sectors. Other sub-sectors are still not fully developed but the Ministry is exploring their viability and ways to develop them.

3.3.2. Energy Regulatory Commission

Energy Regulatory Commission (ERC) is established under the Energy Act, 2006 with the following objectives and Functions:

(i) Regulate the electrical energy, petroleum and related products, renewable energy and other forms of energy;

(ii) Protect the interests of consumer, investor and other stakeholder interests;

(iii) Maintain a list of accredited energy auditors as may be prescribed;

(iv) Monitor, ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities;

(v) Provide such information and statistics to the Minister as he may from time to time require;

(vi) Collect and maintain energy data;

(vii) Prepare indicative national energy plan; and

(viii) Perform any other function that is incidental or consequential to its functions under the Energy Act or any other written law.

Under the Energy Act, 2006, ERC is mandated with the task of licensing electricity generating, transmission and distribution entities.

The Energy Act, 2006 spells out the procedures to be followed when entering land for purposes of installing electricity conductors. The Act also spells out the procedure for negotiating and paying out compensation to those affected by an electricity-related project. It lays out procedures to be followed where the compulsory acquisition is necessary. The Act spells how affected persons dissatisfied by the decision of the ERC can appeal to the Energy Appeals Board. Those dissatisfied with the ruling of the Energy Appeals Board can appeal to the High Court.

The Energy Act, 2006 gives authority to the electricity provider to enter land during operation and maintenance of the electricity installations and to lop tree branches where such branches encroach on the wayleaves. The Act also gives direction on how electricity lines should interact with other infrastructures such as roads and railway lines.

3.3.3. National Environmental Management Authority (NEMA)

The National Environment Management Authority (NEMA) is established under Section 7 of the Environmental Management and Co-ordination Act No. 8 of 1999 (EMCA). NEMA is the institution with the legal authority to exercise general supervision and coordination over all matters relating to the environment and is the principal instrument of the Government charged with the implementation of all policies relating to the environment.

NEMA's functions include:

- Coordinating the various environmental management activities being undertaken by the lead agencies.
- Promote the integration of environmental considerations into development policies, plans, programmes and projects, with a view to ensuring the proper management and rational utilisation 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 utilisation and conservation.
- To establish and review land use guidelines.
- Examine land use patterns to determine their impact on the quality and quantity of natural resources.
- 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.
- Advise the Government on regional and international conventions, treaties and agreements to which Kenya should be a party and follow up the implementation of such agreements.
- Undertake and coordinate research, investigation and surveys, collect, collate and disseminate information on the findings of such research, investigations or surveys.
- Mobilise and monitor the use of financial and human resources for environmental management.
- Identify projects and programmes 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.

- Undertake, in cooperation with relevant lead agencies, programmes intended to enhance environmental education and public awareness, about the need for sound environmental management, as well as for enlisting public support and encouraging the effort made by other entities in that regard.
- Publish and disseminate manual codes or guidelines relating to environmental management and prevention or abatement of environmental degradation.
- Render advise and technical support, where possible, to entities engaged in natural resources management and environmental protection, so as to enable them to carry out their responsibilities satisfactorily.
- Prepare and issue an annual report on the State of Environment in Kenya and in this regard, may direct any lead agency to prepare and submit to it a report on the state of the sector of the environment under the administration of that lead agency (NEMA).
- NEMA is the body that coordinates and administers the Environmental Impact Assessment (EIA)/ Environmental Audit (EA) on behalf of the Cabinet secretary for Environment and Natural Resources. EIA/EA is applicable to both public and private sector development projects and programmes. A scheduled activity will not receive the necessary authorization from NEMA to proceed or continue operating until all EIA/EA requirements have been fulfilled and accepted by NEMA.

3.3.4. KETRACO

Kenya Electricity Transmission Company Limited (KETRACO) came into being as a result of energy sector reforms as enabled by the Energy Act of 2006 and further supported by Sessional paper No. 4 of 2004 on Energy. KETRACO was incorporated in 2008 and registered under the Companies Act, Cap 486. It is wholly owned by the Government and as such, it is regulated under the State Corporations Act, Cap 446. The Company was established to develop new high voltage electricity transmission infrastructure that will form the backbone of the National Transmission Grid, in line with Kenya Vision 2030. Its core business is to plan, design, build and maintain new electricity transmission lines and associated substations. These new lines will include 132kV, 220kV, 400kV and 500kV High Voltage Direct Current (HVDC).

3.4 International Conventions Applicable in Kenya

Kenya has ratified various international conventions on the environment that are applicable to this study. Conventions are agreements that are legally binding on states that have become parties to them. Kenya has the **International Convention on Biological Diversity (1992)** which promotes the protection of ecosystems and

natural habitats, respects the traditional lifestyles of indigenous communities, and promotes the sustainable use of resources.

Kenya is also party to the **World Heritage Convention (1972)** which is concerned with cultural and natural heritage. The convention deals with monuments and areas that are deemed to be of "outstanding universal value" in terms of beauty, science and/or conservation. Kenya has several sites that have been declared World Heritage Sites such as Lamu town, Mt. Kenya's natural forests, and Sibiloi National Park near Lake Turkana. Any deterioration or disappearance of such heritage is a loss to all the nations of the world.

The importance of wetlands and water birds are also covered under the **Ramsar Convention 1971**, which governs wetlands of international importance. The convention entered into force in Kenya in 1990 and it governs Lake Nakuru, Lake Baringo, and Lake Natron, which is a shared ecosystem between Kenya and Tanzania. Kenya is therefore committed to avoiding degradation of wetlands under its jurisdiction.

Kenya has also ratified the Agreement on the Conservation of Eurasian Migratory Water Birds (2001) and the African Convention on the Conservation of Nature and Natural Resources (1968), the Convention on International Trade in Endangered Species of Wildlife Fauna and Flora (CITES) 1973 which prohibits trade in species such as Dugongs and also in Ivory. The proponent will need to ensure that these important conventions are not violated during construction, operation or decommissioning of the proposed projects.

The **United Nations Framework Convention on Climate Change** (**UNFCCC** or **FCCC**) is an international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro from 3rd to 14th June 1992. The objective of the treaty is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

The treaty itself sets no mandatory limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. In that sense, the treaty is considered legally non-binding. Instead, the treaty provides for updates (called "protocols") that would set mandatory emission limits. The principal update is the **Kyoto Protocol**, which has become much better known than the UNFCCC itself.

3.5 World Bank Safeguard Policies

The objective of the World Bank's environmental and social safeguard policies is to prevent and mitigate undue harm to people and their environment in the development process. These policies provide guidelines for the bank and

borrowers in the identification, preparation, and implementation of programs and projects. Safeguard policies have often provided a platform for the participation of stakeholders in project design, and have been an important instrument for building ownership among local populations.

The World Bank's environmental assessment policy and recommended processes are described in **Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment.** Its purpose is to improve decision making, to ensure that project options under consideration are sound and sustainable and that potentially affected person have been properly consulted. The preparation of the environmental assessment is the responsibility of the borrower, but the Bank's task manager assists and monitors the project and screens it in order to determine the nature and extent of the environmental work required. The Operational Directive includes checklists of potential issues for an environmental assessment. It also proposes outlines and models for the assessment and prescriptions for the assessment and the screening procedures.

Environmental review begins with identifying the seriousness of the potential harm. The Bank screens all new projects and assigns each one of four categories based on the character, dimension, and sensitivity of the environmental issue.

- Category A: Projects which may have a significant impact on the environment and thus require a complete environmental assessment.
- Category B: Projects that may only have limited, specific environmental effects which should be investigated but do not necessarily require an in-depth environmental assessment.
- Category C: Projects for which an environmental analysis is not normally necessary e.g. education; family planning; health; nutrition; institutional development; technical assistance; and human resource projects.
- Category D: Environmental projects which do not require an assessment for the reason that environmental development is the focus of the project, and it is assumed that any environmental consequences have already been considered.

For those projects for which a full EIA is not required, but are in need of some environmental analysis (Category B), an Environmental Mitigation or Environmental Management Plan often will suffice (these are also prepared for category A projects as a part of the full EIA).

The Bank's requirement for mitigation plans includes a description of all adverse environmental impacts; a description and technical details for each mitigation measure; the assignment of responsibilities for carrying out the mitigation measures; an implementation schedule for the mitigation measures; monitoring and reporting procedures; and; cost estimates.

The Bank expects the borrower to ensure coordination among government agencies and to take into account the views of affected groups and local Non-Governmental Organisations (NGOs). It also requires the borrower to provide relevant information to affected groups and local NGOs and to hold meaningful consultations with them. The environmental assessment should form part of the overall feasibility study or project preparation and be submitted to the Bank which decides on the loan.

While the EIA is being prepared, drafts should be made available, and the final EIA must be available prior to the final appraisal of the project. The borrower submits the final EIA when it is complete to the Bank prior to the Bank's appraisal. During the appraisal phase, the Bank and the borrower together review the assessment. At this time any unclear issues are resolved, and the two parties determine whether the recommendations from the assessment have been incorporated into the project design.

The impact assessment will later provide the framework through which the project is evaluated as it is being implemented by the borrowing country. The borrowing country must inform the Bank of its compliance with the environmental conditions, the status and effectiveness of the mitigating measures, and the findings of the monitoring program. In the final phase of the process, project completion reports are required to evaluate environmental effects. The reports are to take a particular notice of whether the original assessment correctly identified the potential environmental consequences, and determine whether the mitigating measures were successful.

Environmental Assessment is one of the 10 environmental, social, and legal Safeguard Policies of the World Bank. Other safeguard policies of relevance to this study include:

- Bank Safeguard Policy 4.04 Natural Habitats;
- Bank Safeguard Policy 4.10 Indigenous People; and
- Bank Safeguard Policy 4.12 Involuntary Settlement.

OP/BP 4.04 Natural Habitats2: This safeguard policy requires a precautionary approach to natural resources management and requires the conservation of critical environments during project development. In order to ensure conservation and project sustainability, this policy requires that:

- Project alternatives are sought when working in fragile environments; and
- Key stakeholders (e.g. KWS) are consulted during the project design, implementation, monitoring and evaluation of mitigation.

OP/BP 4.10 Indigenous People3: The World Bank recognises that the identities and cultures of Indigenous Peoples are inextricably linked to the lands on which they live and the natural resources on which they depend. These distinct circumstances

expose Indigenous Peoples to different types of risks and levels of impacts from development projects, including loss of identity, culture, and customary livelihoods, as well as exposure to disease.

Gender and intergenerational issues among Indigenous Peoples are also complex. As social groups with identities that are often distinct from dominant groups in their national societies, Indigenous Peoples are frequently among the most marginalised and vulnerable segments of the population. As a result, their economic, social, and legal status often limits their capacity to defend their interests in and rights to lands, territories, and other productive resources, and/or restricts their ability to participate in and benefit from development. At the same time, the Bank recognises that Indigenous Peoples play a vital role in sustainable development and that their rights are increasingly being addressed under both domestic and international law.'

OP/BP 4.12 Involuntary Resettlement4: 'The World Bank's experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe economic, social, and environmental risks: production systems are dismantled; people face impoverishment when their productive assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. This policy includes safeguards to address and mitigate these impoverishment risks.'

'This policy contributes to the World Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. For all projects that are proposed for Bank financing and affect Indigenous Peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation. The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples. Such Bank financed projects include measures to (a) avoid potentially adverse effects on the Indigenous Peoples' communities; or (b) when avoidance is not feasible, minimise, mitigate, or compensate for such effects. Bank-financed projects are also designed to ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive'.

4.0 BASELINE INFORMATION

This chapter highlights the main features of the baseline bio-physical and socio-economic information of the project area.

4.1 Line route

A proposed line of 220kV from Marsabit to Isiolo and 132kV line in Isiolo-Isiolo passes through the following route.

The line starts from a substation in Hula-hula west of Marsabit town and travels southwards through Karare, Kamboe, Log logo shopping centers east of Losai national reserve in Laisamis and west of Laisamis town and finally west of Merille shopping center in Marsabit County.

Southwards from Merile the line traverses Samburu County passing east of sereolipi, down south the line passes east of Lerata kalama and through the Kalama Group Ranch. Down south the line cross the Marsabit – Isiolo Road from east to west near Archers Post Town crossing Ewaso Nyiro River to Isiolo County.

To the west of Marsabit Isiolo road in Isiolo it passes Ngaremara and to the west of Isiolo town it traverses Kilimani in Isiolo West where a new substation is proposed. From the proposed Isiolo Substation 32kV Power transmission line is proposed to traverses through Attan then crosses Isiolo-Meru road to the east to an existing substation in Mutunyi in Kithima Location. The figure below shows a line route of the proposed line close to Isiolo town to the west.

Figure 4-1: Proposed line route in Isiolo

4.2 Administration Boundaries

The proposed line traverses four counties including Marsabit; Samburu; Isiolo and Meru counties. In Marsabit County, the line traverses Marsabit central sub-county which contains Hula-hula, Karare, Kamboe and Log logo. Marsabit South contains Laisamis and merille. The locations traversed are Kamboe, Log logo, Laisamis and Merille.

The proposed line in Samburu County traverses Kirish kalama, Lerata kalama and Archers post in Waso sub-county in Sereolipi location and Archers post Location

The proposed line also traverses Isiolo County through Ngaremara, Kilimani and Attan in Isiolo sub-county in Ngaremara, Burat and Attan Locations.

The line finally traverses Meru County through Kithima Location in Buuri sub-county. Table below shows the summary of counties, sub-counties and locations the proposed line traverses.

County	Sub-County	Location
Marsabit	Marsabit Central	Hula-hula
		Karare
		Kamboe
		Log Logo
	Marsabit South	Laisamis
		Merille
Samburu	Waso	Sereolipi
		Archers Post
Isiolo	Isiolo	Ngaremara
		Burat
		Attan
Meru	Buuri	Kithima

4.3 Land

Most of the land in Marsabit, Samburu and Isiolo County is community owned or community ranches and some parts are conservancies. Some of the land is individually owned especially those close to the town or centres and generally in Meru County.

Close to Marsabit town and in town centres along the proposed line route e.g. Hulahula, Karare, Kamboe, Log Logo, Laisamis and Merille the land is privately owned and people have the title deeds.

Community ranches in Samburu County include Losesia community ranch, Kalama community conservancies. Few plots of lands in Sereolipi market and Archers post town are privately owned and they have title deeds.

As well as the other Marsabit and Samburu County the land is community owned such as Ngaremara community ranches and community conservancy e.g. Leparua

community conservancy in Burat Location but there is the process of getting the titles. Some parts are individually owned but there are no titles. Most land in kilimani area is community owned.

Meru County most land is privately owned and they possess title deeds.

4.4 Geology and soil

Marsabit County is generally arid. The soils range from the sandstone, red soils in some patches, to alluvial soils along the rivers. The soils can be classified into alluvial, white and red sand soils as shown in Figure 4.1. The white and red coarse sand soils are found along the rivers, where the terrain is relatively uneven and well drained. Along the mountain ranges, there is the presence of rocks. This generally will not affect excavation since they are at a significant distance to the proposed line.

Samburu County is also arid. The soils range red soils in some patches, to alluvial soils. The soil distribution in the county is complex and is influenced by intensive variation in relief, climate, past volcanic activities and the underlying rocks. The figure below shows Samburu county soil type.

There is the presence of rock bed close to the hills but this does not affect excavation during pylon erection.

Isiolo County is generally arid. The soils range from black cotton to alluvial. The soil is a generally week hence affected mostly by erosion during high floods. The figure below shows an area recently affected by floods.

Meru county soils are fertile ranging from black volcanic to red soils. The area the proposed line is passing is black volcanic.

Figure 4-2: (a) soil type in Marsabit near Log logo (b) Soil erosion in Kilimani in Isiolo County

4.5 Climate

The climate within Marsabit County is semi-arid and hot with average temperatures range of between 26°C and 32°C and difference in Marsabit. Rain falls infrequently averaging between 100mm and 250mm, usually only around October through December to April, and quite infrequently from year to year. It experiences also high average sunshine hours of between 200Hrs and300Hrs. Combined with hot temperatures and extreme evaporation, this makes the region best suited to nomadic pastoralism of camels, goats, cows and sheep, which are well adapted to surviving in hot, dry habitats.

The climate within Samburu County is semi-arid and dry almost throughout the year with average temperatures range of between 26°C and 35°C and difference in Samburu. Rain falls is infrequently averaging between 500mm and 800mm, it is always unpredictable throughout the year. Combined with hot temperatures and extreme evaporation, this makes the region best suited to nomadic pastoralism of camels, goats, cows and sheep, which are well adapted to surviving in hot, dry habitats.

The climate within Isiolo County is semi-arid and dry almost throughout the year with average temperatures range of between 12°C and 28°C. Rain falls is infrequently averaging between 300mm and 500mm, it is always unpredictable throughout the year. Combined with hot temperatures and extreme evaporation, this makes the region best suited to nomadic pastoralism of camels, goats, cows and sheep, which are well adapted to surviving in hot, dry habitats. These temperatures are experienced along the proposed line route.

As one approaches the terminal in the Kithima region in Meru County near the existing Isiolo substation, there are better rainfall patterns that enable practice of Agricultural cultivation. The temperatures are cool too and the winds travel at relatively lower speeds. The temperatures average about 20°c while the rainfall hits up to around 1500 mm a year.

4.6 Vegetation

The line originates from around Marsabit town where there are different types of vegetation. This is because the town is situated on an isolated extinct volcano attributed to Mount Marsabit. The hills that surround this area are heavily forested, in contrast to the arid region beyond.

This area, therefore, has a mix of exotic and indigenous species of trees due to the favourable climate associated with the town. Examples of exotic trees here include cypress; grevillea and Tasmanian blue gum. Beyond Marsabit town are areas dominated majorly by shrubs and scattered trees. By the Kenya forests standards,

there has been a sharp decline in forest cover in the region, especially in the recent decade.

Southwards towards Karare and Kamboe, the shrubs take dominance and the exotic trees are hardly seen. A few Acacia trees are scattered along the path line of the proposed line too. Further south towards Logologo Laisamis and Merile, there exist scattered bushes of shrubs, acacia trees become common and the typical semi-arid vegetation is clearly observed.

Near Kalama and Lorubae in Archer's post, the bushes give way to scantily scattered semi-arid shrubs. Grass dries out and all the region has strictly vegetation that can withstand the harsh conditions of the region.

This region has the 'Mathenge' species of shrubs encroaching. The mathenge is exotic and of limited economic value to the residents.

Lewa, Ngare Mara and Attan regions have relatively thicker vegetation comprising of short bushes, Acacia trees and shrubs.

Towards the proposed substation near Isiolo, the line passes through Kilimani and Kithima areas where the vegetation is green. More trees are seen and exotic types become common. This is because the region is closer to Meru and has a good climate. Table 4.1below shows a summary of the vegetation along the line from Marsabit to Isiolo.

Table 4-1: Vegetation cover along the proposed Line from Marsabit to Isiolo

Region	Description	Origin	Examples
Marsabit town, Hula hula	Fair vegetation Cover. Trees and Crops	Indigenous	Acacia
		exotic	Cypress, grevillea and Tasmanian blue gum
Karare, Kamboe	Bushes that are spread evenly	Indigenous	Shrubs, Acacia, *Olea eurpaea*
Loglogo, Laisamis, Merile	Dense bushes of thorny shrubs.	Indigenous	Shrubs, Acacia, *Comiphora boiviniona*
Kalama, Lorubae	Scanty shrubs, dry grasses, Semi-arid trees	Indigenous	Thorny shrubs, Acacia
		exotic	Mathenge
Lewa, Ngare Mara, Attan	Scattered shrubs, Dry grass	Indigenous	Shrubs, acacia
Kilimani, Kithima	Tropical vegetation cover.	indigenous	
		exotic	Blue gum, Cypress

Figure 4.2 below shows a sample of the vegetation cover along the proposed line route.

Figure 4-3: Vegetation covers in Lorubae and Ngare Mara respectively

4.7 Water resources

There are two categories of water resources in the regions traversed by the proposed line;

4.7.1. Surface water resources

A) Rivers

Here, we have perennial and seasonal rivers. The perennial rivers include Ewaso Ngiro and river Mutunyi. Ngiro is majorly in Isiolo while Mutunyi is near the Meru border. The seasonal rivers that are close to the line include rivers Merile and Milgis.

Figure 4-4: Bridge across River Mutunyi showing part of the vegetation

B) Lakes

The lake that is relatively close to the proposed project is Lake Paradise. This is a perennial lake in Marsabit County.

4.7.2. Subsurface water resources

The following are the standout subsurface water resources in the proximity of the proposed project.

- Logo Logo aquifer. This aquifer exists about 50 km south of Marsabit town in Logologo.
- Merti aquifer. This aquifer is cross boundary and exists in both Marsabit and Isiolo counties. Garissa and Wajir counties are also touched by this aquifer.

Here is the summary of the water resources in the proximity of the proposed line.

Table 4-2: Water resources sources summary along the proposed route

Resource class	Class	Type	Name	Location
surface	Rivers	Perennial	Ewasi Ngiro	Isiolo
		seasonal	Mutunyi	Meru Border
	lakes	Perennial	Paradise	Marsabit
Subsurface	Aquifers		Merti	Isiolo, Marsabit
			Logologo	Logologo

4.8 Protected areas

There are three categories of protected areas that are close to the proposed transmission line;

4.8.1. National Reserves

The one national reserve in the region is Marsabit National Reserve. This reserve borders logo logo, Korr, Kargi and Marsabit town. The proposed project avoids the national reserve.

4.8.2. Conservancies

The Kenya wildlife Services (KWS) recognises the following conservancies that fall within the proximity of the proposed transmission line.

- Kalama community conservancy.
- Songa Community conservancy.

- Jaldesa community conservancy.
- Mpuskutuk community conservancy.

Although the project avoids the Wildlife Conservancies it crosses a wildlife corridor near the Kalama Wildlife Conservancies in Kalama Group Ranch. This wildlife corridor is used by Elephants crossing the Isiolo - Marsabit road in search of water and pasture, the corridor is vital for animal migrating between the Samburu and Marsabit areas. Other wildlife animals found in the area include zebras, reticulated giraffes, wild dogs, cheetahs, and leopards

It is envisaged that the proposed transmission line will have minimal effect on the wildlife, it is proposed that the towers for the transmission line be constructed outside (or at the edges) of the corridor.

4.8.3. Gazetted forest

The proposed line avoids gazette forests, however it passes near the mount Marsabit forest. This is an area protected by KWS both for the natural vegetation and as a home to the wildlife that is common in the region. It is envisaged that the project will have minimal or no effect on the forest.

4.9 Wildlife

The wildlife that is common in the pathway of the proposed transmission line include; Elephants, Ostriches, Zebras, Giraffes, Squirrels, Antelopes, Gazelles, Hyenas, Vultures and Lions

Most of the above listed animals are found in the national park and the conservancies. Some roam freely and are in neither of the protected areas. It Is anticipated that the line will have minimal effect on the wildlife. Upon construction of the line; animals can graze below and cross the line freely.

Figure 4-5: Wildlife Crossing the Isiolo – Marsabit Road at Kalama Community Ranch

4.10 Baseline Social Setting

The purpose of this section is to provide a socio-economic profile of the study area by reviewing the demographic trends and economic performance of the area.

Kenya's economic blueprint is the Vision 2030 which recognises the energy sector as one of the enablers of economic, social and political pillars underlying the vision. Sessional paper no. 4 of 2004 on energy also recognises that affordable, quality and cost-effective energy services are an important prerequisite for the attainment of accelerated socio-economic growth and development.

4.10.1. Administrative Units

The proposed transmission line cuts across Marsabit, Isiolo, Samburu and Meru Counties through the following administrative Sub-units namely: (Hulahula, Karare, Kamboe, Logologo, Laisamis and Merile) in Marsabit County; (Sereolipi, Kalama, Kirish , Attan and Lorubae) in Samburu county; Ngare Mara, Kilimani, Kithima in Isiolo County and Kithima in MeruCounty.

4.10.2. Culture

Hulahula, Karare, Kamboe, Logologo, Laisamis and Merile locations in Marsabit County is populated by various ethnic communities including the Cushitic who comprises of Gabbra, Rendile, Borana and Burji. Sereolipi, Kalama, Kirish, Attan and Lorubae locations are inhabited by the plain Nilotes; Maasai, Turkana, Ngare Mara and Samburu communities. On the other hand, Kilimani area in Burat ward, as well as Kithima location in Isiolo, is inhabited by Cushites who comprises of Somali, Borana and Gabbra as well as plain Nilotes such as Samburu and Maasai. Kithima area is in Meru County and is inhabited by Meru community, Somali and other plain Nilotes such as Maasai and Samburu.

In most of the named above communities expect for the Meru community, Men are traditionally responsible for taking care of animals, while women are tasked with taking care of their children and performing day-to-day chores in the home.

Therefore the principal ethnic groups of people that are found in the project area are; Rendille, Gabra, Turkana, Borana, Somali, Merian, Samburu and Maasai.

The majority of these communities live in huts and Manyattas. The majority of household walls in are made from Mud/ Wood and household floors are made of earth. In addition, corrugated iron sheets, grass and makuti are the most commonly used roof materials used by community members.

Islam, Christianity and other traditionalist religions are some of the main religions practised in the project area.

a. **Cultural Heritages**

The most common historical sites within the project area include Shrine (dambi), Boji, Rivers, Hills, Mountains and Kubi Fora.

4.10.3. Gender Issues

The communities in the project area (Maasai, Samburu, Rendile, Borana, Turkana and Somali) face high gender inequality as women and youth participation in development is low. In most cases, very few women and children are involved in leadership and decision-making at the grass root level. The most affected group is women who are discriminated against and have less economic opportunities as compared to men. Just like any other pastoral regions, women have less control over capital and other resources. Men dominate resources and women are left with no share although they contribute significantly to its acquisition. Customary law, cultural attitudes and rigidity to gender roles overburden women; for instance, women are tasked with taking care of their children and performing day-to-day chores at home; hence hindering them from taking part in leadership and decision making at the grassroots levels, and they do not contribute actively to development processes in the counties.

Gender discrimination also affects economic growth by intensifying poverty.

4.10.4. Poverty

Poverty can be described as a situation where individuals or households cannot afford basic food and non-food items. Thus, they cannot satisfy their basic needs such as food, shelter, clothing, health and education for their children. One of the project station is in Kithima (Meru) where poverty level is relatively low as opposed to most parts of the project area (Marsabit such as in Kamboe and Karare areas; Samburu such as in Sereolipi area and Isiolo such as in Ngare Mara location) high level of poverty is attributed to:

- Poor road network; where access to road and facilities is difficult
- Environmental degradation
- Insecurity
- Social-economics activities
- Marketing accessibility
- Land productivity
- Poor governance and political will
- High level of illiteracy
- Gender discrimination
- HIV/AIDS, The high number of orphans due to HIV/AIDs also contributes to high
- Poverty levels

4.10.5. Education and Literacy

In Hulahula, Karare, Kamboe, Loglogo, Laisamis and Merile there are primary schools. Therefore the community members from these areas are able to access basic education. Every location has a secondary school too. In addition, Sereolipi, Attan, Kalama and Kirish areas also have primary schools to enhance the community's children access basic education and a secondary school in every location. Literacy levels in these areas are very low as many of the community members can neither read nor write. However, there are some communities enrolled in adult classes. Therefore, there is a dire need to increase the number of adult literacy classes in the entire project area and undertake campaigns to influence enrollment.

In Kilimani- Burat Ward, there are also primary schools as well as secondary school. This area being near Isiolo town has access to many schools even in Isiolo Town. Therefore the area has high literacy levels.

Kithima in Meru County has access to basic primary education as well as secondary education. The area is also near Isiolo town hence increasing access to better education from the county schools. The literacy level in Kithima is relatively average.

5.0 SOCIO - ECONOMIC SETTINGS

5.1 Introduction

This Chapter presents the analysis and findings of the surveyed households as set out in the ESIA requirements by the National Environmental Management Authority of Kenya. The study findings are presented on the environmental and social impact assessment of proposed Marsabit- Isiolo 220kV/132 kV transmission line. The data was gathered exclusively from the questionnaires as the research instrument. The questionnaire was designed in line with the objectives of the study. The socio-economic attributes include household access to social amenities, household main source of income, and household land possession among others.

5.2 Socio-Economic Survey Findings.

During the study, the socio-economic survey carried out targeted household heads. Random sampling was used to select the respondents from the project area.

5.3 Response Rate

A sample size of 97 questionnaires was administered. The response rate was 100%. This reasonable response rate was successful because the respondents were visited in their households.

5.4 Distribution of respondents in the project area

According to the findings shown in table 5.1, 44.3 % of the respondents were from Laisamis sub-county, 27.8% respondents from Samburu East sub-county, 17.5 % of respondents from Marsabit South and 10.3% of the respondents were from Isiolo sub- County.

Table 5-1: Divisions and respective respondents

Sub-counties	Percent (%)
Isiolo	10.3
Laisamis	44.3
Marsabit South	17.5
Samburu East	27.8

Table 5.2 shows that, 19% of the respondents were from Laisamis location, 17% of the respondents were from Merille location, 13% of the respondents were from Kamboe location, 10% of the respondents were from Burat, Losioso and Waso locations respectively while 9% of the respondents were from Sereolipi location, 8% of the respondents were from Waso East while the minority of the respondents (1%) were from Laisamis Central.

Table.5-2: Locations and Respective Respondents

Locations	Percent (%)
Burat	10.3
Kamboe	13.4
Laisamis	19.6
Laisamis Central	1.0
Losioso	10.3
Merille	17.5
Sereolipi	9.3
Waso	10.3
Waso East	8.2

5.5 Age of the Respondents

Age is a factor if any economic development should be realised. According to the findings, the majority of the respondents (28.87%) were aged 36-45 years while the minority (6.19%) was aged above 60 years. From the findings, it can be deduced that majority of the respondents fall in the productive group.

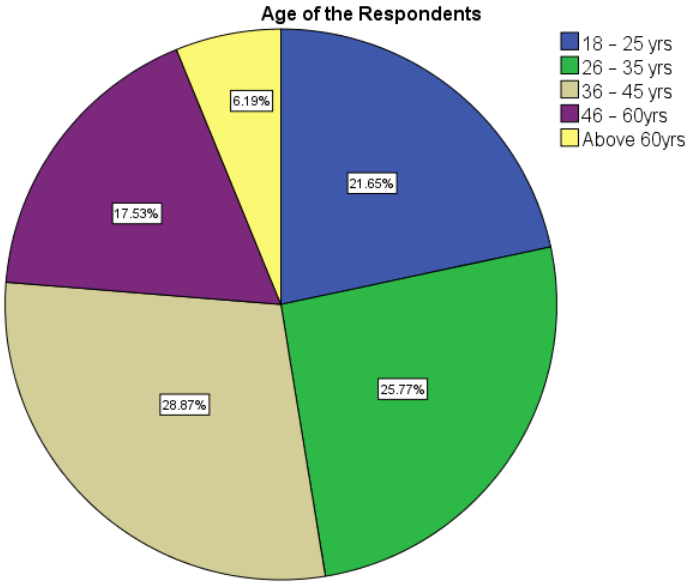

Figure 5-1: Age of the respondents

5.6 Gender of the Respondents

Gender is a factor if any social development should be realised. According to the findings, the majority of the respondents (55.67%) were male while the minority (44.33%) was female. From the findings, it can be deduced that women are fairly given the chance in contributing knowledge and opinions on proposed projects.

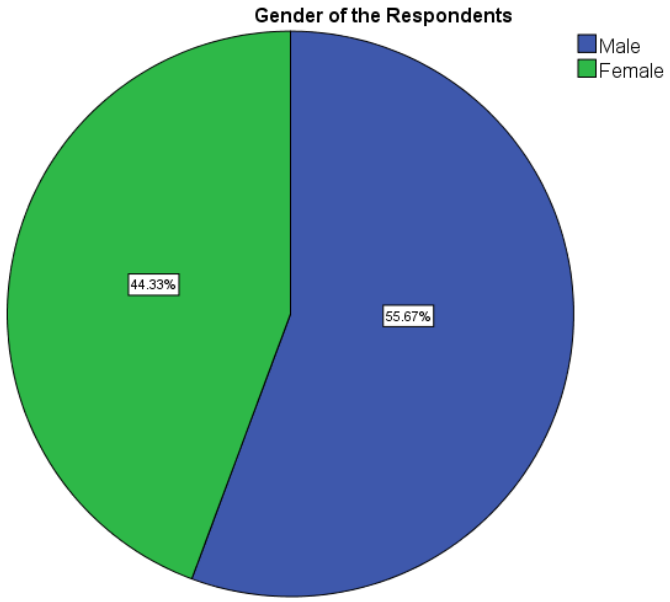

Figure 5-2: Gender of the respondents

5.7 Marital Status

The survey also sought to find out the marital status of the respondents so as to establish the vulnerable groups. Female-headed households and widows are vulnerable groups. According to the findings, majority 75.26% of the respondents are married, 12.37% are never married, 10.31% of the respondents are widowed, while the minority 2.06% are divorced. From the findings, it can be deduced that the vulnerable groups are fairly low.

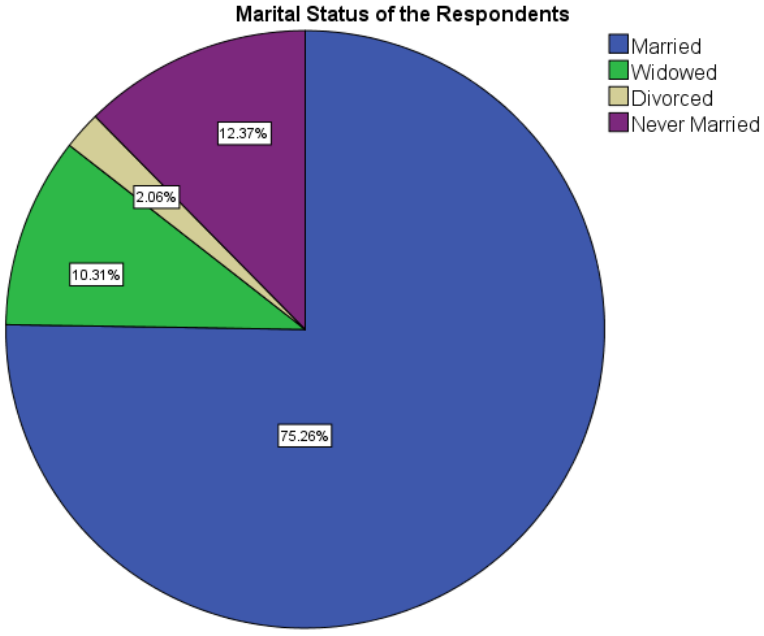

Figure 5-3: Marital Status of the Respondent

5.8 Household Size

The survey sought to find out the household size by asking respondents their number of household members. According to the findings, the majority (41.2%) of the respondents have 4-6 household members, 36.1% of the respondents have 7 and above household members while the minority (22.7%) have less than 3 household members.

Table 5-3: Household Size

Household size	Percent (%)
Less than 3	22.7
4 -6	41.2
7 and above	36.1

5.8.1 Household Members Disabled or Orphaned

The survey sought to find out the disabled or orphaned groups in a household since they are vulnerable members. According to the findings, majority 72.2 % of the households do not have vulnerable members, while the minority 27.8 of the households have disabled or orphaned members. This vulnerable group will require special treatment during wayleave acquisition process.

Table 5-4: Vulnerable Household Members

Vulnerable Household Member	Percent (%)
Yes	27.8
No	72.2

5.9 Level of Education of the Respondent.

Basic education contributes to the literacy level of an area. From the survey conducted, the findings revealed that majority of the target population 57.7% know how to write and read. Moreover, 42.3 % of the population has no education. This implies that decision making can be done based on information disseminated to the community either through reading or orally in either Kiswahili or English.

Table 5-5: Level of education

Highest level of education	Percent (%)
Primary	33.0
Secondary	16.5
College	3.0
University	5.2
No Education	42.3

5.10 Settlement and Housing Conditions

The standard and quality of dwelling units are indicators of household resource endowments and have implications for the provision of other social services. The settlement patterns in the area are influenced by natural resource endowments, rainfall patterns and economic opportunities. The conditions of most houses within the project area are temporary. During our survey, we observed that the type and quality of construction materials varied from place to place. Minor housing in the project area is a combination of permanent houses (made of stones or concrete and covered with tiles or corrugated iron sheet) near towns such as Isiolo town, Marsabit town, Archers post, Wamba town among others and temporary (made of mud and covered with grass and makuti) houses.

5.11 Land Tenure

Land ownership is a necessity for any development. As per the survey, the majority (84.54%) of the respondents revealed to own the community land while the minority (15.46%) do not own the community land. Therefore, it is evident that most people in the project area have a land.

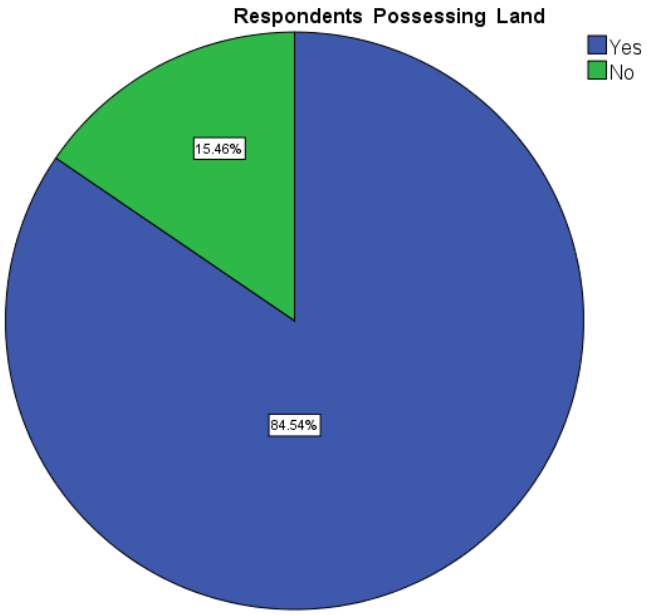

Figure 5-4: Respondent's land possession

a. Land Ownership Status

The survey sought to establish the respondents land ownership status. From the findings, the majority (over 63.9%) of the respondents own community, 24.7% of the respondents owns individual land while the minority (1%) of the respondents are squatters.

Table 5-6: Land Ownership Status

Land ownership status	Percent (%)
Owned (with title deed/lease)	63.9
Community land	24.7
Squatter	1.0
Not sure	10.4

b. Size of Land

The survey sought to establish the size of land available for cultivation and livestock keeping, amongst the respondents. Majority (over 49.5%) of the respondents who own land indicated that they own less than 2 acres, while the minority (1%) own land above 10 acres.

Table 5-7: Size of the land owned by the respondent

Size of land	Percent (%)
Less than 2 Acres	49.5
2.1-3.0	24.7
3.1-5.0	13.4
Above 5 Acres	1.0
N/A	11.3

5.12 Livelihood Activities

Regarding the main source of income of the respondent, the majority (73.20%) livestock farming while (20.62%) of the traders/ businessmen while the minority of the respondents (6.19%) are employed.

Livestock keeping is the most important livelihood strategies in the study area. The main livestock kept includes; goats, sheep, cattle, camels and donkeys. Livestock keeping is the predominant economic activity in the project area in terms of employment, food security, income generation, and overall contribution to the socio-economic wellbeing of the people.

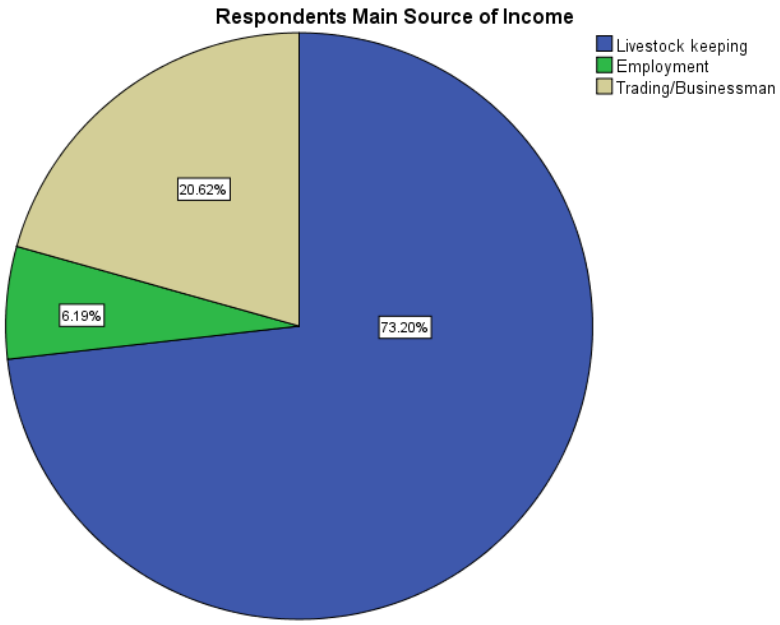

Figure 5-5: Main source of income

a. Average Monthly Income

Regarding the respondents average monthly income, the majority 67% of the respondents earns less than 10,000 shillings, 25.8% of the respondents earns 10,001- 20,000, 4.1% of the respondents earns 20,001- 30,000 while the minority 3.1% of the respondents earns over 30,000.

Table 5-8: Respondents Average Monthly Income.

Income (ksh.)	Percent (%)
Less than 10,000	67.0
10,001 – 20,000	25.8
20,001 – 30,000	4.1
Over 30,000	3.1

5.13 Cultural Heritage and Historical Monument

The survey sought to establish the presence of cultural heritage and historical monument in the project area. Majority (over 60%) of the respondents reported presence of cultural and historical monuments in the project area while the minority, 37% are not aware of any cultural and historical monument in the project area. Most cited ones are graves and shrines. The project will identify and take into considerations these sites during construction phase.

Table 5-9: Respondents Average Monthly Income.

Presence of any Cultural & Historical Monument in the Area	Percent (%)
Yes	38.1
No	61.9

5.14 Electricity and Water

Water is a basic need for household use. In addition, electricity raises the standard of living of households. The survey sought to find out the presence of electricity and water to respondents' households. According to the findings, 86.6% of the respondents do not have supply of electricity and water to their houses, while the minority 13.4% of the respondents indicated to have water and electricity supply to their houses.

Table 5-10: Household Electricity and Water Supply

Connection of Electricity & Water into Respondents House	Percent (%)
Yes	13.4
No	86.6

Regarding the respondent's previous knowledge about the proposed project, the majority 72.16% of the respondents indicated that they did not have any previous knowledge while the minority 27.84% of the respondents did have previous knowledge about the proposed electricity transmission line.

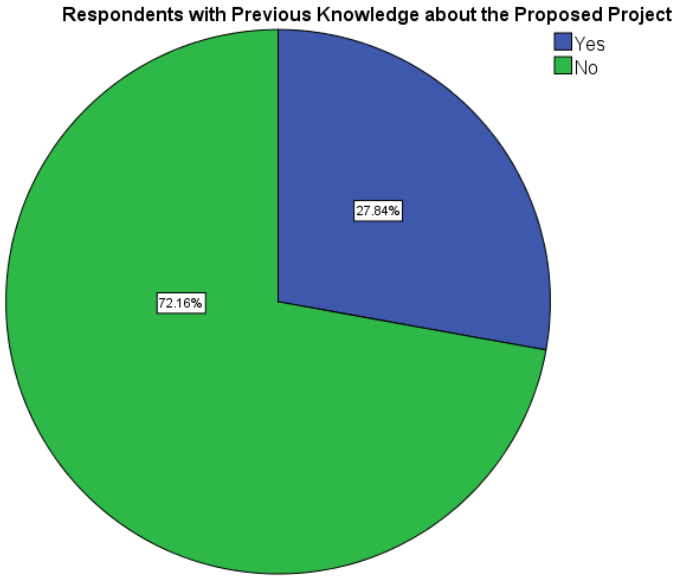

Figure 5-6: Respondents with previous knowledge about the proposed project

5.15 Project Implementation

The survey sought to find out if the respondents would agree with the proposed project implementation. According to the findings, the majority 76.29% of the respondents agreed with the project implementation while the minority, 23.71% disagreed with the implementation of the proposed project citing land acquisition as the main negative impact.

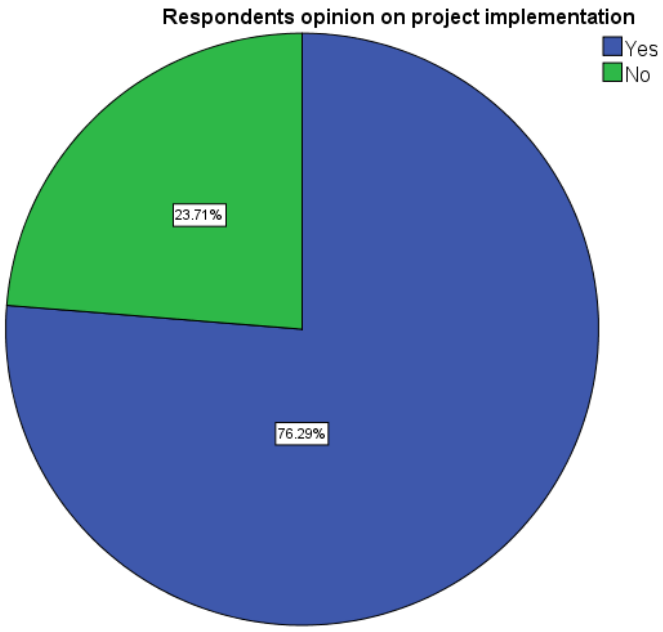

Figure 5-7: Respondents' opinion on project implementation.

6.0 PUBLIC CONSULTATION AND PARTICIPATION

6.1 Introduction

This chapter describes the process of the public consultation and public participation followed to identify the key issues and impacts of the proposed project. Views from the local residents, local community leaders, surrounding institutions and development partners who in one way or another would be affected or have an interest in the proposed project were sought through interviews and public meetings as stipulated in the Environment Management and Coordination Act, 1999.

6.2 Objectives of the Consultation and Public Participation

The objective of the consultation and public participation was to:

a. Disseminate and inform the stakeholders about the project with special reference to its key components and location.
b. Gather comments, suggestions and concerns of the interested and affected parties.
c. Incorporate the information collected in the ESIA study.

In addition, the process enabled;

a. The establishment of a communication channel between the general public and the team of consultants, the project proponents and the Government.
b. The concerns of the stakeholders to be known to the decision-making bodies at an early phase of project development.

6.3 Interested and Affected Parties Consulted

The following list outlines the parties that will be affected or have an interest in the proposed 220 kV - 132 kV transmission Line project to be undertaken by the proponent (see the full list of the people/Stakeholders consulted in the appendix).

a. Government institution/ officials
b. Ordinary citizens
c. Local community representatives (Local chairmen, Community leaders and community members)

6.4 Methodology used in the Public Consultation and Participation

The Public Consultation and Participation (PCP) Process is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated by EMCA 1999 section 58, on Environmental Impact Assessment for the purpose of achieving the fundamental principles of sustainable development. The environmental and social assessment exercise was conducted on the 7th -19th

November 2016 by a team of experienced registered environmental experts in three ways, namely;

a) Focus group and Key informant interviews and discussion.
b) Field surveys and observations.
c) Public meetings.

Comprehensive public meetings held on 14th- 19th November 2016 captured the concerns of the people especially those directly affected by the project. It was possible to meet a representative population at the time of these meetings due to the nature of the project and the number of people affected and the interest groups. Completion of the questionnaires and the issues raised during the public meeting enabled the identification of the specific issues from the stakeholders' response which provided the basis upon which the aspects of the Environmental and Social Impact Assessment were undertaken. The purpose of such interviews was to identify the positive and negative impacts and subsequently promote proposals on the best practices to be adopted and mitigate the negative impacts respectively. It also helped in identifying any other miscellaneous issues which may bring conflicts in case project implementation proceeds as planned. In general, the following steps were followed in carrying out the entire PCP process:-

a) Identification of institutions and individuals interested in the process and compiling a database of the interested and affected parties.
b) Administration of questionnaires to the different target groups and local community members along the proposed project Site.
c) Meetings at various levels and with different target groups.

Comprehensive stakeholder's meetings were held at various Locations as listed below;

(Hulahula, Karare, Kamboe, Loglogo, Laisamis, Merile, Sereolipi, Kirish, Lerata, Lorubae, Ngare Mara, Attan, Kilimani and Kithima).

The exercise was exhaustive as the stakeholders consulted were found to be truly representative of the target groups.

6.5 Background

From the field work, it was apparent that the majority of the stakeholders were not aware of the proposed project, therefore the consultants explained to the public and relevant stakeholders that the proposed development would involve construction of a 220kV-132kV transmission line from Marsabit to Isiolo and also responded to the queries that the public sought to know about the project. The proposed project was nevertheless received with mixed reactions by the community as they anticipated numerous impacts (both negative and positive). The local communities and major stakeholders independently gave their views,

opinions, and suggestions in their best interest, bringing out the factors that affected the circumstances, influences, and conditions under which their organisations exist. However, all the environmental and social issues which were raised can be adequately mitigated exhaustively as explained in chapter eight of this report. Other issues surrounding the project were successfully settled during the public meetings since ESIA team responded to the issues which were unclear to the public. The consultant particularly gave close attention to persons within the proposed way leave corridor.

6.6 Issues Raised

Interviews with the Key informants were carried out on 14th to 18th November 2016 through administering well-structured questionnaires. In addition, comprehensive public participation meetings were held on 14th and 19th December 2016 with various Administrative leaders, community leaders and the residents who are likely to be affected by the project along the way leaves a trace. The views of these stakeholders were captured and minutes of the meetings taken and attached in the appendices.

6.6.1 Positive Issues

The following is a summary of the views of the stakeholders interviewed:

a) The project is good for the development of the country since it will boost power supply and improve on industrial development, and should, therefore, be undertaken.
b) The project will improve businesses in the area and also create job opportunities for the local Youth during the construction phase.
c) The project will enhance Security due to lighting in the neighbourhood at night.
d) The attraction of innovation and invention leading to new investments due to adequate power access which will promote the local and national economy.

6.6.2 Negative Issues

Some of the stakeholders had a few reservations about the project and raised the following concerns:

a) The project may lead to displacement of the residents.
b) Resettlement of residents may interfere enormously with their livelihoods.
c) There would be increased pollution from transport vehicles during construction.
d) There would be electromagnetic radiations and risk of electrocution that may affect those residing near the way leave.

e) There would be the possibility of insecurity in the areas due to the influx of other people during the construction phase.
f) The project will lead to cutting down of trees which are very important to the communities living in the area
g) There would be loss of land and property since residents may be required to relocate.
h) Some community members were wary of the presence of the high-voltage wires in their immediate environment,

6.6.3 Stakeholders' Suggestions.

The following suggestions were raised during the consultations:

a) The government, through its lead agencies Kenya Power and Rural Electrification Authority should provide stepped-down voltage power to the residents along the proposed line for domestic use.
b) In areas where the proposed route passes many households, the proponent should consider relocating it to ensure that not many people are displaced.
c) Compensation of land should be done with consideration of the current economic situation
d) The proponent should ensure that trees are not cut down unnecessarily and those that will be felled should be replaced elsewhere.
e) The proponent should assist the local communities in other projects since they will not directly benefit from the project e.g. construction of classrooms for schools, assist students from the villages to attend secondary schools, drill borehole for villages, assist in the control of HIV/AIDS, etc.
f) The Proponent should ensure proper environmental management practices are put in place.
g) The proponent should consider employing casual workers from the local areas during the construction phase of the project.
h) Noise pollution should be controlled.
i) The affected residents should be given ample notice to move and be compensated before relocating.
j) The proponent should put up security lights in the project area to assist in lighting the neighbourhoods.
k) In regard to the risk of leukaemia, the team leader explained that studies were not yet completed and hence these are at present only perceived risks that cannot be quantified empirically

During the public forums, the minority of the community members indicated that they had prior information about the project while the majority did not have any information. However, all the community members supported the implementation of the project.

7.0 PROJECT ALTERNATIVES

7.1 'No Action' Alternative

To achieve vision 2030, Kenya needs reliable and sustainable energy sources. The current situation has Marsabit town not connected to the National grid. This proposed transmission line that originates from Loiyangalani through Marsabit to Isiolo will ensure the towns have enough electrical energy for industrial growth and reduce the frequency of blackouts in the regions to a great extent. Moreover the unclean diesel generators will be used in limited conditions of blackouts thus improving the environmental conservation efforts

There, however, would be the elimination of all the negative impacts of the proposed project that are reflected in this report. As is earlier stated, the no action option would hamper the achievement of the vision 2030 and is, therefore, unfavourable.

7.2 Alternatives That Address Development

7.2.1 Site Alternatives

The proposed route and locations of the substations have been influenced by environmental and social considerations. Some of the keenly considered amenities include locations of KWS conservancies, forest reserves, settlement areas, availability of land among others. The line avoids conflicts and resettlements in a majority of its length. If the project would change the locations, more time and money would be spent in developing accompanying infrastructure and mitigating the environmental and social effects.

7.2.2 Technology Alternatives

This transmission line ensures that the regions of Marsabit and Isiolo reduce their reliance on alternative energy in the likes of solar and wind power. These two examples are only affordable in small scale and use technology that is yet to be common in Kenya. They also can only be exploited on a limited scale. This would not help as much as the proposed project in achieving the vision 2030.

There is the option of using the small-scale generators that run on petroleum fuels. They would help operate small machines and are expensive on the long run. Their effect on the environment is adverse since their by-products are a pollutant in nature. These alternatives are accessible to few individuals and are associated with dangers especially due to poor maintenance and handling.

The use of underground cables can be an alternative to the proponents' proposed overhead cables. They are less visible and prone to fewer effects by elements of weather. However, the technology is expensive to acquire and install. The cables would have to be properly insulated apart from the need to excavate the ground

all along the proposed route. The option promises to delay the project and make it overly expensive for financiers.

7.3 Mitigation for the Proposed Action

Elsewhere in this report, mitigation measures are proposed for the environmental and social impacts identified during the study. The NEMA license alongside other authorization licences would be issued with a commitment to abide by the mitigation measures proposed during the implementation of the project.

8.0 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

8.1 Overview

Potential impacts regarding the environment are the permanent loss of vegetation (trees, shrubs and Crops) in the wayleave trace. Other impacts of temporary nature may also occur during construction works like dust emissions, noise, soil erosion, degradation of the quality of water, soil contamination by poor waste management or accidental spill of hydrocarbons and displacement of wildlife.

For the household and communities affected the negative impacts are predominantly localised and short term and will occur during the construction period. The most important long-term impacts are the permanent loss of pasture land and vegetation (access road and tower foundation). Besides these impacts some houses and infrastructure will be relocated

Moreover, temporary employment during the construction phase, and income generated by the sale of food and other consumables to workers will help financially the communities along the transmission line.

The table below shows a summary of impacts.

		Construction activities			Operations phase
No.	Impact	Casting & foundation	Tower erection	Stringing	
1.	Soil	√	-	√	-
2.	Waste disposal	√	√	-	-
3.	Noise	√	√	√	√
4.	Air quality/emissions and dust	√	-	-	-
5.	Forest resource, flora and fauna	√	-	√	√
6.	Electromagnetic fields	-	-	-	√
7.	Land take	√	-	-	-
8.	Surface water	√	-	-	-
9.	Aesthetics and visual impact	√	√	-	-
10.	Traffic and transport	√	√	√	-
11.	Accident risks	√	√	√	√
12.	Hazards due to natural disaster	-	-	-	√
13.	Loss of land use	√	-	-	-
14.	Socio-economic	√	-	√	√

8.2 Positive impacts

8.2.1 Creation of employment

During the construction of the proposed Project, there will be employment opportunities for both professionals and unskilled workers. Several workers including casual labourers, plumbers and engineers are expected to work on the project during the construction period. Semi-skilled, unskilled labourers and formal employees are expected to obtain gainful employment during the period of construction. With labour intensive construction technologies, the project will provide employment for youths and provide support to the Government of Kenya initiatives on the creation of jobs.

The creation of employment opportunities is beneficial both from the economic and social point of view. Economically, it means abundant unskilled labour will be used in site clearance, civil works, tower erection and transport of construction materials. Socially these people will be engaged in productive employment and minimise social ills like alcohol abuse which is rampant in the country. This positive change in the social behaviour will be one of the anticipated transformational indicators in the project area.

8.2.2 Injection of money into the local economy

A large sum of the project money shall be released into the local economy due to the construction activities. This money will be in the form of payments for skilled and unskilled labour; Purchases of construction materials; and payments for local provisions including fuel, foods and accommodation.

8.2.3 Creation of market for construction materials

The project will require materials, some of which will be sourced locally within the project area. Some of these include sand and hardcore for the construction of the tower foundations. Local suppliers will be given priority in supply of construction materials.

8.2.4 Economic growth

The justification of the power line is based on the ambition of the Kenya Government to be a middle-income country by the year 2030 and with that the reduction of poverty in the country which is responsible for serious environmental degradation. More importantly, availability of energy will improve the socio-economic status of Kenyans through the creation of jobs in industry and availability of power in homes, especially in rural areas.

8.2.5 Improved ICT Access

Kenya is developing rural-based ICT networks that are geared to benefit the local populations and supply local schools with ICT terminals as ICT is being integrated

into the school curriculum in line with the country's' MDGs. The policy is to incorporate optical fibre ground wire (OPGW) in all new lines. The OPGW will, therefore, be able to supply broadband communication telecommunication hubs, mobile telephone networks and digital television to population centres and schools along the project affected area.

8.3 Negative Impacts during Construction

8.3.1 Soil erosion

The activities involved in the construction phase of the project may have a negative short-term impact on soil. The change of soil structure is due to vegetation clearance, compaction, and excavation during tower foundation and access road which will leave considerable areas of soil exposed to the elements. These may result in soil erosion. Heavy machinery will be traversing the site due to the construction activities. This may lead to soil compaction and erosion of the soil.

Mitigation Measures:

- Only remove vegetation from areas for the tower construction;
- Install appropriate drainage systems to direct water away from slopes;
- Avoid as much as possible the traversing of bare soil by vehicles to reduce soil compaction;
- Designate a main access route for heavy machinery;
- Avoid site Preparation if possible in the period when wind velocities are highest.

8.3.2 Waste disposal

Liquid and solid waste will be generated in the course of construction. The wastes will range from general to hazardous categories. This impact is short term. However, the disposal mechanism of the wastes can have long-term consequences.

Mitigation measures

- All solid waste will be collected at a central location at each site and stored temporarily until removal to an appropriately permitted disposal site.
- No dumping within the surrounding area should be permitted. Where potentially hazardous substances are being disposed of, a chain of custody document should be kept with the environmental register as proof of final disposal.
- Waste generated at the site should be segregated by the contractor and disposed of in recommended manner into different waste streams (including

general and hazardous waste). Wherever possible recycling should be carried out.

8.3.3 Noise and vibration

The site preparation and construction phases of the project may likely have the most negative impact on the ambient noise and vibration in the project area. A number of measures should be undertaken by the Contractors to reduce the impact of noise on the existing and potential residents as well as the workers involved in the project. This is temporary, however, the aim at this point is to make the increase in noise as small as possible until this phase is complete. The cumulative impact of the construction activities occurring simultaneously may increase the noise and vibration levels in the area significantly.

Mitigation Measures:

- Access roads should be exclusively used for the transportation of workers, goods and materials. These roads should be sited in such a way that the noise from this movement affects very few of the existing residents as possible.
- Where possible silenced machinery and instruments should be employed to reduce the impact of noise on the existing residents and workers.
- Machinery, vehicles and instruments that emit high levels of noise should be used on a phased basis to reduce the overall impact. These pieces of equipment such as drills, graders and cement mixers should also be used when the least number of residents can be expected to be affected, for instance during periods where most residents are at work or school.
- Ensure that construction activities for the project are staggered to decrease the levels of noise and vibration in the area;
- Construction hours should be limited to the hours of 8:00 a.m. and 6:00 p.m. daily.
- The delivery of raw materials must be limited to 8:00 a.m. and 6:00 p.m daily.

8.3.4 Air quality

a) Gaseous Emissions

Emissions will be associated with combustion of fuel from the construction vehicles and equipment. These emissions may be in the form of oxides of nitrogen as well as volatile organic carbons. Similar to other combustion processes, emissions from vehicles include CO, NO_x, SO_2, and VOCs. Emissions from the construction vehicles should comply with national or international standards.

Mitigation measures

- Regardless of the size or type of vehicle, operators should implement the manufacturer recommended engine maintenance plans;

- Drivers should be instructed on the benefits of driving practices which reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits;
- Contractors should consider additional ways to reduce potential impacts including implementing a regular vehicle maintenance and repair plan.
- Recruit staff from the surrounding communities to decrease the travelling distance thus reducing emissions from vehicular traffic.
- Ensure that all vehicles involved in the transport of construction material and staff, and machinery involved in the construction is properly maintained and serviced.
- Machines must not be left idling for unnecessary periods of time; this will save fuel and reduce emissions.

b) Particulate Matter

The most common pollutant involved in fugitive emissions is dust or Particulate Matter (PM). This is released during certain operations, such as transport and open storage of solid materials, and from exposed soil surfaces, including unpaved roads.

Mitigation measures

- Use of dust control methods, such as covers, water suppression, or increased moisture content for open materials storage piles, or controls;
- Ensure that all material (sand and aggregate) stockpiled on the site to be used in construction activities are regularly sprayed to reduce the effects of wind whipping.
- Ensure that all trucks carrying aggregate and sand are covered during delivery to the site.
- Care must be taken in the unloading construction materials (aggregate, sand and cement) to prevent spillage. If a spill occurs, this should be cleaned up as soon as possible thereafter.
- Extra care must be taken to reduce dust in periods when wind speed is greatest and the rainfall amounts are lowest. This will involve extra wetting of the construction area to suppress dust particles.
- All raw materials must be sourced as close as possible to the construction site thus reducing the emissions from vehicular traffic.
- All waste must be transported off-site for processing, not burnt or stored for any longer than is absolutely necessary.

8.3.5 Surface Water

The main surface water bodies along the proposed transmission lines are Rivers Ewaso Nyiro, Merille and Serolipi. Surface water Impacts of the project can, therefore, focus mainly on these rivers. The impacts will be related to the positioning of the towers in relation to the water bodies. Unless the towers are located within the riparian zone, it seems to be unlikely that high sediment runoff from tower site works will occur and adversely affect the water quality in any nearby waterbodies.

However, the possibility of impacts on surface water resources still exist and if they occur, they would be caused by:

- oil spills resulting from fueling or maintenance activities of construction machines or poorly maintained construction machines,
- dumping of waste at/near surface waters or temporary rivers,
- sediment runoff from tower site works or transmission line clearing,
- disturbance of bank vegetation.

The magnitude of this impact is likely to be very low considering the few water bodies and the relatively small works within the tower locations.

Mitigation Measures

If locating a tower within the riparian zone is unavoidable, and if construction is in progress during rainy periods, temporary catch basins or sediment traps could be prepared if excessive erosion occurs at any particular tower site or access track.

8.3.6 Occupational Health and Safety

Use of heavy machinery during construction presents safety hazards to the workers and the community. Vehicular movements can cause accidents especially in settlement areas resulting in injuries and probably death.

Mitigation Measures:

- Ensuring that the drivers and machine operators hired to work on the site are qualified.
- Workers on site must be provided with appropriate PPE.
- Appropriate signs must be erected on the site to warn workers and visitors.
- There should be safety policy clearly displayed on the site.
- Machines should be properly maintained.
- A first aid kit should be provided and a trained first aider should always be on site.
- Fire extinguishers should be provided.

- Proper scheduling of activities to avoid workers being overworked.
- Machines/equipment for the intended purpose.
- No worker should be allowed on site while under the influence of alcohol or other inebriating substances.
- The abstract of the Occupational Safety & Health Act 2010 must be displayed at prominent places within the site.
- Ensure the working hours are controlled and that employees are not allowed to extend the working hours beyond an acceptable limit for purposes of gaining extra pay.
- Ensure that all site personnel are provided with an adequate supply of safe drinking water, which should be at accessible points at all time.
- Provide conveniently accessible, clean, orderly, adequate and suitable washing facilities within the site.

8.3.7 Disturbance of Traffic

The main impact on roads traffic will be during transportation of materials which is expected to be minimal.

Mitigation measures

- Erect warning signs of on-going works.
- Expedite construction works so as to reduce the times where roads are blocked.
- Alternatives access ways should be communicated to the community.

8.3.8 Flora and Fauna

During construction of the transmission line, there will be localised disturbance of flora and fauna especially during excavations and doing access roads. The proposed line traverse shrubs which will be affected.

Mitigation Measures

Trees taller than 5 m will be compensated and hence the commercial value of the tree will be restored to the owners. The impact on the ground cover will be restricted to the initial construction period, after which the ground cover is expected to be restored by alternative land use by the landowners.

8.3.9 Land Take

The proposed transmission line will need a wayleave corridor of 40m width. Parcels of land traversed are majorly community land (registered Community Group Ranch. However, there exists private land near urban centres which include: Isiolo Town, Archers Post, Sereolipi, Merille, Laisamis, Logo Logo, Karare

and Hula Hula. All assets affected by the project will, therefore, have to be compensated accordingly. In all areas, the land owners will continue to own the affected parcels and will utilise the wayleave trace in a manner consistent with the safe use of high voltage power transmission.

Mitigation Measures

All the affected assets will be compensated at rates commensurate with the loss. The proponent will carry out a Resettlement Action Plan for the project and it is recommended that RAP should be implemented to the later.

8.4 Negative Impacts during Operation

8.4.1 Soil

No impact on soil and vegetation is envisaged during operation of the transmission line. However, soil contamination by spillage of aluminum oxide paint is predicted when towers will be painted during maintenance period which is so minimal.

Mitigation measures

Low-frequency painting is recommended as well as using experienced personnel when carrying out such an activity.

8.4.2 Waste Disposal

No significant waste is anticipated to be generated during operation of the transmission line.

8.4.3 Aesthetic and Visual Impacts

The towers and lines along the terrain will be an extrinsic element to the existing ambience. This manmade feature will lead to visual intrusion and loss of visual amenity. The cumulative impact due to the existing transmission line can hamper the aesthetic value of the area.

Mitigation measures

Selection of the line route has deliberately avoided proximity to eco-tourism areas and lodges. However, visual intrusion will still persist across this landscape.

8.4.4 Exposure to Electromagnetic Field

Throughout the length of the transmission line, humans, plants, birds and animals will be exposed to the electromagnetic field at some stage. We find the impact of such exposure to be insignificant for a number of reasons. Exposure at a distance away from the wayleave is low due to the rapid decay of these waves (Bailey et al, 1997). People who are indoors are shielded by building materials from the intensity of electric field and ionised air, but not from the magnetic fields. The conductive tissues at the surface of the body serve to shield tissues below the

surface from external electric fields and ionised air. Ionised air that is inhaled can access the mouth and upper respiratory tract, but most of the ions are retained in the nose and bronchi with none reaching the deep alveoli of the lung (Bailey et al, 1982). Thus, even those who may be exposed to the electromagnetic field of the transmission by virtue of cultivating crops under it are largely out of danger of adverse impacts.

Mitigation measures

The EMF decrease very rapidly with distance from source and there should be no potential health risks for people living outside of 30 m provided for the wayleave area

8.4.5 Impacts on Wildlife Habitats and Migratory Birds

Birds nesting in the towers pose a danger both to themselves and to the safe operation of the power line. Large nests eventually fill with droppings that can reach the conductors and cause electric shocks or burns to birds. These will need to be regularly removed as part of routine maintenance. Previous studies suggest that climbing animals, such as baboons and monkeys learn to keep away from conductors.

The impact of a transmission line on other fauna is limited as most areas are sparsely populated and the way-leave will be cleared manually of vegetation and as such, the use of herbicides is not envisaged.

However, no areas along the line route were noted to have high densities of large birds, primates or colonies of migratory avifauna species, therefore fauna-related impacts will be marginal.

8.5 Decommissioning Phase

8.5.1 Concerns over Occupational Safety and Health

Hazards that the high voltage transmission line may pose to workers and residents during the decommissioning phase are similar to those discussed in the construction phase earlier.

8.5.2 Vehicular and Human Traffic Impacts

Movement of heavy machinery and equipment during the decommissioning will be expected. This machinery will be used for ferrying workers and materials from the active site. The equipment will be used for dismantling of the transmission line

8.5.3 Impacts from Solid and Liquid Wastes

Decommissioning activities will generate both solid and liquid wastes such as papers, cable drums, oil drums, spilt oil, planks of wood, glass, paints, adhesives, sealants, fasteners, and other domestic wastes. These wastes are hazardous to

people, soil and water within the project area if adequate mitigation measures are not enforced during the decommissioning exercise.

To mitigate these impacts, avoid as much as possible spilling oil and littering the papers wastes. Remove all the papers, cable drums, oil drums, spilt oil, and planks of wood, glass, paints, adhesives, sealants, fasteners, and other domestic wastes.

8.5.4 Noise and Vibration Impacts

The decommissioning activities will be similar in nature as those during the construction phase. The impacts will be as a result of moving machines, communication of workers and outgoing vehicles transporting project materials and workers to and out of the proposed sites.

Mitigation Measures:

- Where possible silenced machinery and equipment should be employed to reduce the impact of noise on the existing residents and workers.
- Machinery and equipment that emit high levels of noise should be used on a phased basis to reduce the overall impact. When the least number of residents can be expected to be affected, for instance during periods where most residents are at work or school.
- Ensure that decommissioning activities for the project are staggered to decrease the levels of noise and vibration in the area;
- Decommissioning hours should be limited to the hours of 8:00 a.m. and 6:00 p.m. daily.

8.5.5 Emissions and Air Pollution

Decommissioning phase activities of the proposed line will give generation to dust and exhaust fumes from vehicles and machinery. Dust emissions will emanate from pit excavation activities and movement of machinery in the project area. This directly affects the air quality of the project area

Mitigation measures

- Regardless of the size or type of vehicle, operators should implement the manufacturer recommended engine maintenance plans;
- Drivers should be instructed on the benefits of driving practices which reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits;
- Ensure that all vehicles involved in the transport of construction material and staff, and machinery involved in the construction is properly maintained and serviced.

- Machines must not be left idling for unnecessary periods of time; this will save fuel and reduce emissions

8.5.6 Increase in Social Vices

Just as in the construction phase, the population of the project area is expected to increase due to an influx of workers during the decommissioning phase. This will directly affect the normal social set up of communities living in the project area. There will be the possible decay of morality, increase in school drop-outs due to available unskilled labour, possible child labour, petty thieves and increased HIV/AIDS incidence and communicable diseases.

9.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

9.1 Introduction

The purpose of Environmental and Social Management Plan (ESMP) for the proposed project is to:

i. Initiate a mechanism for implementing mitigation measures for the potential negative environmental impacts.
ii. Monitor the efficiency of these mitigation measures based on relevant environmental indicators.

The ESMP identifies certain roles and responsibilities for different stakeholders for implementation, supervision and monitoring.

The objectives of the ESMP are:

- To provide evidence of practical and achievable plans for the management of the proposed project.
- To provide the Proponent and the relevant Lead Agencies with a framework to confirm compliance with relevant laws and regulations.
- To provide the community with evidence of the management of the project in an environmentally acceptable manner.

Conversely, Environmental monitoring provides feedback about the actual environmental impacts of a project. Monitoring results help judge the success of mitigation measures in protecting the environment. They are also used to ensure compliance with environmental standards, and to facilitate any needed project design or operational changes. A monitoring plan, backed up by powers to ensure corrective action when the monitoring results show it necessary, is a proven way to ensure effective implementation of mitigation measures. By tracking a project's actual impacts, monitoring reduces the environmental risks associated with that project and allows for project modifications to be made where required.

This ESMP is prepared for the three project stages where potential significant negative impacts manifest.

These are:
i. Construction Phase ESMP
ii. Operation Phase ESMP and
iii. Decommissioning Phase ESMP.

Table 9.1: ESMP

Potential Impact	Proposed Mitigation Measure	Responsibility	Cost, (Ksh)
	Construction phase		
Soil erosion	– Compaction of loose material. – Diversion of runoff flows from construction sites. – Regular visits lead to the identifying of areas that have problems in regards to erosion and thus are given priority so that corrective plans are implemented. – Soil excavation and embankment must be made for the immediate project area and unessential activities should be refrained from. – In order to compensate the damages incurred, due to the accelerated erosion, arising from construction activities, a control of natural erosion during the construction period must be taken into consideration.	Contractor	Contract or Cost
Surface water and soil contamination	– Oil residuals including waste oil, lubricants, used filters, should be carefully collected and stored for safe disposal, in order to prevent spilling of contaminant hydrocarbons into runoff or groundwater. – Regular maintenance of site equipment and machinery should be carried out to ensure any leakages are detected and controlled. – Solid wastes generated by activities can be disposed of in areas approved by the County government which must be identified before the commencement of construction activities. – Supervision of a representative from NEMA on the implementation of the above-mentioned mitigation measures.	Contractor	Contract or Cost

Potential Impact	Proposed Mitigation Measure	Responsibility	Cost, (Ksh)
Air Quality and Dust emission	– Sprinkle water on exposed dusty surfaces to reduce dust generation. – Trucks hauling soil should be covered with tarpaulins. – Checking, repairing and fixing the engines of vehicles and heavy machinery. All machinery and equipment should be maintained in good working order to ensure minimum emissions including carbon monoxide, oxides of nitrogen and sulphur, as well as suspended particles. – Affixing filters on the exhausts. – Utilising masks for workers who are directly in the location where dust is dispersed. – Supervision by a representative from NEMA on the implementation of the above-mentioned mitigation measures. – Staff training before the commencement of construction activities.	Contractor	200,000
Noise	- Measuring the intensity of noise by utilising the noise meter. If the level measured is higher than the permissible amount, all the methods to conserve the mental health of workers must be utilised to lessen the level of noise. Decreasing it to the standard level, and shortening the period of noise generated should be taken into consideration. - Lubricating and regular repair of equipment and machinery. - Insulating engines which create noise. - Eliminating worn out machinery. - Elevating the speed of work, so as to shorten the construction period as much as possible. - Selecting an appropriate period for construction activities and refraining from it being synchronous with the sensitive period for wildlife, such as their pregnancy and giving birth duration. - The Contractor should adopt the best practicable means of minimising noise. - For any particular job, the quietest available machinery should be used. - All equipment should be maintained in good mechanical order and fitted with the appropriate silencers, mufflers, or acoustic covers where	contractor	50,000

Potential Impact	Proposed Mitigation Measure	Responsibility	Cost, (Ksh)
	applicable. - Stationary noise sources should be sited as far away as possible from noise-sensitive areas, and where necessary acoustic barriers should be used to shield them. - Pneumatic drills and other noisy appliances should not be used after normal working hours. - Workers should be given noise protection equipment such as earmuffs and be taught how to use them and supervised to ensure such safety procedures are being adhered to. - The public should be informed that short periods of noise may be inevitable but prior warning of when noisy activities are to take place and the days and times noise of when they could be expected should be widely publicised before the activity takes place. - Fixing engines and exhausts of heavy machinery. - Use of portable acoustic barriers to shield compressors and other noisy equipment where necessary. - Observe and practice the recommended noise regulations. - Supervision of a representative from NEMA on the implementation of the above-mentioned mitigation measures. - Staff training before the commencement of construction activities.		
Loss of flora	- Minimise the number of trees, shrubs and other vegetation clearance. - Minimising clearing and disruption to riparian vegetation. - Revegetation of disturbed areas with native plant species. - Protect all the ecologically critical areas such as riparian zones by clear delineation and planting of suitable indigenous plant species. - Staff training before the commencement of construction activities. - Selection of a proper location to establish temporary camps and construction workshops (a land void of trees with sufficient distance from river) - Use of soils resulting from excavation in embankment, soil tabulation and reclamation through planting native trees	Contractor	200,000

Potential Impact	Proposed Mitigation Measure	Responsibility	Cost, (Ksh)
Fauna	- Implement all mitigation measures for noise and effort to maintain it at the permissible standard level. - Selecting an appropriate period/season for construction work and refraining from it being synchronous with the sensitive period for wildlife, such as pregnancy duration and giving birth. - The performance of mitigation measures for noise pollution and efforts to maintain it at the permissible standard level shall be effective in decreasing this impact. Regulating the timetable for the mobilisation of vehicles so as to prevent stress arising from noise pollution. A timetable regarding rock blasting, so as to prevent stress arising from noise pollution. - Prevention from spilling oil and grease compounds of vehicles and machinery on the ground so as to prevent soil pollution in the terrestrial ecosystem and its secondary impacts on wildlife through the food chain. - Prevention from the discharge of oil and grease compounds of vehicles and machinery, wastes and wastewaters into the river and streams so as to prevent the pollution of water resources. - Training of workers and staff about meaning and principals of environmental conservation, prevention methods relevant to polluting the terrestrial and aquatic environments, hunting prohibitions and the prevention of excessive disorder of wastes and debris.	Contractor	100,000
Land take	- Timely information disclosure to the Project Affected Persons (PAPs). - Explanations to PAPs in relative to the plan objectives and its positive impacts, both national and throughout the region. - Implement the Resettlement Action Plan (RAP) to the latter.	KETRACO	As per RAP report

Potential Impact	Proposed Mitigation Measure	Responsibility	Cost, (Ksh)
Occupational Safety and Health (OSH)	- Workers shall be provided with appropriate personal protective equipment, such as coveralls, boots, mittens, gloves, dust and fume masks, all of which must be regularly replaced. - The abstract of the Occupational Safety & Health Act 2010 must be displayed at prominent places within the site. - Well stocked first aid box which is easily available and accessible should be provided within the construction site as well as at least an ambulance. - Ensure the working hours are controlled and that employees are not allowed to extend the working hours beyond an acceptable limit for purposes of gaining extra pay. - Ensure that all site personnel are provided with an adequate supply of safe drinking water, which should be at accessible points at all times. - Provide conveniently accessible, clean, orderly, adequate and suitable washing facilities within the site.	Contractors	200,000
Aesthetic and visual impact	- Preventing unessential environmental destruction, particularly the severing of bushes, trees and small trees by the workers. - Avoiding building permanent infrastructure which will not be used after construction. - Selection of a proper location for construction materials and debris depot. - To allocate a place to park vehicles and heavy machinery to prevent their distribution and make a bad landscape in the region. - Preventing the dispersion of solid wastes and constructional materials in the environment.	Contractor	Contract or Cost
Historical and cultural sites	- Training of the construction workers in identifying signs for materials of archaeological and historical value such as bones, shards, metal works, etc. - On suspicion of findings, the contractors to cease work, notify the supervising engineer of the find or disputes relating to archaeological relics or cultural religious sites. - Follow the chance find procedure.	Contractor KETRACO Museums of Kenya	None

Operation phase			
Impacts on Wildlife Habitats and Migratory Birds	- Use reflective spheres on the conductors. - Build raptors platforms on top of pylons for roosting and nesting	KETRACO	100,000
Noise from overhead line due to corona effect	- Ensure that no settlements will be established in the wayleave trace.	KETRACO	None
Electrostatic and Magnetic field	- There should be no potential health risks for people living outside of 60 m provided for the wayleave area - KETRACO must ensure that no settlements will be established in the wayleave trace.	KETRACO	None
Concerns over Occupational Safety and Health	- Ensuring physical integrity of structures is maintained - Deactivating and proper grounding of live power distribution lines before work is performed on, or in close proximity to the lines - Ensuring that live wire work is conducted by trained workers only - Ensuring the workers are properly isolated and insulated from any conductive object (live – line work)	KETRACO	None

10.0 ENVIRONMENTAL & SOCIAL MONITORING

10.1 Introduction

The management of the environment and social impacts and consequences of every proposed project is a regular, all purpose and continuous activity. This commences from the beginning of the project and the initial plan of its establishment, and until termination of the project life and thereafter. The performance of this management rests on an appropriate administrative structure, known as the environmental & social management unit. It is a section of the management and operation aggregate of the plan. Outlooks and the principals of environmental conservations must proceed in all the various angles of management.

The objectives of this plan are to render suitable methods and perform effective measures of acceptable costs. This is done in order to reduce the destructive impacts arising from the establishment and operation of the proposed project in regards to the regional environment and its accordance with the standard and desirable conditions, in rendering monitoring and control plans, public participation and environmental training. Hence, in this chapter, in addition to rendering the plan for each monitoring index, by specifying the responsible or relative organisations and estimating the organisational and implementation requirements, conditions for the execution of environmental plan are alleviated.

10.2. Internal Monitoring

The responsibility to conduct time to time internal monitoring of the proposed projects on ESMP implementation and HSE clauses provided in the contract lays with the proponent. The evaluation of compliance level to HSE management will be guided by a detailed ESMP programme approved by Contractor.

The objective of internal monitoring and audit will be:

- To identify gaps in implementation of the ESMP by the contractor
- Ensure compliance with legal requirements provided in EMCA 1999
- Guide the contractor's management of HSE requirements from time to time where unforeseen impacts are encountered

The proponent will continue the monitoring process during the operation and decommissioning phases of the projects. To ensure that the minimum allowable Environmental parameters are maintained. These parameters include,

1. Workforce Training

The contractor shall monitor induction of workers to ensure they are adequately trained on HSE management on top of the specific skills required for their job description. The proponent should monitor induction training and toolbox talks records regularly. The contractor shall also train site specific HSE supervisors to enforce the training.

2. Monitoring of Accidents Prevention/ Health Management

The Proponent will procure services of an independent environmental, health and safety (HSE) consultant to undertake frequent audits on the contractor during project implementation. The consultant will undertake regular site inspection visits (frequency shall be agreed upon with Contractor) to monitor how the contractor is managing his workforce and activities with regard to accident prevention and health management.

The contractor's safety manager, on the other hand, shall ensure that appropriate safety signage and personal protective equipment is availed to the construction workers at all times.

Indicators that will be used in evaluation of accident prevention and health risks management includes;

- Provision of adequate personal protective equipment to workers at all phases of the project
- Presence of displayed safety warning signs and markings at active sites and on tower structures on completion
- Adequate human waste disposal and sanitation facilities are present at active sites
- Community awareness on safety risks associated with the project
- Compiled records of actual accidents/ incidences that have been encountered
- Report health cases that are related to the project

3. Soil Erosion and Conservation Monitoring

Construction activities such excavations and transportation of construction materials within the project areas may lead to loosening soil structure thereby resulting in erosion. The contractor will be responsible for ensuring that appropriate soil conservation and erosion prevention measures are practised throughout the construction phase.

4. Noise Levels Monitoring

Emission of noise is expected during the construction phase. Major sources of noise will be from machinery such as excavators. However, the noise levels may not be an issue as emission is site specific. Low Regular monitoring of these noise levels should be conducted to ensure that they recommended limits are not exceeded. Consultation with the PAPs will aid in establishing the extent of this impact

5. Air Quality Protection

Dust and emissions from machinery should be monitored by the contractor and adequate measures employed in ensuring air quality. This will include watering down of active sites/

roads and other areas generating the dust or maintenance of machinery with excessive smoke emissions. In addition, where the excessive wind is observed, dust generating activities can be halted for some time.

6. Solid and Liquid Waste Management Monitoring

Monitoring of waste generated at both the site and workers camp site during the construction phase shall be done by the contractor's HSE manager. He will ensure that;

- Records of the type and waste amounts generated at the sites is kept
- Adequate and separate waste management facilities are provided at each site. The equipment shall be such that it aids in waste segregation
- All generated waste is bound to the specific sites boundary and littering of the environment is discouraged
- Human waste disposal facilities are provided at each site
- Collected waste is properly disposed of away from site at dumping sites approved by the local county government

10.3. External Monitoring

The Kenyan government's environment management body NEMA shall issue approval for the implementation of the proposed project. Moreover, it shall ensure that the provided mitigation measures are implemented in the implementation of the project. NEMA shall offer oversight of the implementing bodies through review of monitoring reports. The proponent shall, therefore, provide the agency with annual progress reports on environment, health and safety management

10.4. Environmental Audits (EA)

Environmental audits during all phases of the project implementation are key in ensuring full compliance to ESMP requirements. The goal of EA will be to establish if the proponent is complying with environmental requirements and enforcing the existing legislation. The purpose of EA is to determine the extent to which the activities and programs conform to the approved environmental management plan. The Consultant recommends that an independent consultant will be sourced to oversee environmental management throughout the construction phase and during the operational phase and decommissioning phase. He will provide Environmental audits in line with NEMA's requirement.

11.0 CHAPTER TEN: CONCLUSION AND RECOMMENDATIONS

11.1 Conclusions

The Project will directly contribute in achieving vision 2030 through increased power supply. It will improve the economic development in Kenya through the availability of a good quality power supply and creation of employment.

The Project's impact on the physical environment will be manageable, mostly short-term construction-related impacts, which will be mitigated. The report has outlined mitigation measures in the EMP matrix in chapter 8 to be implemented during the various project phases.

Given that the Environmental Assessment was undertaken under this Project, and considering the Project's strong economic justification, the Project satisfactorily meets environmental protection requirements provided that the mitigation, monitoring, and reporting plans are carried out.

Based on field work and consultations with local community, administration, and other stakeholders, it was concluded that:

- It is unlikely that the Project will have significant adverse social and environmental impacts. Most adverse impacts will be of a temporary nature during the construction phase and can be managed to acceptable levels with implementation of the recommended mitigation measures for the Project such that the overall benefits from the Project will greatly outweigh the few adverse impacts.
- All the negative impacts will either be moderate or lesser in rating and could be easily mitigated.

11.2 Recommendations

The consultant recommends that the proposed project be implemented in compliance with all the relevant legislation and planning requirements of Kenya at all times. In line with this, the proponent and the contractor must take the legislative framework provided in this report into consideration, during and after the implementation of the project, as will be appropriate.

Also, KETRACO should implement RAP report to the latter so as to mitigate the loss of land, fixed assets and other private properties by timely compensation and restoration of livelihoods.

APPENDICES

Appendix I: Minutes of the Public Barazas

1.1 MINUTES OF PUBLIC MEETING FOR THE PROPOSED MARSABIT- ISIOLO ELECTRICITY TRANSMISSION LINE (220KV) HELD ON 14TH NOVEMBER, 2016 AT HULAHULA CATHOLIC CHURCH, SAKU SUB-COUNTY, MARSABIT COUNTY.

PRESENT

See the attached list.

AGENDA

1. Opening Remarks.
2. Project Description
3. Issues/ concerns
4. Suggestions
5. A.O.B

Preliminary

The meeting was called to order at 11.00 am, chaired by the Area assistance chief, Charity Gobanai, after which she requested for a self-introduction by the ESIA team to the local residents. The assistance Chief then briefed the community about the meeting agenda and called upon the community members present to air their opinions and concerns about the project, after which she welcomed the ESIA consultants to take over the meeting.

Min 1: Opening Remarks

The ESIA Consultants gave a brief overview of the whole evolution of environmental concerns and law that led to the present situation. They explained that in the Environmental Impact

Assessment process public consultation was a must, acknowledging that the public meeting was an important stage as is a requirement in the Environmental Management and Coordination

Act (EMCA) 1999. They also stated that the purpose of the meeting was to create awareness of the proposed Marsabit-Isiolo transmission line project, to obtain views/concerns of the stakeholders, and to clarify issues that are not clear about the project. The consultant also gave a breakdown of the procedures involved in the capturing the views, presentation in the report and the follow-up to the resolutions thus formulated to the time when a decision is made by the authority (NEMA).

Min 2: Project Description

The ESIA team gave a brief description of the project to the community members in attendance on Project area, location and beneficiaries; Administration of the project; Need for the project; Project design; Components of the system and Layout of the electricity line

They added that the project will have a power substation at Hulahula in Marsabit to boost the power supply in Marsabit County. The community members present were made aware that the project has an aim of increasing electricity interconnection in the region and the neighbouring regions as well as to increase access to more local electricity supply. The ESIA team insisted that development of sustainable energy projects is a priority given to investors by the Kenyan government in order to curb the power crisis experienced countrywide in order to help in achieving vision 2030.

The ESIA consultant emphasised that the project is very friendly to the environment since it will promote access to more and reliable electricity which will improve the living standards of the locals as well as attract more investments among others.

Min 3: Issues/ Concerns

The Consultant invited the community members to give their views regarding the project as they wished, and the following concerns were raised:

Positive impacts

The community applauded the project construction and appreciated the public participation in the ESIA study with each of them giving a go ahead of the Project. Some of the reasons for the project appraisal were as follows:-

1. Job creation for the community: the community felt that the project development would create job vacancies at all levels of the construction and implementation process, hence improving means of livelihood of the people.
2. Increased electricity power supply source at the neighbourhood thus reducing electricity disruption such as blackouts.
3. Enhanced Security due to lighting in the neighbourhood at night.
4. Increased business in the locality.
5. Attract more foreign investments and promote industrial activity in the region.
6. Contribution to the national economy growth.
7. The increase in land value attracting more settlement.

	Community Concerns	Responses
1	Electricity supply to Marsabit residents.	The ESIA expert explained that since the electricity is high voltage, it will be taken to a substation for standardisation then be made available to Marsabit locals. He assured the locals that their area would be in the national electricity grid.
2	Compensation of the affected people.	The ESIA expert assured the locals affected of compensation of the land, structures and plants damaged as well as being offered additional 15% disturbance allowance.
3	Employment of locals not outsiders	The ESIA expert assured the locals of

	in the project implementation.	temporary employment such as unskilled labour. The locals insisted that Kenya police reserve (KPR) should also be considered for security Instead of the Kenya government police during the project implementation.
4	Corporate social responsibility activities by proponent	The locals suggested that the proponent should establish a secondary school, a health centre and a borehole in the area as a CSR activity.
5	Wayleave size and possibility of use of land after being compensated for the Wayleave	The ESIA expert reported that the Wayleave size is 20 by 20 metres thus 40 metres. He also insisted that building structures under the transmission line is illegal as well as planting trees under the same. He explained that only short plants such as potatoes and beans can be planted on that land.

Min 4: Way Forward.

The Consultants requested the people present to follow-up on any communications and Memorandum issued so that the final Environmental Impact Assessment Study Report put in their comments for further action, and that NEMA will also request for Public comments through the Newspapers. It was also said that the report would be available at the County Environment office in Marsabit, where the residents and other stakeholders may go to review it

and give their comments. The Consultant assured the residents that recommendations for the project will be made accordingly.

Min 5: Adjournment

There being no other business for discussion the meeting was adjourned at 2:00 pm with a prayer from one of the locals.

Compiled by

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1.2 MINUTES OF PUBLIC CONSULTATION AND PARTICIPATION MEETING FOR THE MARSABIT- ISIOLO ELECTRICITY TRANSMISSION LINE PROJECT HELD ON 14TH NOVEMBER 2016 KARARE LOCATION, SAKU SUB- COUNTY, MARSABIT COUNTY

PRESENT

See the attached list.

AGENDA

1. Introduction
2. Purpose of the meeting
3. Discussion, concerns and address
4. Way forward
5. Closing

Minute 01: Introduction.

The area chief Mr Jonathan called the meeting to order at 2 pm and after a word of prayer, he welcomed everyone to the meeting and the ESIA team introduced themselves to the locals.

Minute 02: Purpose of the meeting.

The ESIA team explained that the purpose of the meeting was to engage the community members at the very early stage so that they can work together for better results and that their views can be aired and considered in the project planning and implementation.

Minute 03: Presentation on project Area.

The ESIA team presented on the project layout to the community members in attendance on the following:

1. Project area, location and beneficiaries.
2. Administration of the project.
3. Need for the project.
4. Project design.
5. Components of the system.

The ESIA team emphasised that the project is very friendly to the environment since it will promote local development, create temporary employment in all phases of construction and increase domestic electricity supply. He also insisted that the affected shall be compensated.

Minute 04: Presentation by the EIA consultants.

The ESIA consulting team emphasised that the need to conduct a study was to establish possible areas where the local community could benefit from the project construction and operation phases while assessing possible positive and negative impacts. The ESIA consulting team also emphasised the importance of public participation.

The following highlights were particularly reaffirmed:

1. The local community would be completely involved in the exercise and will be consulted fully
2. The study will explore the possible areas of community involvement in the project.
3. Study will explore all possible impacts of the project
4. The report shall present all mitigation measures for the impacts.

The consultant also pointed out some of the positive impacts from electricity transmission line project which includes employment opportunities for local community members, local development, and increase the supply of local electricity among others. They also pointed out to the community the negative impacts of the project that include loss of biodiversity and relocation of people who are within Wayleave but promised that there will be compensation of the persons affected.

Minute 05: Comments, Concerns and Address.

All community members present welcomed the intended project in that it would enhance the region economically and socially as well as helping the country in achieving vision 2030.

The locals also appreciated the ESIA team for creating awareness about the project to the locals since they are rarely involved in project planning and implementation from previous projects experience.

1. Increased local electricity supply in the area.
2. Creation of employment.
3. Improved wellbeing of the communities through a rise in standards of living by access of electricity.
4. The attraction of investments such as in factory and industry establishment.
5. Social asset building through corporate social responsibility.
6. Promote security through community power lighting.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Responses
1	Timely compensation of the affected people	The locals to be affected were assured of timely compensation before the construction phase- ESIA consultant.
2	Negative impacts of the project.	There are mitigation measures to all the negative impacts well stated in the ESIA report which will be put to place- ESIA expert
3	Employment for the local community	Locals were assured of employment where applicable throughout the project

		life- ESIA consultant.
4	Method of valuation of the land and properties	The ESIA team made it clear that the properties will be valued as per the current market
5	Lack of transparency during the implementation of the project	The ESIA team promised transparency all through the project.

Minute 06: Way forward.

The area chief appreciated the participation of all members present for their contribution in the ESIA study meeting.

All members in attendance agreed that the project is more beneficial to them for social and economic transformation through the creation of sustainable livelihoods and thus a decision was made on a public consultation forum at Kabiemit ward centre to continue with the project implementation.

Minute 07: Adjournment.

There being no other business, the meeting was adjourned at 5:00 pm with a word of prayer.

Compiled by;

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1.3 MINUTES OF PUBLIC MEETING FOR THE PROPOSED MARSABIT- ISIOLO ELECTRICITY TRANSMISSION LINE (220KV) HELD ON 15TH NOVEMBER, 2016 AT KAMBOE CHIEF'S OFFICE, SAKU SUB-COUNTY, MARSABIT COUNTY.

PRESENT

See the attached list.

AGENDA

1. Opening Remarks.
2. Project Description
3. Issues/ concerns
4. Suggestions
5. A.O.B

Preliminary

The meeting was called to order at 10.00 am, chaired by the Area assistance chief then requested for a self-introduction by the ESIA team to the locals. The assistance Chief then briefed the community about the meeting agenda and called upon the locals to air their opinions and concerns about the project, after which she welcomed the ESIA consultants to take over the meeting.

Min 1: Opening Remarks

The ESIA Consultants gave a brief overview of the whole evolution of environmental concerns and law that led to the present situation.They explained that in the Environmental Impact

Assessment process public consultation was a must, acknowledging that the public meeting was an important stage as is a requirement in the Environmental Management and Coordination

Act (EMCA) 1999. They also stated that the purpose of the meeting was to create awareness of the proposed Marsabit- Isiolo transmission line project, to obtain views/ concerns of the stakeholders, and to clarify issues that are not clear about the project. The consultant also gave a breakdown of the procedures involved in the capturing the views, presentation in the report and the follow-up to the resolutions thus formulated to the time when a decision is made by the authority (NEMA).

Min 2: Project Description

The ESIA team gave a brief description of the project to the community members in attendance on Project area, location and beneficiaries; Administration of the project; Need for the project; Project design; Components of the system and Layout of the electricity line

They added that the project will have a power substation at Hulahula in Marsabit. The locals were made aware that the project has an aim of increasing electricity interconnection in the region and the neighbouring regions as well as to increase access to more local electricity

supply. They insisted that development of sustainable energy projects is a priority given to investors by the Kenyan government in order to curb the power crisis experienced countrywide in order to help in achieving vision 2030.

Min 3: Issues/ Concerns

The Consultant invited the members to give their views regarding the project as they wished, and the following concerns were raised:

Positive impacts

The community applauded the project construction and appreciated the public participation in the ESIA study with each of them giving a go ahead of the Project. Some of the reasons for the project appraisal were as follows:-

1. Job creation for the community during the construction phase.
2. Increased electricity power supply source at the neighbourhood thus reducing electricity disruption such as blackouts.
3. Enhanced Security due to lighting in the neighbourhood at night.
4. Increased business in the locality.
5. Attract more foreign investments and promote industrial activity in the region.
6. Contribution to the national economy growth.

	Community Concerns	Responses
1	Electricity supply to Marsabit local residents.	The ESIA expert explained that since the electricity is high voltage, it will be taken to a substation for standardisation then be made available to Marsabit locals. He assured the locals that their area would be in the national electricity grid.
2	Compensation of the affected people.	The ESIA expert assured the locals affected of compensation of the land, structures and plants damaged as well as being offered additional 15% disturbance allowance.
3	Employment of locals not outsiders in the project implementation.	The ESIA expert assured the locals of temporary employment such as unskilled labour. The community members present also suggested that the jobs should be given to the community per location.
4	Corporate social responsibility activities by proponent	The community representatives suggested that proponents should establish a secondary school, a health centre and a borehole in the area as a CSR activity.

Min 4: Way Forward.

The Consultants requested the people present to follow-up on any communications and

Memorandum issued so that the final Environmental Impact Assessment Study Report put in their comments for further action, and that NEMA will also request for Public comments through the Newspapers. It was also said that the report would be available at the County Environment office in Marsabit, where the residents and other stakeholders may go to review it and give their comments. The Consultant assured the residents that recommendations for the project will be made accordingly.

Min 5: Adjournment

There being no other business for discussion the meeting was adjourned at 2:00 pm with a prayer from one of the locals.

Compiled by;

ENWAG Company Limited

1.4 MINUTES OF PUBLIC MEETING FOR THE PROPOSED MARSABIT- ISIOLO ELECTRICITY TRANSMISSION LINE (220KV) HELD ON 15TH NOVEMBER, 2016 AT LOGLOGO MARKETING CENTRE, LOGLOGO LOCATION, SAKU SUB-COUNTY, MARSABIT COUNTY.

PRESENT

See the attached list.

AGENDA

1. Introduction
2. Purpose of the meeting
3. Presentation
4. Discussion concerns and address
5. Way forward
6. Closing

Minute 01: Introduction.

The area assistant chief called the meeting to order at 3:00 pm. After a word of prayer, there was a brief self-introduction of the project team as well as the ESIA consultants.

Minute 02: Purpose of the meeting.

The area assistant chief explained that the purpose of the meeting was to inform the community about the project ESIA so that they can identify key issues and provides them with an opportunity to raise additional issues or concerns that have not been identified in the draft scoping report (DSR).

Minute 03: Presentation on project description.

The ESIA team presented on the project layout on a topographical map to the community members in attendance on the following:

1. Project area, location and beneficiaries.
2. Administration of the project.
3. Need for the project.
4. Project design.
5. Components of the system.
6. The layout of the electricity line.

Minute 04: Presentation by the ESIA consultants.

The ESIA team emphasised that the need to conduct a study was to establish possible areas where the community members could benefit from the project construction and operation phases while assessing possible positive and negative impacts. The ESIA team also emphasised the importance of public participation.

The following highlights were particularly reaffirmed:

1. The local community would be completely involved in the study- a team of field assistant has been trained
2. Explore the possible areas of community involvement in the project.
3. Study will explore all possible impacts of the project
4. The report shall present all mitigation measures for the impacts.

The ESIA team emphasised that the project is very friendly to the environment since it will promote local area growth and development, provision of reliable electricity, creation of employment among others and that necessary measures have been proposed to promote sustainable development.

The community members were also able to identify the following benefits.

1. Job creation for the community.
2. Increased electricity power supply source at the neighbourhood thus reducing electricity disruption such as blackouts.
3. Enhanced Security due to lighting in the neighbourhood at night.
4. Increased business in the locality.
5. Attract more foreign investments and promote industrial activity in the region.
6. Increase in land value
7. Increased water pumping through the use of electricity thus promoting water security.

Minute 05: Comments, Community Concerns and Address.

Various members of the community and stakeholders welcomed the intended project in that it would enhance the region economically and they as well identified the following project benefits:

	Community Concerns	Address
1	Discriminative compensation	The ESIA team explained that only the affected persons in the community shall be compensated.
2	Plant and vegetation loss leading to environmental degradation.	The community members present were assured of compensation of the trees cut down by the ESIA team.
4	Employment for the community members	The community members present were assured of employment where applicable throughout the project life- EIA expert.
5	Corporate social responsibility activities by proponent	The community representatives suggested that proponent should establish a secondary school, a health centre and a borehole in the area as a CSR activity.

Minute 06: Way forward.

All community members in attendance agreed that the project is more beneficial to them for social and economic transformation through raising the standard of living as well as promoting lighting and thus a decision was made on a public consultation forum Loglogo marketing centre to continue with the project implementation

Minute 07: Adjournment.

There being no other business, the meeting was adjourned at 5 pm with a word of prayer

Compiled by

ENWAG Company Limited

1.5MINUTES OF PUBLIC MEETING FOR THE PROPOSED MARSABIT- ISIOLO ELECTRICITY TRANSMISSION LINE (220KV) HELD ON 15TH NOVEMBER, 2016 AT LAISAMIS LOCATION-CHIEF'S OFFICE, SAKU SUB-COUNTY, MARSABIT COUNTY.

PRESENT

See the attached list.

AGENDA

1. Opening Remarks.
2. Project Description
3. Issues/ concerns
4. Suggestions
5. A.O.B

Preliminary

The meeting was called to order at 10 am, chaired by the Area chief then requested for a self-introduction by the ESIA team to the locals. The assistance Chief then briefed the community about the meeting agenda and called upon the community representatives present to air their opinions and concerns about the project, after which he welcomed the ESIA consultants to take over the meeting.

Min 1: Opening Remarks

The ESIA Consultants gave a brief overview of the whole evolution of environmental concerns and law that led to the present situation.They explained that in the Environmental and Social Impact assessment process a public consultation was a must, acknowledging that the public meeting was an important stage as is a requirement in the Environmental Management and Coordination Act (EMCA) 1999. They also stated that the purpose of the meeting was to create awareness of the proposed Marsabit- Isiolo transmission line project, to obtain views/ concerns of the stakeholders, and to clarify issues that are not clear about the project. The consultant also gave a breakdown of the procedures involved in the capturing the views, presentation in the report and the follow-up to the resolutions thus formulated to the time when a decision is made by the authority (NEMA).

Min 2: Project Description

The ESIA team gave a brief description of the project to the community members in attendance on Project area, location and beneficiaries; Administration of the project; Need for the project; Project design; Components of the system and Layout of the electricity line

They added that the project will have a power substation in Marsabit at Hulahula location. The local residents were made aware that the project has an aim of increasing electricity interconnection in the region and the neighbouring regions as well as to increase access to more local electricity supply. The ESIA consultant added that the energy source is Lake Turkana wind power project which is renewable and reliable.

The ESIA consultant emphasised that the project is very friendly to the environment since it will promote access to more and reliable electricity which will improve the living standards of the county's residents as well as attract more investments among others.

Min 3: Issues/ Concerns

The Consultant invited the members to give their views regarding the project as they wished and the following concerns were raised:

Positive impacts

The community applauded the project construction and appreciated the public participation in the ESIA study with each of them giving a go ahead of the Project. Some of the reasons for the project appraisal were as follows:-

1. Job creation for the community.
2. Increased electricity power supply source at the neighbourhood thus reducing electricity disruption such as blackouts.
3. Enhanced Security due to lighting in the neighbourhood at night.
4. Increased business in the locality.
5. Attract more foreign investments and promote industrial activity in the region.
6. Contribution to the national economy growth.

	Community Concerns	Responses
1	Electricity supply to Marsabit residents along the Wayleave	The ESIA expert explained that since the electricity is high voltage, it will be taken to a substation for standardisation then be made available to Marsabit locals. He assured the locals that their area would be in the national electricity grid.
2	Compensation of the affected people.	The ESIA expert assured the locals affected of compensation of the land, structures and plants damaged as well as being offered additional 15% disturbance allowance.
3	Employment of locals not outsiders in the project implementation.	The ESIA expert assured the locals of temporary employment such as unskilled labour. The locals insisted that Kenya police reserve (KPR) should also be considered for security Instead of the Kenya government police during the project implementation.
4	Corporate social responsibility activities by proponent	The locals suggested that proponent should establish a secondary school, a health centre and a borehole in the area as a CSR activity.

Minute 06: Way forward.

All community members in attendance agreed that the project is more beneficial to them for social and economic transformation through raising the standard of living as well as promoting lighting and thus a decision was made on a public consultation forum Laisamis shopping centre to continue with the project implementation.

Minute 07: Adjournment.

There being no other business, the meeting was adjourned at 1 pm with a word of prayer

Compiled by

ENWAG

Company Limited

1.6 MINUTES OF PUBLIC CONSULTATION AND PARTICIPATION MEETING FOR PROPOSED MARSABIT-ISIOLO 200KV TRANSMISSION LINE HELD ON 17TH NOVEMBER 2016 AT MERILLE SHOPPING CENTRE MEETING-PARK IN MERILLE LOCATION, MARSABIT COUNTY

PRESENT

See the attached list.

AGENDA

6. Introduction
7. Briefing and sensitization
8. Comments, concerns and address
9. Way forward
10. Adjournment

Minute 01: Introduction.

The area assistant chief, James Leupane called the meeting to order at 3:00 pm and requested a volunteer to pray. He then made the opening remarks and allowed the ENWAG team to introduce themselves to the attendants and after that welcomed everyone to the meeting

Minute 02: Briefing and Sensitization

The audiences were made aware of the details of the project as follows;

- The line starts at Marsabit in a substation at Hulahula to Isiolo town.
- Probable impacts of the project were listed to the PAPS, both positive and negative.
- The entry points of KETRACO, NEMA, ENWAG and KPLC among others were explained.
- The concepts of right of way of the proposed line and resettlement action plan were explained.
- The idea of land acquisition and compensation was explained.
- The structures expected to be put up so as to come with the lines like pylons were explained and the measures to be put in place to ensure the construction is safe.

Minute 03: Comments, Concerns and Address.

The ESIA consultant emphasised that the project is very friendly to the environment and the benefits of such a high voltage power line may not be felt directly but as a long term benefit whereby the power will be more reliable and power shortages will reduce to minimal.

He also insisted that adequate awareness on the project will be made to the local community, local authority as well as the people who will be affected by the project.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Responses
1	What happens when the transmission line passes through a place there pastoralist have moved from in search for green pastures since the community members are pastoralist? Who gets compensated in such a case?	It was made clear that compensation will be done for everything that will be affected according to the law. Structures will be compensated to individual owners. Land will be compensated depending on ownership, those with personal title deeps will be compensated individually while communal land will be compensated to the community owning it
2	How will the negative impacts of the project be handled?	There are mitigation measures to all the negative impacts well stated in the ESIA report which will be put to place- ESIA expert
3	Valuation of the land and properties	Land will be valued as per the current market rate and properties will be valued according to the resettlement framework policy
4	Valuation of communal land	Communal land will be compensated to the county government but individuals will be compensated for their affected structures
5	Risks of power line failure causing disaster	The transmission will be done by experts professionally to avoid such disaster
6	Transparency during the compensation implementation of the project	The ESIA consulting team promised transparency all through the project
7	Jobs availability to the locals and CRS projects	Jobs will be availed to the locals in time of operation phase. CSR will depend on the contractor and agreement with the locals as the project moves on
8	Most of the land owners raise the concern of not having legal documents to the land they own	Those with no title deeds were requested to follow up on it or any other legal document to support their ownership of land for easier compensation

Minute 04: Way forward.

The chief appreciated the participation of all members present and assured the consulting team cooperation throughout the exercise.

The community members promised to cooperate with the surveyor and valuer when that time comes for their properties which are within the way leave to be valued for compensation.

All members in attendance having been well sensitised, agreed that the project is more beneficial thus a decision was made on a public consultation forum at Merille shopping Centre, Merille location; that the project should go on.

Minute 05: Adjournment.

There being no other business, the meeting was adjourned at 4:30 pm with a word of prayer.

Compiled by;

ENWAG CONSULTING LIMITED

1.8 MINUTES OF PUBLIC CONSULTATION AND PARTICIPATION MEETING FOR PROPOSED MARSABIT-ISIOLO 200KV TRANSMISSION LINE HELD ON 17TH NOVEMBER 2016 AT KIRISH MEETING-PARK IN LERATA SUB LOCATION, SAMBURU COUNTY

PRESENT

See the attached list.

AGENDA

1. Introduction
2. Briefing and sensitization
3. Comments, concerns and address
4. Way forward
5. Adjournment

Minute 01: Introduction.

The area chief, Joseph Rong'ono called the meeting to order at 12:00 pm and requested a volunteer to pray. He then made the opening remarks and allowed the ENWAG team to introduce themselves to the attendants and after that welcomed everyone to the meeting

Minute 2: Briefing and Sensitization

The audiences were made aware of the details of the project as follows;

- The line starts at Marsabit in a substation at Hulahula to Isiolo town.
- Probable impacts of the project were listed to the PAPS, both positive and negative.
- The entry points of KETRACO, NEMA, ENWAG and KPLC among others were explained.
- The concepts of right of way of the proposed line and resettlement action plan were explained.
- The idea of land acquisition and compensation was explained.
- The structures expected to be put up so as to come with the lines like pylons were explained and the measures to be put in place to ensure the construction is safe.

Minute 03: Comments, Concerns and Address.

The ESIA consultant emphasised that the project is very friendly to the environment and the benefits of such a high voltage power line may not be felt directly but as a long term benefit whereby the power will be more reliable and power, shortages will reduce to minimal.

He also insisted that adequate awareness on the project will be made to the local community, local authority as well as the people who will be affected by the project.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Responses
1	What happens when the transmission line passes through a place there pastoralist have moved from in search for green pastures since the community members are pastoralist? Who gets compensated in such a case?	It was made clear that compensation will be done for everything that will be affected according to the law. Structures will be compensated to individual owners. Land will be compensated depending on ownership, those with personal title deeps will be compensated individually while communal land will be compensated to the community owning it
2	How will the negative impacts of the project be handled?	There are mitigation measures to all the negative impacts well stated in the ESIA report which will be put to place- ESIA expert
3	Valuation of the land and properties	Land will be valued as per the current market rate and properties will be valued according to the resettlement framework policy
4	Valuation of communal land	Communal land will be compensated to the county government but individuals will be compensated for their affected structures
5	Risks of power line failure causing disaster	The transmission will be done by experts professionally to avoid such disaster
6	Transparency during the compensation implementation of the project	The ESIA consulting team promised transparency all through the project
7	Jobs availability to the locals and CRS projects	Jobs will be availed to the locals in time of operation phase. CSR will depend on the contractor and agreement with the locals as the project moves on
8	Most of the land owners raise the concern of not having legal documents to the land they own	Those with no title deeds were requested to follow up on it or any other legal document to support their ownership of land for easier compensation

Minute 04: Way forward.

The chief appreciated the participation of all members present and assured the consulting team cooperation throughout the exercise.

The community members promised to cooperate with the surveyor and valuer when that time comes for their properties which are within the way leave to be valued for compensation.

All members in attendance agreed that the project is more beneficial thus a decision was made on a public consultation forum at Kirish meeting park, Lerata sub location; that the project should go on.

Minute 05: Adjournment.

There being no other business, the meeting was adjourned at 1:30 pm with a word of prayer.

Compiled by;

ENWAG CONSULTING LIMITED

1.9 MINUTES OF PUBLIC CONSULTATION AND PARTICIPATION MEETING FOR PROPOSED MARSABIT-ISIOLO 200KV TRANSMISSION LINE HELD ON 17TH NOVEMBER 2016 AT LERATA MEETING-PARK IN KALAMA LOCATION, SAMBURU COUNTY

PRESENT

See the attached list.

AGENDA

11. Introduction
12. Briefing and sensitization
13. Comments, concerns and address
14. Way forward
15. Adjournment

Minute 01: Introduction.

The area chief, Joseph Rong'ono called the meeting to order at 10:00 am and requested a volunteer to pray. He then made the opening remarks and allowed the ENWAG team to introduce themselves to the attendants and after that welcomed everyone to the meeting

Minute 2: Briefing and Sensitization

The audiences were made aware of the details of the project as follows;

- The line starts at Marsabit in a substation at Hulahula to Isiolo town.
- Probable impacts of the project were listed to the PAPS, both positive and negative.
- The entry points of KETRACO, NEMA, ENWAG and KPLC among others were explained.
- The concepts of right of way of the proposed line and resettlement action plan were explained.
- The idea of land acquisition and compensation was explained.
- The structures expected to be put up so as to come with the lines like pylons were explained and the measures to be put in place to ensure the construction is safe.

Minute 03: Comments, Concerns and Address.

The ESIA consultant emphasised that the project is very friendly to the environment and the benefits of such a high voltage power line may not be felt directly but as a long term benefit whereby the power will be more reliable and power shortages will reduce to minimal.

He also insisted that adequate awareness on the project will be made to the local community, local authority as well as the people who will be affected by the project.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Responses
1	What happens when the transmission line passes through a place there pastoralist have moved from in search for green pastures since the community members are pastoralist? Who gets compensated in such a case?	It was made clear that compensation will be done for everything that will be affected according to the law. Structures will be compensated to individual owners. Land will be compensated depending on ownership, those with personal title deeps will be compensated individually while communal land will be compensated to the community owning it
2	How will the negative impacts of the project be handled?	There are mitigation measures to all the negative impacts well stated in the ESIA report which will be put to place- ESIA expert
3	Valuation of the land and properties	Land will be valued as per the current market rate and properties will be valued according to the resettlement framework policy
4	Valuation of communal land	Communal land will be compensated to the county government but individuals will be compensated for their affected structures
5	Risks of power line failure causing disaster	The transmission will be done by experts professionally to avoid such disaster
6	Transparency during the compensation implementation of the project	The ESIA consulting team promised transparency all through the project
7	Jobs availability to the locals and CRS projects	Jobs will be availed to the locals in time of operation phase. CSR will depend on the contractor and agreement with the locals as the project moves on
8	Most of the land owners raise the concern of not having legal documents to the land they own	Those with no title deeds were requested to follow up on it or any other legal document to support their ownership of land for easier compensation

Minute 04: Way forward.

The chief appreciated the participation of all members present and assured the consulting team cooperation throughout the exercise.

The community members promised to cooperate with the surveyor and valuer when that time comes for their properties which are within the way leave to be valued for compensation.

All members in attendance agreed that the project is more beneficial thus a decision was made on a public consultation forum at Lerata meeting park, Kalama location; that the project should go on.

Minute 05: Adjournment.

There being no other business, the meeting was adjourned at 11:30 am with a word of prayer.

Compiled by;

ENWAG CONSULTING LIMITED

1.10 MINUTES OF PUBLIC CONSULTATION AND PARTICIPATION MEETING FOR PROPOSED MARSABIT-ISIOLO 200KV TRANSMISSION LINE HELD ON 17TH NOVEMBER 2016 AT MAILI NANE SHOPPING CENTRE, KITHIMA LOCATION IN ISIOLO COUNTY

PRESENT

See the attached list.

AGENDA

16. Introduction
17. Briefing and sensitization
18. Comments, concerns and address
19. Way forward
20. Adjournment

Minute 01: Introduction.

The area assistant chief, Kingo Aceke called the meeting to order at 12:00 pm and requested a volunteer to pray. He then made the opening remarks and allowed the ENWAG team to introduce themselves to the attendants and after that welcomed everyone to the meeting

Minute 2: Briefing and Sensitization

The audiences were made aware of the details of the project as follows;

- The line starts at Marsabit in a substation at Hulahula to Isiolo town.
- Probable impacts of the project were listed to the PAPS, both positive and negative.
- The entry points of KETRACO, NEMA, ENWAG and KPLC among others were explained.
- The concepts of right of way of the proposed line and resettlement action plan were explained.
- The idea of land acquisition and compensation was explained.
- The structures expected to be put up so as to come with the lines like pylons were explained and the measures to be put in place to ensure the construction is safe.

Minute 03: Comments, Concerns and Address.

Murigi Mwangi who is the ESIA consultant emphasised that the project is very friendly to the environment and the benefits of such a high voltage power line may not be felt directly but as a long term benefit whereby the power will be more reliable and power shortages will reduce to minimal.

He also insisted that adequate awareness on the project will be made to the local community, local authority as well as the people who will be affected by the project.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Responses

1	What happens when the transmission line passes through a place there pastoralist have moved from in search for green pastures since the community members are pastoralist? Who gets compensated in such a case?	It was made clear that compensation will be done for everything that will be affected according to the law. Structures will be compensated to individual owners. Land will be compensated depending on ownership, those with personal title deeps will be compensated individually while communal land will be compensated to the community owning it
2	How will the negative impacts of the project be handled?	There are mitigation measures to all the negative impacts well stated in the ESIA report which will be put to place- ESIA expert
3	Valuation of the land and properties	Land will be valued as per the current market rate and properties will be valued according to the resettlement framework policy
4	Risks of power line failure causing disaster	The transmission will be done by experts professionally to avoid such disaster
5	Transparency during the compensation implementation of the project	The ESIA consulting team promised transparency all through the project
6	Jobs availability to the locals and CRS projects	Jobs will be availed to the locals in time of operation phase. CSR will depend on the contractor and agreement with the locals as the project moves on
7	Most of the land owners raise the concern of not having legal documents to the land they own	Those with no title deeds were requested to follow up on it or any other legal document to support their ownership of land for easier compensation

Minute 04: Way forward.

The chief appreciated the participation of all members present and assured the consulting team cooperation throughout the exercise.

The community members promised to cooperate with the surveyor and valuer when that time comes for their properties which are within the way leave to be valued for compensation.

All members in attendance agreed that the project is more beneficial thus a decision was made on a public consultation forum at Maili Nane shopping centre, Kithima location in Isiolo County that the project should go on.

Minute 05: Adjournment.

There being no other business, the meeting was adjourned at 1:30 pm with a word of prayer.

Compiled by;

ENWAG CONSULTING LIMITED

1.11 MINUTES OF PUBLIC MEETING FOR THE PROPOSED MARSABIT- ISIOLO ELECTRICITY TRANSMISSION LINE (220KV) HELD ON 18TH NOVEMBER, 2016 AT NGAREMARA LOCATION, ISIOLO COUNTY.

PRESENT

See the attached list.

AGENDA

1. Opening Remarks.
2. Project Description
3. Issues/ concerns
4. Suggestions
5. A.O.B

Preliminary

The meeting was called to order at 10.00 am, chaired by the chief, after which he requested for a self-introduction by the ESIA team to the local residents present. The Chief then briefed the community members about the meeting agenda and called upon them to air their opinions and concerns about the project, after which he welcomed the ESIA consultants to take over the meeting.

Min 1: Opening Remarks

The ESIA Consultants gave a brief overview of the whole evolution of environmental concerns and law that led to the present situation.They explained that in the Environmental Impact

Assessment process public consultation was a must, acknowledging that the public meeting was an important stage as is a requirement in the Environmental Management and Coordination

Act (EMCA) 1999. They also stated that the purpose of the meeting was to create awareness of the proposed Marsabit- Isiolo transmission line project, to obtain views/ concerns of the stakeholders, and to clarify issues that are not clear about the project. The consultant also gave a breakdown of the procedures involved in the capturing the views, presentation in the report and the follow-up to the resolutions thus formulated to the time when a decision is made by the authority (NEMA).

Min 2: Project Description.

The ESIA team gave a brief description of the project to the community members in attendance on Project area, location and beneficiaries; Administration of the project; Need for the project; Project design; Components of the system and Layout of the electricity line.

They added that the project will have power substation in Isiolo West Location. The community members were made aware that the project has an aim of increasing electricity

interconnection in the region and the neighbouring regions as well as to increase access to more local electricity supply.

The ESIA consultant explained that the project is very friendly to the environment since it will promote access to more and reliable electricity which will improve the living standards of the county residents as well as attract more investments among others. However, the project will cause resettlement and disruption of community livelihood.

Min 3: Issues/ Concerns

The Consultant invited the members to give their views regarding the project as they wished and the following concerns were raised:

Positive impacts

The community applauded the project construction and appreciated the public participation in the ESIA study with each of them giving a go ahead of the Project. Some of the reasons for the project appraisal were as follows:-

1. Job creation for the community during the construction phase.
2. Increased electricity power supply source at the neighbourhood thus reducing electricity disruption such as blackouts.
3. Enhanced Security due to lighting in the neighbourhood at night.
4. Attract more foreign investments and promote industrial activity in Isiolo County.
5. Contribution to the national economy growth.
6. Improvement of the Isiolo resort city.

	Community Concerns	Responses
1	Electricity supply to Isiolo community members.	The ESIA expert explained that since the electricity is high voltage, it will be taken to a substation for standardisation then be made available to Isiolo community members. He assured the locals that their area would be in the national electricity grid.
2	Compensation of the affected people.	The ESIA expert assured the community members present that the affected individual's land, structures and plants damaged will be compensated as well as being offered additional 15% disturbance allowance.
3	Employment of locals not outsiders in the project implementation.	The ESIA expert assured the locals of temporary employment such as unskilled labour during the project implementation.
4	Corporate social responsibility activities by proponent	The community members suggested that proponent should establish a primary and secondary school, a health centre, a water pan and a borehole in the area as a CSR activity.
5	Wayleave size and	The ESIA expert explained that the Wayleave size is 20

	possibility of use of land after being compensated for the Wayleave.	by 20 metres thus 40 metres. He also insisted that building structures under the transmission line is illegal or planting trees under the same line. He also insisted that livestock walking under the transmission line will not have significant impact on the livestock

Min 4: Way Forward.

The Consultants requested the community members present to follow-up on any communications and Memorandum issued so that the final Environmental and Social Impact Assessment Study Report put in their comments for further action, and that NEMA will also request for Public comments through the Newspapers. It was also said that the report would be available at the County Environment office in Isiolo, where the residents and other stakeholders may go to review it and give their comments. The Consultant assured the residents that recommendations for the project will be made accordingly.

Min 5: Adjournment

There being no other business for discussion the meeting was adjourned at 1:00 pm with a prayer from one of the community representatives.

Compiled by

ENWAG Company Limited

1.12 MINUTES OF PUBLIC CONSULTATION AND PARTICIPATION MEETING FOR PROPOSED MARSABIT-ISIOLO 200KV TRANSMISSION LINE HELD ON 17TH NOVEMBER 2016 AT ATTAN PRIMARY SCHOOL, SAMBURU COUNTY

PRESENT

See the attached list.

AGENDA

21. Introduction
22. Briefing and sensitization
23. Comments, concerns and address
24. Way forward
25. Adjournment

Minute 01: Introduction.

The area chief called the meeting to order at 10:00 am and requested a volunteer to pray. He then made the opening remarks and allowed the ENWAG team to introduce themselves to the attendants and after that welcomed everyone to the meeting

Minute 02: Briefing and Sensitization

The audiences were made aware of the details of the project as follows;

- The line starts at Marsabit in a substation at Hulahula to Isiolo town.
- Probable impacts of the project were listed to the PAPS, both positive and negative.
- The entry points of KETRACO, NEMA, ENWAG and KPLC among others were explained.
- The concepts of right of way of the proposed line and resettlement action plan were explained.
- The idea of land acquisition and compensation was explained.
- The structures expected to be put up so as to come with the lines like pylons were explained and the measures to be put in place to ensure the construction is safe.

Minute 03: Comments, Concerns and Address.

The ESIA consultant emphasised that the project is very friendly to the environment and the benefits of such a high voltage power line may not be felt directly but as a long term benefit whereby the power will be more reliable and power shortages will reduce to minimal.

He also insisted that adequate awareness on the project will be made to the local community, local authority as well as the people who would be affected by the project.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Responses
1	What happens when the transmission line passes through a place there pastoralist have moved from in search for green pastures since the community members are pastoralist? Who gets compensated in such a case?	It was made clear that compensation will be done for everything that will be affected according to the law. Structures will be compensated to individual owners. Land will be compensated depending on ownership, those with personal title deeps will be compensated individually while communal land will be compensated to the community owning it
2	How will the negative impacts of the project be handled?	There are mitigation measures to all the negative impacts well stated in the ESIA report which will be put to place- ESIA expert
3	Valuation of the land and properties	Land will be valued as per the current market rate and properties will be valued according to the resettlement framework policy
4	Valuation of communal land	Communal land will be compensated to the county government but individuals will be compensated for their affected structures
5	Risks of power line failure causing disaster	The transmission will be done by experts professionally to avoid such disaster
6	Transparency during the compensation implementation of the project	The ESIA consulting team promised transparency all through the project
7	Jobs availability to the locals and CRS projects	Jobs will be availed to the locals in time of operation phase. CSR will depend on the contractor and agreement with the locals as the project moves on
8	Most of the land owners raise the concern of not having legal documents to the land they own	Those with no title deeds were requested to follow up on it or any other legal document to support their ownership of land for easier compensation

Minute 04: Way forward.

The chief appreciated the participation of all members present and assured the consulting team cooperation throughout the exercise.

The community members promised to cooperate with the surveyor and valuer when that time comes for their properties which are within the way leave to be valued for compensation.

All members in attendance agreed that the project is more beneficial thus a decision was made on a public consultation forum at Attan primary school that the project should go on.

Minute 05: Adjournment.

There being no other business, the meeting was adjourned at 11:30 am with a word of prayer.

Compiled by;

ENWAG CONSULTING LIMITED

1.13 MINUTES OF PUBLIC FORUM MEETING FOR THE MARSABIT- ISIOLO 220kV TRANSMISSION LINE PROJECT HELD ON 18th NOVEMBER 2016 AT KILIMANI PRIMARY SCHOOL, BURAT LOCATION IN ISIOLO COUNTY.

PRESENT

See the attached list.

AGENDA

1. Introduction
2. Purpose of the meeting
3. Presentation
4. Discussion concerns and address
5. Way forward
6. Closing

Minute 01: Introduction.

The area local chairmen on behalf of the chief called the meeting to order at 2 pm. After a word of prayer, there was a brief self-introduction of the project team and the local administration present.

Minute 02: Purpose of the meeting.

The ESIA team explained that the purpose of the meeting was to inform the community about the proposed project so that they can identify key issues and concerns. He insisted that the meeting is very important as it recognises the voices of the, directly and indirectly, affected community members as a fulfilment of the constitutional requirements for public participation in policy, Programs and project plan as well as their implementation.

Minute 03: Presentation on project description.

The ESIA team leader presented on the project layout to the community on the following items:

1. Project area, location and beneficiaries.
2. Administration of the project.
3. Need for the project.
4. Project design.
5. Components of the system.
6. The layout of the electricity line.

The ESIA team leader emphasised that the project is very friendly to the environment since it will enhance the Isiolo residents' lives positively.

Minute 04: Presentation by the ESIA consultants.

The EIA team emphasised that the need to conduct a study was to establish possible areas where the local community could benefit from the project construction and operation phases while assessing possible positive and negative impacts. The ESIA team also emphasised the importance of public participation in this study as it enhances representation of the local concerns and view about the project.

The following highlights were particularly reaffirmed:

1. The local community would be completely involved in the study.
2. Explore the possible areas of community involvement in the project.
3. Explore all possible impacts by the project.
4. The report shall present all mitigation measures for the impacts.

The consultant also pointed out some of the positive impacts from the proposed project which includes Employment opportunities for community members, electricity security, and economic gains from increased industrial activities. He also pointed out to the community the negative impacts of the project among them being loss of biodiversity, relocation, and destruction of natural habitats and called upon the locals to suggest more and how they can be mitigated.

Minute 05: Comments, Community Concerns and Address.

Various members of the local community and stakeholders welcomed the intended project in that it would enhance the region economically and they as well identified the following project benefits:

1. Sustainable electricity supply.
2. Creation of employment thus improved the wellbeing of the communities through a rise in standards of living.
3. Increase industrial activities in Isiolo County.
4. The attraction of investments through factory and industry establishment.
5. Isiolo county growth and development.
6. Promote a hardworking society through electricity security.

The locals, however, raised some issues that required clarification on the following.

	Community Concerns	Address
1	Plants, Vegetation and natural habitat destruction.	The ESIA team leader assured the community members present of compensation for their plant species loss. The Isiolo environmental management committee called for very minimal environmental destruction during the project implementation.
2	Employment for the local community members instead of outsiders.	The community members present were assured of employment where applicable throughout the project life by the ESIA team.
3	Way leave method of compensation for community members without title deeds since they live in trust land.	The ESIA team explained that compensation of the affected will depend on the extent to which one is affected and hence no flat rate of compensation. The team added that compensation of those without title deeds will be discussed later in the next study.
4	Noise during the construction phase	The community members present suggested that all construction activities should be done during the day to minimise disruption at night.
5	The death of electrocuted livestock by the transmission line leading to a threatened livelihood.	The ESIA team assured the community members present that the project does not have any significant effect on the livestock and that necessary measures will be put in place to ensure that their livestock is safe.

Minute 06: Way forward.

All community members in attendance agreed that the project is more beneficial to them for social and economic transformation through the creation of sustainable energy and thus a decision was made on a public consultation forum at Kilimani primary school to continue with the project implementation.

Minute 07: Adjournment.

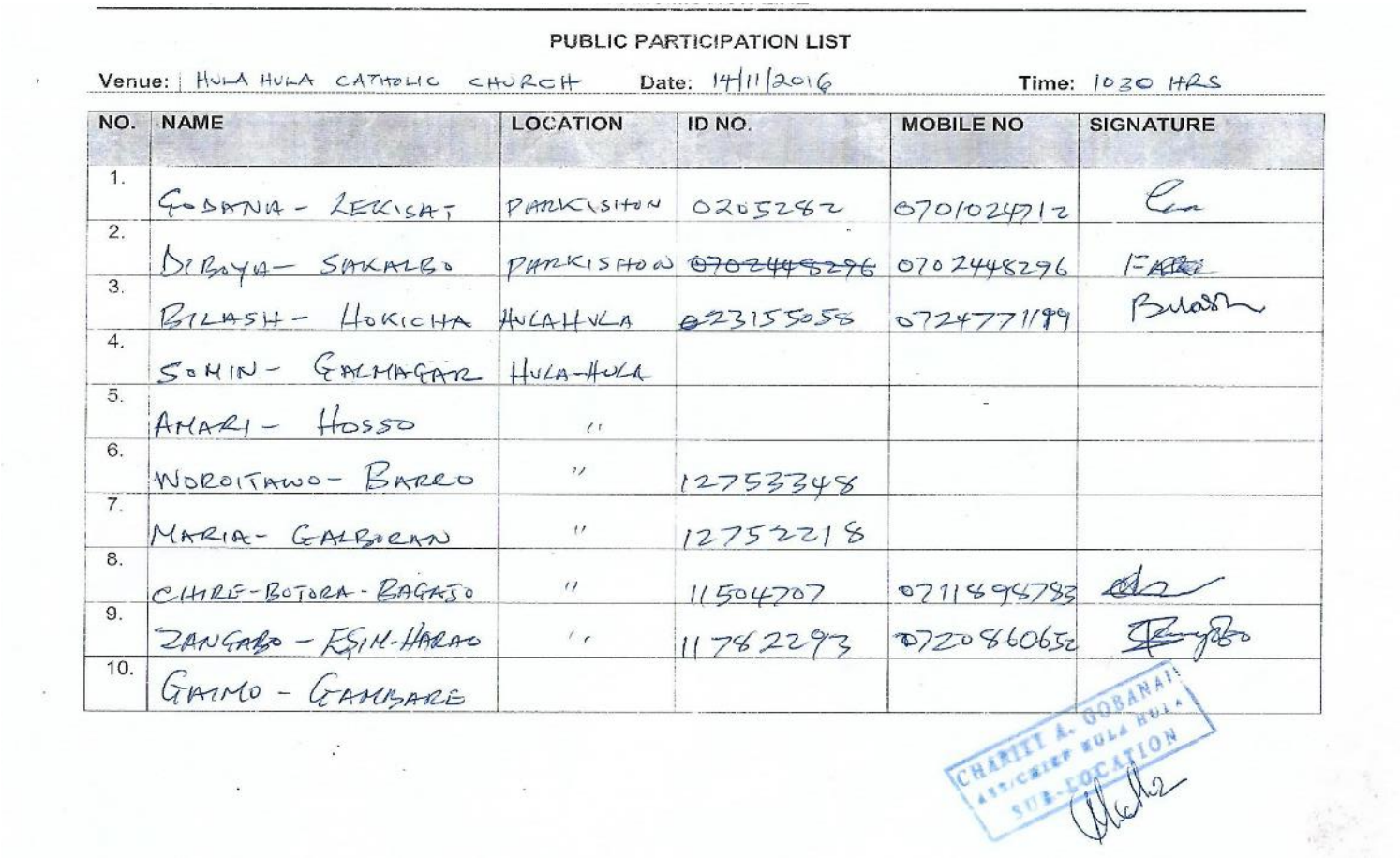
There being no other business, the meeting was adjourned at 4.00pm with a word of prayer.

Compiled by:

ENWAG Company Limited

Appendix II: List of People Consulted

i) Hula Hula Attendance List



PUBLIC PARTICIPATION LIST

Venue: HULA HULA CATHOLIC CHURCH Date: 14/11/2016 Time: 1030 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	GOBANA - LEKISAT	PARKISITON	02052462	0701024712	
2.	DIBAYA - SAKALBO	PARKISHOW	~~0702448296~~	0702448296	
3.	BILASH - HOKICHA	HULAHULA	~~0~~23155058	0724771199	
4.	SOMIN - GALMAGAR	HULA-HULA			
5.	AMARI - HOSSO	"			
6.	WOROITAWO - BARRO	"	12753348		
7.	MARIA - GALBOCAN	"	12752218		
8.	CHIRE-BOTORA-BAGASO	"	11504707	0711694783	
9.	ZANGABO - ESIM-HARAO	"	11782293	0720860652	
10.	GAIMO - GAMBARE				

CHARITY A. GOBANA
ASS/CHIEF HULA HULA
SUB-LOCATION

PUBLIC PARTICIPATION LIST

Venue: HULA HULA CATHOLIC CHURCH Date: 14/11/2016 Time: 1030 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	GOBANA - LEKISAT	PARKISITON	0205282	0701024712	
2.	DIBOYA - SAKALBO	PARKISHOW	~~0702448296~~	0702448296	
3.	BILASH - HOKICHA	HULAHULA	~~0~~2315058	0724771199	
4.	SOMIN - GALMAGAR	HULA-HULA			
5.	AMARI - HOSSO	"			
6.	WOROITAWO - BARRO	"	12753348		
7.	MARIA - GALBORAN	"	12752218		
8.	CHIRE - BOTORA - BAGASO	"	11504707	0711894783	
9.	ZANGABO - ESIN-HARAO	"	11762293	0720860652	
10.	GAIMO - GAMSARE				

CHARITY A. GOBANA
ASS/CHIEF HULA HULA
SUB-LOCATION

PUBLIC PARTICIPATION LIST

Venue: HULA HULA CATHOLIC CHURCH Date: 14/11/2016 Time: 1030 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	CHARITY GOBANAI	HULA HULA	9847546	0721306152	CHIEF
2.	MICHAEL M-NABOSU	HULA HULA	0020716	0716793069	
3.	BAACHU - LERUK	PARKISHON	12752372	0707291484	
4.	JUMA - NOLASO	HULA HULA		0790683792	
5.	BABU - NABOSU	HULA HULA	12431775	0718911130	
6.	Paul Galhai	HULA HULA		0716617792	
7.	Loiboku Galboran	HULA HULA			
8.	Lechura Tarara	HULA HULA	21658493	0715795012	
9.	GURACHA - MOSOR	"	4282054		
10.	GANGESA ORUBA	"	0630266	0723245748	

CHARITY A. GOBANAI
ASSISTANT CHIEF HULA HULA
SUB-LOCATION

ii) Karare Attendance List

PUBLIC PARTICIPATION LIST

Venue: KARARE MARKET CENTRE Date: 14/11/2016 Time: 1440 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Lowa Lepuki	Karare	0023871		
2.	Robert Lotawa	Karare	0024082	0719692504	
3.	Ltangeson Lerandile	Karare	—	—	
4.	Leku Kakhale	Karare	27226943	—	
5.	Walta	Karare	24048516	—	
6.	William Mor	Karare	23255088	0728062311	
7.	MICHAEL SLTAKEMON	Karare	2311066	0713550151	
8.					
9.					
10.					

JONATHAN K. ILIMO ASSIST. CHIEF Date..... KARARE SCHEME

PUBLIC PARTICIPATION LIST

Venue: KARARE MARKET CENTRE Date: 14/11/2016 Time: 1440 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	LAWEN LOKUCHA	KARARE	-	-	
2.	TOTO LERABANYO	KARARE	-	-	
3.	KAYATO BARDAL	0025052			
4.	MOHAMED ADO	3469403			
5.	KORYAN MATASHO				
6.	ILTERESI SIPITI				
7.	SORAR GALORO				
8.	SILANGO ESIM-BASELE				
9.	SORA ESIM-BASELE				
10.	PAUL PARKENI				

JONATHAN K. KILIMO ASSIST. CHIEF Date..... KARARE SCHEME

PUBLIC PARTICIPATION LIST

Venue: KARARE MARKET CENTRE Date: 14/11/2016 Time: 1440 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Lolpus	Karare	-	-	
2.	Leuren LeparPARORI	Karare	12752385	-	Leuren
3.	James Kidenye	Karare	-	-	James
4.	Leson parpori	Karare	-	-	Leson
5.	Leruyan Ledeleya	Kararare	-	-	Leruyan
6.	ILMoliya Kukuton	Karare	06294688	-	
7.	Lekikon Leado	Karare	0023861	-	~~Lekikon~~
8.	parekon Kukuton	Karare	-	-	~~Prok~~
9.	ILMilaon Leado	Karare	-	-	~~ILmilaon~~
10.	ILTiriason mapleni	Karare	12752508	-	LTiriason

JONATHAN K. ILIMO ASSIST. CHIEF Date..... KARARE SCHEME

iii) Kamboe Attendance List

PUBLIC PARTICIPATION LIST

Venue: KAMBOE CHIEF'S OFFICE Date: 15/11/2016 Time: 10PM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	MARTIN LEUPANYA	KAMBOE			
2.	JAMES NAMBERE	"	28477751	0708209105	
3.	LTALISAN ESIMGABANA	"	—	0795042956	
4.	LEMBATS LEUPELE	"	34504570	0727696558	
5.	JAMES LESIRANGONÉ	"	32550876	0717807158	
6.	DAVID LAPADES	"	34013356	0705117563	
7.	RICHARD LEKUREYA	"	—	0790338249	
8.	JOSEPH LOCHORWE	"	—	0702449098	
9.	STEPHEN ESIMGABA	"	—	—	
10.	NJERI KASULA	"	—	—	

PUBLIC PARTICIPATION LIST

Venue: Date: 15/11/2016 Time: 10pm

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JONATHAN ESIMIRIANA	KAMBOE	27132229	0701270604	
2.	LPANGEYON NEEPE	"	—	—	
3.	LAARAI KAPINA	"	—	—	
4.	LORUNYOK KASOLA	"	—	—	
5.	JORAM KOCHALLE	"	34153713	0719764534	
6.	Zacharia Learapo	"	-	0717268693	
7.	James kapina	"	—	0707185793	
8.					
9.					
10.					

Ass. Chief Kamboe

PUBLIC PARTICIPATION LIST

Venue: Kamboe Chief office Date: 15/11/2016 Time: 1.0 Am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	MUNGATTOI KAPINA	KAMBOE	—	—	
2.	GUYATO ROCHALE	KAMBOE	—	—	
3.	SIPITAL GALGITHELE	"	—	—	
4.	NTUDUPAN ESIMGARANA	"	—	—	
5.	AGNES KASULA	"	—	—	
6.	SURUMO LEKICAAT.	KAMBOE	—	—	
7.	LOHOKUTON KAPINA	KAMBOE	—	—	
8.	LEARAKTON LEMOMO	KAMBOE	—	—	
9.	BARAKA Orbya	"	—	—	
10.	PETER LAKO OGOM	"	—	—	

Ass. chief Kamboe

PUBLIC PARTICIPATION LIST

Venue: Kamboe Chief ~~Camp~~ Office Date: 5/11/2016 Time: 10 Am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	LEPATIN GOLGITHELE	KAMBOE	—	—	
2.	LOKUTI KAPINA	"	—	—	
3.	NTAJIRI LEMOWO	KAMBOE	—	—	
4.	LPALATWAN LEMARO	KAMBOE	—	—	
5.	LOTIMIRA LOLTENYA	KAMBOE	30906251	0705259071	
6.	LOBULU LEMOWO	KAMBOE	—	—	
7.	LEKUYANE LOGIPAYANGI	KAMBOE			
8.	SURUTAN GOLGITHELE	"	—	—	
9.	SUPUKON LAPADES	"	—	—	
10.	LPESEYON LEADO	"	—	—	

Ass. chief Kamboe

PUBLIC PARTICIPATION LIST

Venue: Kamboe chief office Date: 15/10/2016 Time: 10 Am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	FAIO LENGOYA	KAMBOE	—	—	
2.	LMIAWAN GALDORO	KAMBOE	—	—	
3.	SAMUEL LETIPO	"	—	0708807779	
4.	GUMATHO ESYMIRDANA	"	—	—	
5.	LASAPUK LEADO	"	12752381	0703949254	
6.	LKAMBOEN LEADO	KAMBOE	—	—	
7.	LEREMBE LESILAU	KAMBOE	—	—	
8.	LMINKISON KAPINA	"	—	—	
9.	LTANYAMAL LESOIPA	"	21383274	0725018270	
10.	LPESIE ARIGELE	"	—	—	

Ass. chief Kamboe

PUBLIC PARTICIPATION LIST

Venue: KAMBOE CHIEF's Office Date: 15/11/2016 Time: 10 PM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	LEJESON LENTOROR	KAMBOE	—	—	
2.	LEJUMAN LOCHOKUGE	"	—	—	
3.	SUUJI KOCHALE	"	—	—	
4.	NKURAN NEEPE	"	—	—	
5.	NCHILIYO LESILAU	"	—	—	
6.	NAISAIKAI LOCHOKWE	"	—	—	
7.	MZEE LELIMELE	"	—	—	
8.	MZEE LEKAROKY	"	—	—	
9.					
10.					

Ass Chief Kamboe

iv) Logo Logo Attendance List

PUBLIC PARTICIPATION LIST

Venue: Loglogo Date: 15/1/2016 Time: 2pm

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Koroulo basele	Loglogo			
2.	chalgele ismgudere	" "			
3.	nakargini lorapo	" "			
4.	Joseph Loltome	" "			
5.	Ilmasman Lediwa	" "			
6.	LTopukon Korole	Loglogo CHIEF		0725860207	
7.					
8.					
9.					
10.					

LTOPUKON KOROLE
ASST. CHIEF
BAROKSUB-LOCATION

PUBLIC PARTICIPATION LIST

Venue: ~~Logo~~ LOGOLOGO Date: 15/11/2016 Time: 2 PM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JAMES BARICHO	LogoLogo	9561581	0706932016	James
2.	WAREMA Orguba	" " "			
3.	LERINGA Lesapo	" "			
4.	JOB. LEKHIPAN	LOG-LOGO	11386447	0702787016	
5.	ABISOMO Safo	" " "			
6.	NANG'URAM Lekogula	" " "			
7.	THUBACHO Kimogol	" " "			
8.	NKIRIMAI Pasele	" " "			
9.	LENGUDA Mulugo	" " "			
10.	ARITHEI Lokile	" " "			

LODUKON KOROE
ASST. CHIEF
BAROK SUB-LOCATION

PUBLIC PARTICIPATION LIST

Venue: Logologo Date: 15/11/2016 Time: 2Pm

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	LKUDUP Kahle	" " " "			
2.	HEKAPINA LESEREI	" " "			
3.	LEANDAS LEARAPO	" " "			
4.	Rapais Kochale.	" " "	23403271		
5.	thuri bursuna	" " "			
6.	NDapile hargura	" " "			
7.	LEPELE Home	" " "			
8.					
9.					
10.					

ETOPUKON KUROLE
ASS'T. CHIEF
BAROKSUB-LOCATION

PUBLIC PARTICIPATION LIST

Venue: Logologo. Date: 15/11/2016 Time: 2pm

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	KILIAKA	Logologo			
2.	KHADULO FARHAN	" "			
3.	MOHAMMED KIBENYE	Logologo	9559321	0724277370	
4.	NEPEILUE LOLTOME	LOG.LOGO	25063298		
5.	LENBERE HADO	" " "			
6.	NBOROP LEAKAPO	Logologo			
7.	BRUCELEE	Logologo	26284426	0706207	
8.	LENGOLE ILBARNOK ASSISTANT CHIEFE	" " "			
9.	OLOLA	LOG-LOGO	0024016	0713591775	
10.	LEMUNGEN MARIEM	" " "	0023338		

ETORUKON KORODE
ASST. CHIEF
BAROK SUB-LOCATION

v) Laisamis Attendance List

PUBLIC PARTICIPATION LIST

Venue: LAISAMIS MARKET Date: 16/11/2016 Time: 11 Am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Anthony Barele	Lasamis	91793852	0719 676 332	
2.	SNR CHIEF Antonino Kaldale	Chief LAISAMIS	23115540	0727 963028	
3.	Ass. chief Augostine L. Super	Ass. Chief LAISAMIS	20097626	0724116612	
4.	Hitoyia	KOYA			
5.	Hiapaso	KOYA			
6.	Hhimiren	KOYA			
7.	Hapan Ibralin	LAISAMIS			
8.	Hkisoro Sukud	LAISAMIS			
9.	Kosi Leisoro	LAISAMIS			
10.	Ndiriyon Kalo	LAISAMIS			

A. N KALDALYE
SNR CHIEF
LAISAMIS LOCATION

PUBLIC PARTICIPATION LIST

Venue: Date: Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Arba Korima	Koya			
2.	Koreyia Khoyan	Koya			
3.	Sikiton Ortoya	Laisamis			
4.	Mparasin Sisilan	Laisamis			
5.	Herkhaco Lenangu	Koya			
6.	Namain Hajuphe	Laisamis			
7.	Faraya pakiya	Koya			
8.	Narno Parkeri	Laisamis			
9.	Naiman Ntilalu.	Laisamis			
10.	L Nalmasi Lorem	Laisamis			

A. N KALUALYE
SNR CHIEF
LAISAMIS LOCATION

PUBLIC PARTICIPATION LIST

Venue: Date: Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Ripica Lebarakwe	Laisamis			
2.	Tiboran Lbalangs	Laisamis			
3.	Rarayan Khayan	Laisamis			
4.	Ltibirwa Miridana	koya			
5.	Lepaso Kalaile	koya			
6.	Galgonule Lotuwa	koya			
7.					
8.					
9.					
10.					

A.N KALOALLE
SNR CHIEF
LAISAMIS LOCATION

PUBLIC PARTICIPATION LIST

Venue: LAISAMIS MARKET Date: 16/11/2016 Time: 11 AM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JAMES L. BASELE	LAISAMIS	11386674	0705702062	
2.	HENRY SURMAT	LAISAMIS	23297690	—	
3.	CHOSO AMITO	LAISAMIS	0077120	0795010297	
4.	JOSEPH LUMBA	LAISAMIS	0822716	0711679733	
5.	LEYON NAMBILE	LAISAMIS		—	
6.	GATHAB BULYAR	LAISAMIS	0630099	—	
7.	KORIAN GACHAI	LAISAMIS	0022849	0204340372	
8.	WELESWA DABALEN	LAISAMIS	02820501	0717295713	
9.	LMAGAR BALIOR	LAISAMIS		—	
10.	KASIBO KALAILE			—	N/A

A. N KALDALLE
SNR CHIEF
LAISAMIS LOCATION

PUBLIC PARTICIPATION LIST

Venue: LAISAMIS MARKET Date: 16/11/2016 Time: 11 AM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	PAUL SARUN	LAISAMIS	07062773[illegible]		
2.	JULIUS L. LENGEYA	LAISAMIS	0022877	0700392321	
3.	LEMINGIS MATACHO	KOYA	9558336	—	N/A
4.	LOKUTUMER KURTUMA	KOYA			
5.	LTIPANOI MARLENI	KOYA	0719676326		
6.	Gachoglo Julius	LAISAMIS	23304476	0711904196	
7.	LMACHUNGA	LAISAMIS		0725771121	
8.	LMAISAN ESIMATACHO	LAISAMIS		0720545940	
9.	MANYARI LEBONYO	KOYA			
10.	MALDAKI SURMAT	LAISAMIS	0022859	—	

A. N KALOALLE
SNR CHIEF
LAISAMIS LOCATION

PUBLIC PARTICIPATION LIST

Venue: LAISAMIS MARKET Date: 16/11/2016 Time: 11 AM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	BARGUL GOLBOWA	KOYA LAISAMIS	24983666		
2.	LESAS SIMON	LAISAMIS		0719346446	
3.	LIAPUKAN LUKUMANI	LAISAMIS	1507948	—	
4.	MAAMI NASEYIAN	LAISAMIS			
5.	GALBOYEI CHAKWET	LAISAMIS	0022942	—	
6.	MARIA LENGIMA	KOYA			
7.	ARSIMELWA NAJULE	LAISAMIS	00610365	0702890090	
8.	NGETIAN LEISORO	LAISAMIS	12752801	0716929397	
9.	NKOROYON ARNEKH	LAISAMIS	11386205		
10.	KURKOMEYA ARSERIEU	LAISAMIS			

A. N KALOLILE
SNR. CHIEF
LAISAMIS LOCATION

vi) Merille Attendance List

PUBLIC PARTICIPATION LIST

Venue: MERILLE MARKET Date: 19/11/2016 Time: 3 PM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JARSO KORIMA SALE	MERILLE	0629269		
2.	BELE LEWALWE	MERILLE	0024669		
3.	LOIBOR LEKORKOROULE	MERILLE	8150769.		
4.	LTONINYE LEJALE	MERILLE			
5.	SAKARDALA KORIMA	MERILLE			
6.	NTURWA GALORA	MERILLE			
7.	JACOB MORIUNGI	MERILLE	13353054	0706320935	
8.	RAUTON LEISIORO	MERILLE		0717346528	
9.	MBAANOI GRAUBA	MERILLE	~~071~~	0711556983	
10.	GAMORO LEMARLENI	MERILLE	21381801		

PUBLIC PARTICIPATION LIST

Venue: MERILLE - MARKET Date: 17/11/2016 Time: 3 PM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	LEWAJO LESORMAT	MERILLE	20235793	—	—
2.	YAPANOI LEKOYAN	MERILLE	12752707	✓	—
3.	ANTONELLA SAMANA	MERILLE	11275113	0727962863	
4.	LOITANO LEKOKOYO	MERILLE	—	—	—
5.	LMINTISIAN LERUSO	MERILLE	—	—	—
6.	FRANCIS HARAO	MERILLE	32542594	0708108539	
7.					
8.					
9.					
10.					

vii) Sereolipi Attendance List

PUBLIC PARTICIPATION LIST

Venue: DARKAP VILLAGE Date: 16/NOV/2016. Time: 1100 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	TEMUNYI LEALO	WASO	12871063		
2.	JALTINI LENGIMA	SERE-OLIPI	29326438	0713973254	
3.	LENTON LEARSEREU	SERE-OLIPI	24821201	—	
4.	TATIYA LENGUWANI	SERE-OLIPI	21036566	—	
5.	STAAN LENAITURURO	SERE-OLIPI	24760132.	—	
6.	MIKA LEKALORA	SERE-OLIPI	3041042.	—	
7.	SEMEYO LERRSEREU	SERE-OLIPI	31289161	—	
8.	KARBA LEMIRGICHAN	SERE-OLIPI	31822854	—	
9.	SONKITAN LENAKAT	SERE-OLIPI	—	—	
10.	NKITARI LENGIMA	SERE-OLIPI	—	—	

PUBLIC PARTICIPATION LIST

Venue: DARKAP VILLAGE Date: 16/Nov/2016 Time: 1100 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE	
1.	PAULINE LENERGICHAN	SEREOLI P1	—	0700021360		
2.	LOBIKI LEKARKARAULE	SEREOLI P1	24762912	0700656925	—	
3.	MARY LEMERGICHIAN	SEREOLI P1	—	0770783039	—	VILLAGE ELDER
4.	LITALERISI LANGEMA	"	29487231	0715 354136		
5.	LTIRISON LENANYEKIE		21065465	0710823315		
6.	BENSON LAWALA		—	—		
7.	LONYOEKI LESIGITE		—	0705301611		
8.	ABDALA LEKALKALOOLE		—	—		
9.	JOSEPH MIRGICHAN		30566790	0706837445		
10.	ROCCO M. LESASUYAN		32799001	—		

viii) Kirisha Lerata Attendance List

PUBLIC PARTICIPATION LIST

Venue: Date: Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Joseph Leadekei	Waso	9532441	0712391219	
2.	Lino Lepurdati	Waso	25242096 74	0724209674	
3.	Patakuoni Lemartile	Waso			-
4.	Nolkera Lerukupa	Waso			-
5.	Noguta Lekoitip	Waso			
6.	Nalepu Lagwanani	Waso			
7.	Nerekoi Lemarle	Waso			-
8.	Nouyam Leadekei	Waso			-
9.	Namanu Leadekei	Waso			-
10.	Nortwalan Lepurdati	Waso			-

PUBLIC PARTICIPATION LIST

Venue: Date: 17/11/2016 Time:

17TH-11-2016
BOX 421 ISIOLO / ARCHERS P.O.

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Nalaram Lekampayo				
2.	Rebecca Lemarle				
3.	Nosuruai Leadekei				
4.	Nongata Lepurdati				—
5.	Rapaela Leadekei				-
6.	Ratilei Lekampayo				-
7.	Nturunyai Letaare				-
8.	Nolgwesi Letoo				-
9.	Nakuniai Lepurdati				-
10.	Tati Lepurdati				-

ix) Archers Post Attendance List

PUBLIC PARTICIPATION LIST

Venue: NORUBAE VILLAGE Date: 16/11/2016 Time: 1440 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	ROBEN LEKULUAI	ARCHERS POST	23605097	0725209558	
2.	ARIWAN LETEREUWA	"	4186282		
3.	PRINCILLAH NABOSU	"	12581687	0718794781	
4.	KATAAI LEADISMO	"	4186256		
5.	LEKOPIRO L. GABRIEL	"	13047120	0702641533	
6.	NALAARAM LEARPORA	"	12871660		
7.	NKINIYO LEARPORA	"	30592815		
8	NTIMAS LEKUREIYA	"	3440005		
9.	ESTHER LENDORONI	"	9854447		
10.	EVALYNE MPIRINGIN	"	20024106		

HENRY LENAIYASA
ASSISTANT CHIEF
ARCHERS POST SUB LOC
16/11/016

PUBLIC PARTICIPATION LIST

Venue: NORUBAE VILLAGE Date: 16/11/2016 Time: 1440 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	ROBEN LEKUWAI	ARCHERS Post	23605097	0725209558	
2.	ARIWAN LETEREUWA	"	4186282		
3.	PRINCILLAH NABOSU	"	12581687	0718794781	
4.	KATAAI LEADISMO	"	4186256		
5.	LEKOPIRO L. GABRIEL	"	13047120	0702641533	
6.	NALAARAM LEARPORA	"	12871660		
7.	NKINIYO LEARPORA	"	30592815		
8	NTIMAS LEKUREIYA	"	3440005		
9.	ESTHER LENDORONI	"	9854647		
10.	EVALYNE MPIRINGIN	"	20024106		

HENRY LENAIYASA
ASSISTANT CHIEF
ARCHERS POST SUB LOC
16/11/016

PUBLIC PARTICIPATION LIST

Venue: DORUBATE VILLAGE Date: 16/11/2016 Time: 1440 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	NTOYET LENATOLIA	ARCHERS	34418827 33258811		
2.	NTERENTAN LEKADAA	"	33258811		
3.	ESSO LESUMANTE	"	3440421		
4.	NGELITON LEGUTUKAI	"	11455204		
5.	ELINA LEMBWAKITA	"	25095973		
6.	MALIAN LECHUDUKULE	"	12871633		
7.	NTEKWA LEKADAA	"	30592750		
8.	NTINGILON LESORDONGERA	"	12871017		
9.	LIPIRENTEN ZENATILIA	"	4186195		
10.	SENTINA LENANSUR	"	29561810		

HENRY LENAMASA
ASSISTANT CHIEF
16/11/16

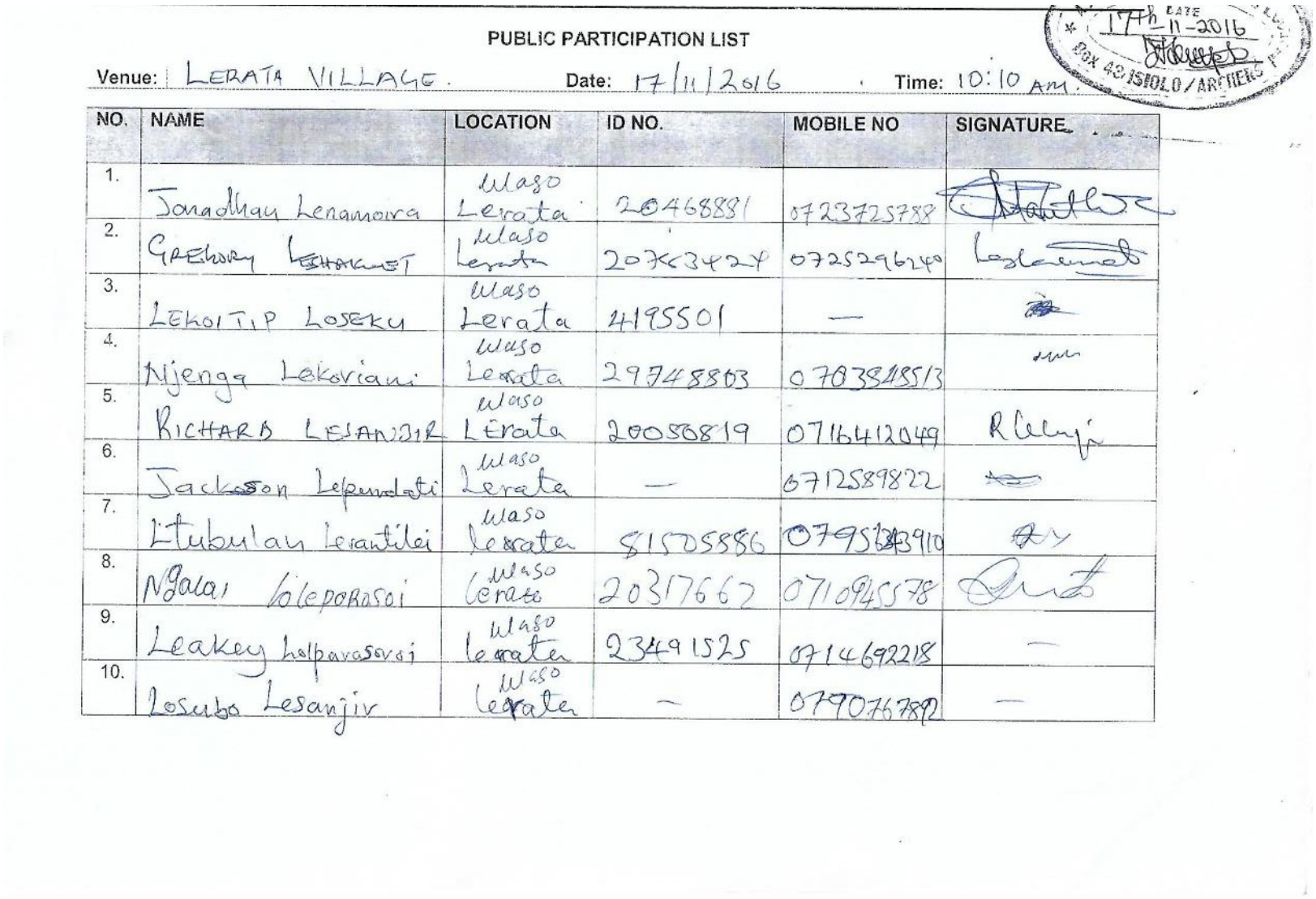
PUBLIC PARTICIPATION LIST

Venue: LORUBAE VILLAGE. Date: 16/11/2016 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JOHN LEADISMO	ARCHERS	26088226		
2.	LENYRUNI GINTIPANO	11	7964770.		
3.	LEKUPANAI ROBERT	11	28638654		
4.					
5.					
6.					
7.					
8.					
9.					
10.					

HENRY LENAIYASA
ASSISTANT CHIEF
ARCHERS POST SUB LOC
16/11/2016

x) Lerata Kalama Attendance List



PUBLIC PARTICIPATION LIST

Venue: LERATA VILLAGE. Date: 17/11/2016 Time: 10:10 AM.

17th NOV 2016 BOX 43 ISIOLO / ARTHERS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Jonathan Lenamoira	Waso Lerata	20468881	0723725788	
2.	GREGORY LEHARNET	Waso Lerata	20K3424	0725296240	
3.	LEKOITIP LOSEKU	Waso Lerata	4195501	—	
4.	Njenga Lekoriani	Waso Lerata	29748803	0703385513	
5.	RICHARD LESANJIR	Waso Lerata	20058819	0716412049	
6.	Jackson Lepundati	Waso Lerata	—	0712589822	
7.	Ltubulan Lerantilei	Waso Lerata	81505886	0795[illegible]3910	
8.	Ngalai Lolepokasoi	Waso Lerata	20317662	0710945578	
9.	Leakey Lolpavasovoi	Waso Lerata	23491525	0714692218	—
10.	Losuba Lesanjir	Waso Lerata	—	0790767892	—

PUBLIC PARTICIPATION LIST

Venue: KERATA VILLAGE Date: 17/11/2016 Time: 10 Am

17-11-2016 P.O. BOX 43 ISIOLO / ARCHERS POST

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Jane Lolpurpur	waso	23604899	0728735944	
2.	Mpiraman Lesupeen	waso	-	-	-
3.	Mpaaman Leadekei	waso	-		
4.	Esther Lekeale.	waso	-	-	-
5.	Nanyamangesa Lekeale.	waso	-	-	-
6.	Magret Lesanjir	waso.	-	0792901288	
7.	Sarah Lesanjir	waso	-	-	
8.	Njaraine Lesanjir	waso	-	-	-
9.	Honey Lesanjir	waso	-	-	-
10.	Angio Leshakuret.	waso	-	-	-

PUBLIC PARTICIPATION LIST

Venue: Date: Time:

DATE 17th 11-2016

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	WILSON LEBACHA	WASO	24492732	0711832671	
2.	DANIEL M. LOŃKIDIENYE	WASO	20073587	0728554701	
3.	SAMUEL LEADEKEI	WASO	20548171	0792510496	
4.	Anti-poshen Leadekei	WASO	20382423	0717383286	
5.	MEKARI Lemayog	Waso	—	0703 678531	—
6.	Imani lepineri	Waso	29080073	0790190893	—
7.	ALois Lesanyor	Waso	27278650	0717523789	
8.	Lenanyoro B. Lkimuser	Waso	12452157	0725069553	
9.	David Lekolol	Waso	—	—	—
10.	Rule lekoriari	waso	—	—	—

PUBLIC PARTICIPATION LIST

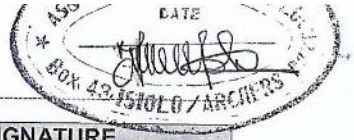
17 - 11 - 2016
BOX 43 ISIOLO / ARCHERS

Venue: Date: Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Lekeale	Waso	-	-	-
2.	George Leshakweti	Waso	-	-	-
3.	Lmakasian Leevesh	Waso	-	-	-
4.	Thomas Leadeke:	Waso	-	-	-
5.	Margret Lemogoy	Waso	-	-	-
6.	Eunice Lesanji	Waso	20774774	0790941742	-
7.	Rahel Lolpavasovoi	Waso	-	-	-
8.	Lisana Leaiyo	Waso	11455227	-	-
9.	Makin Lerantilei	Waso	12371744	-	-
10.	Helen Lesarsia	Waso	31270495	0718315387	

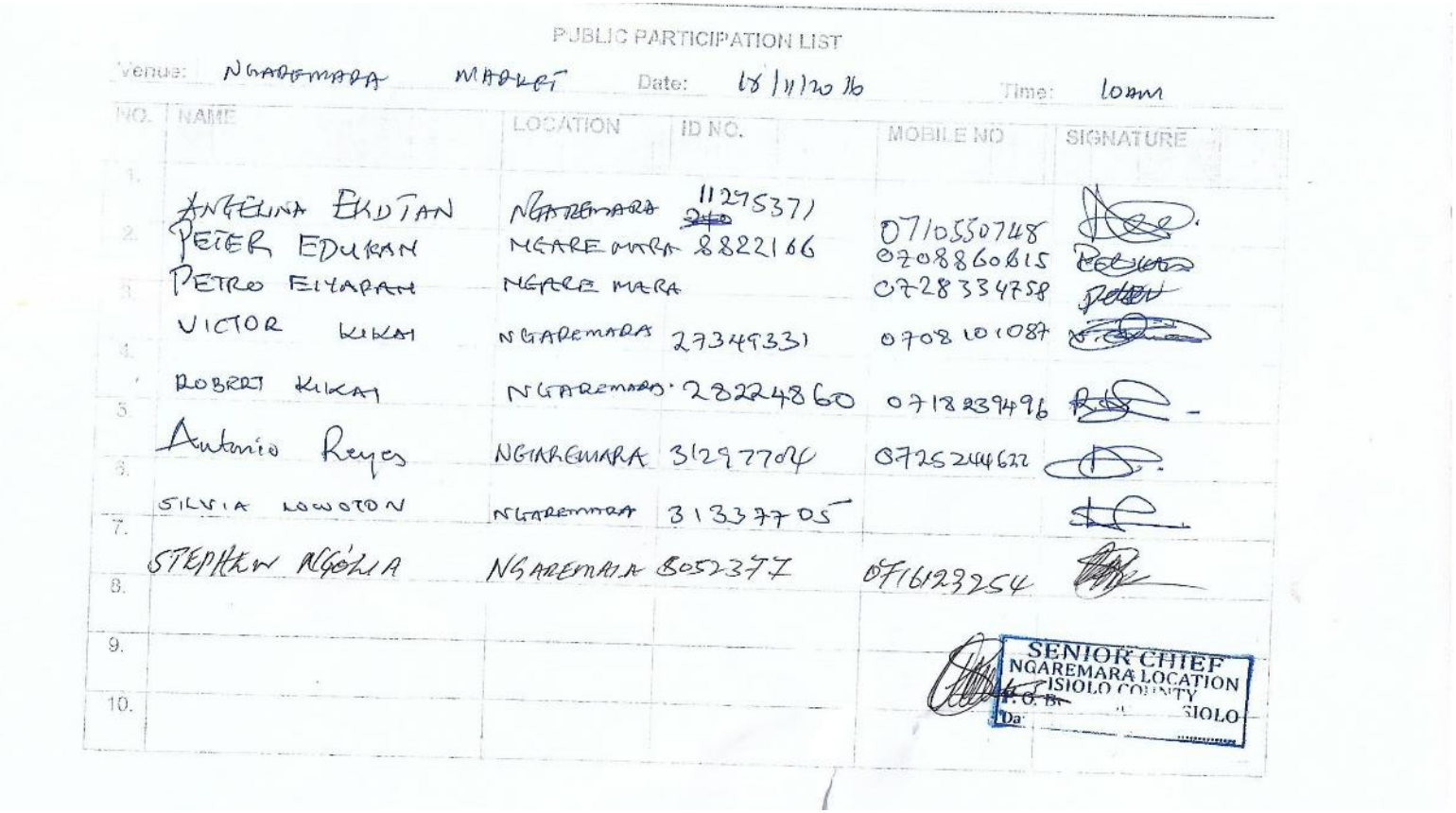
PUBLIC PARTICIPATION LIST

Venue: Date: Time:



NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Ntaaran Lepiwei	Waso	—	—	—
2.	Naalarusi Lemogog.	Waso	—	—	—
3.	Lambeni Letoo.	Waso	—	—	—
4.	Jesinta Lebasha	Waso	13024937	0702493267	
5.	Lempagaani Daniel	Waso	28156707	0728054447	
6.	Joseph Lhongoro	Waso East	4186017	0700107619	
7.	Joseph Leadekei	Waso			
8.	Lino Lepurdoti	Waso	25021343	0724209674	
9.					
10.					

xi) Ngaremara Attendance List



PUBLIC PARTICIPATION LIST

Venue: NGAREMARA MARKET Date: 18/11/2016 Time: 10am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	ANGELINA EKUTAN	NGAREMARA	11275371	0710550748	
2.	PETER EDUKAN	NGARE MARA	8822166	0708860815	
3.	PETRO ELYARAM	NGARE MARA		0728334758	
4.	VICTOR KIKAI	NGAREMARA	27349331	0708101087	
5.	ROBERT KIKAI	NGAREMARA	28224860	0718239496	
6.	Antonio Reyes	NGAREMARA	31297704	0725244622	
7.	SILVIA LOWOTON	NGAREMARA	31337705		
8.	STEPHEN NGOLIA	NGAREMARA	8052377	0716923254	
9.					
10.					

SENIOR CHIEF
NGAREMARA LOCATION
ISIOLO COUNTY
P. O. Box
Da ISIOLO

PUBLIC PARTICIPATION LIST

Venue: NGAREMARA MARKET Date: 18/11/2016 Time: 10 AM

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Flavia Ewoi	NGAREMARA	26044935	0708296254	
2.	JOSPHAT LOKUTAN	NGAREMARA	32762777	0705566679	
3.	Josphat Losiron	NGAREMARA	29438380	0702 164325	
4.	REBECCA ASA	NGAREMARA			
5.	AWOTON ALEPEA	NGAREMARA	0007607		
6.	JAMES NGATUK	NGAREMARA	26562911	0717229592	
7.	WILLIAM NYIRAU	NGAREMARA	259055	07	
8.	LUCY KEYONGA	NGAREMARA	12755353	07	
9.	GODFREY KIPLAGAT	NGAREMARA	31275345	0703477726	
10.	FRANCIS LOWA	ngaremara	0081099	0720029 98	

SENIOR CHIEF
NGAREMARA LOCATION
ISIOLO COUNTY
P. O. Box 3- 60300 ISIOLO
Date:.....

PUBLIC PARTICIPATION LIST

Venue: NGARENARA MARKET Date: 18/11/2016 Time: 10 Am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	MARTIN EKUAM	NGARENARA	28449346	0726763941	
2.	AIFONCE EKUWAM	NGAREMARA	33130761	0703928602	
3.	LEONARD G. NYANGAA	NGARE-MARA	24638139	0724340856	
4.	FABIANO LOSIRIKALI	NGARENA	33130933	0726115897	
5.	JOSEPH MENEN	11	11275729	0729478867	
6.	SIMON NAKOREA	NGARE	9848198	0705414302	
7.	Stephen Etau	NGARE	11275365	0715992173	
8.	SAMLOKE Ekuru	NGARA	~~07107540~~ 37217721	0710754031	
9.	BARNABAS EKUAM	NGARAMARA	24076229	0704716683	
10.	ELIMINA EKUAM	NGAREMARA	24072926?	0710987??	

SENIOR CHIEF
NGAREMARA LOCATION
ISIOLO COUNTY
P. O. Box 3- 60300 ISIOLO
Date:.....

PUBLIC PARTICIPATION LIST

Venue: NGARENARA MARKET Date: 18/11/2016 Time: 10 Am

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JOSEPH LOPUI	NGARENARA		0703632339	
2.	NERO NGUKUKU	NGARENARA	0077918		
3.	SAMSON EKIRU	NGARENARA	13360152	0719526768	
4.	JAMES ROMURIA	NGARENARA	24657930	0718210141	
5.	EMMANUEL LOPUCHO	NGARENARA	32810752	0706552021	
6.	FRANCIS ECHUMAN	NGARENARA	22573797	0729360886	
7.	PAUL AKUJALUK	NGARENARA			
8.	HASSAN KUKAT	NGARENARA	21275467	0722522652	
9.	ERICK LESENGEI	NGARENARA	28038149	0710120258	
10.	JULIUS ECHUMAN	NGARENARA	13442730	0705804308	

SENIOR CHIEF
NGAREMARA LOCATION
ISIOLO COUNTY
P. O. Box 3- 60300 ISIOLO
Date:

xii) Attan Primary Attendance List

PUBLIC PARTICIPATION LIST

Venue: Date: 18/11/2016 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	LoKomu Lomuja	ATIAN			
2.	JEREMIAH. NAPUU	ATIAN	13 04433		
3.	JAMES LORUBUN	ATIAN			
4.	John NaCHIATA	ATTAN	13044493		
5.	NARUMBE LOBUN	ATIAN			
6.	DAMARTI LOITAN		0004943		
7.	James EKIDOR	ATIAN	0004864		
8.	Raphael Nakoir	ATIAN	0078792	0720621254	
9.	Consolata Iroya	ATTAN	28379089	0713136608	
10.	JAPHET MITU	Attan	11258053	0713755639	

Joseph Ekidor

CHIEF
ATTAN LOCATION
ISIOLO COUNTY
Date.....

PUBLIC PARTICIPATION LIST

Venue: Date: 18/11/2016 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JAMES ARUNYE	ATTAN 12875150	12875150		
2.	SABINA EPUNG	ATTAN	0007732	0720766054	
3.	AGNES NGATA	ATTAN	24612721		
4.	SUSAN APUR	ATTAN	30472894	0704316682	
5.	SELINA AKUJA	ATTAN	21544784		
6.	JANE AKONO	ATTAN			
7.	CHRISTINE AKUNG	ATTAN			
8.					
9.					
10.					

CHIEF
ATTAN LOCATION
ISIOLO COUNTY
Date 18/11/2016
JOSEPH EKIRU

PUBLIC PARTICIPATION LIST

Venue: Date: 14/11/2016 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	JOSEPH EKIRU	ATTAN			CHIEF
2.	NOAH ESEKON	ATTAN	13443795	0705317072	
3.	JOSEPH ERUPE	ATTAN	8207958	0712419798	
4.	ELIZABETH	ATTAN			
5.	ABBOTS EKURU	ATTAN	11275380		
6.	ISAYA ASANTU	ATTAN	2467653	0708259522	
7.	MARTHA IKOTEN	ATTAN			
8.	Gabriella Joroni	ATTAN			DNA
9.	Roseline Nanukur	ATTAN			RN
10.	Loden Ria	ATTAN	20193629		

CHIEF
ATTAN LOCATION
ISIOLO COUNTY
Date 14/11/2016
JOSEPH L. EKIRU

xiii) Kilimani Primary school Attendance List

PUBLIC PARTICIPATION LIST

Venue: Date: 16/11/2016 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Boy Diko	Burat	29711221	0710166775	
2.	Halima Guyo	Burat	0074819	0715888538	
3.	Mohamed Abdi	Burat	004243		
4.	Marian Tadde	Burat	13442101	0725225489	
5.	Hawo Halkano	Burat	9855191	0727663383	
6.	Loise Kambabi	Burat	8610279	0723160715	
7.	Doris Muviuvi	Burab.	2370658	0725602978	
8.	ABUBAR OSMAN	BURAT	30259241	0797689442	
9.	ADAN Mohamed	~~BURAT~~ LMD	25132132	0723709978	
10.	SIYAD ADAN	BURAT	29551008	0723141885	

PUBLIC PARTICIPATION LIST

Venue: Date: 06/11/2021 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	ALI ISMAIL	BURAT	0008398	0700575925	
2.	OMAR HUKA	BURAT	9854817	0728846624	
3.	Mohamed Abduba	Burat	6824156	0719385674	
4.	Ibrahim Hussein	Burat	23443889	0729569165	
5.	MOHAMED IBRAHIM	Burat		0707003379	
6.	BISHAR ABDI	BURAT.	21471411	0727415742	
7.	ABDI HUSSEN	BURAT.	0076160	0710879364	
8.	SIAD BILLOW	BURAT	323422240	0728733486	
9.	MUKTAR FARAH	BURAT	251421114	0724094873	
10.	ABDI BORU	BURAT	4615383	0727806379	

PUBLIC PARTICIPATION LIST

Venue: Date: 16/11/2016 Time:

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Abdilahiman Gedi	Burat	24515158	0726 802106	
2.	FATUMA MOHAMED	Burt	22645382	0711463265	FATUMA
3.	Shaban Mohamed	Burat	003943	0726793862	SHABAN
4.	ABDIA MOHAMED	BURAT	31656572	0707342805	ABDIA
5.					
6.					
7.					
8.					
9.					
10.					

xiv) Maili Nane Attendance List

PUBLIC PARTICIPATION LIST

Venue: MAILI NANE Date: 18/11/2016 Time: 1400 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	GITONGA PAUL	KITHIMA	11325497	0723069704	ASSIST. CHIEF
2.	JACOB MUBICHI	KITHIMA	8882238	0725710580	
3.	JAMES GICHURU	KITHIMA	8888528	0711741456	
4.	PAUL MUGAMBI	MUTUNYI	26929005	0713568657	
5.	JOHAH MWINGI	MURINKI	26748613	0722442257	
6.	PETER MUITHI	MUTUNYI	26162865	0715733604	
7.	FREDRICK KEEME	KITHIMA	27575810	0726827096	
8.	SAMUEL MURIUKI	KITHIMA	0795333577	24875545	
9.	PATRICK MAKAU	KITHIMA	0703875538	35042889	
10.	LUCY NKATHA	KITHIMA	25710810	0710957604	

OFFICE OF ASST CHIEF
KONGO ACEKE
SUB-LOC.
KITHIMA LOC. 18/11/2016

PUBLIC PARTICIPATION LIST

Venue: MAIN NANE Date: 18/11/2016 Time: 1400 HRS

NO.	NAME	LOCATION	ID NO.	MOBILE NO	SIGNATURE
1.	Isaac Kirimi	Kithima	25824247	0706276913	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

OFFICE OF ASST CHIEF
KONGO ACEKE
SUB-LOC
KIT...MA LOC

Appendix III: Plates for Public Consultation Meetings

Hula hula meeting plates held on 14th Nov 2016 from 10am-12pm in Hula hula Catholic Church

Karare meeting plates held on 14th Nov 2016 from2pm-4pm in karare market

Kamboe meeting plates held on 15th Nov 2016 from 10am-12pm in kamboe chief's office

Logo logo meeting plates held on 15th Nov 2016 from 2pm-4pm in Logologo water point close to the market

Laisamis meeting plates held on 16th Nov 2016 from 10am-12pm in Laisamis market

Merille meeting Plates held on 17th Nov 2016 from 3pm-4.30pm in Merille market

Kalama Conservancy plates, on 17th Nov 2016 from 9am-10am in the chairman's office

Lerata Meeting Plates held on 17th Nov 2016 from 11am-12.30pm in kalama location near kalama centre

Kirish meeting Plates held on 17th Nov 2016 from 1pm-2pm in kirish near manyatta

Ngaremara meeting Plates held on 18th Nov 2016 from 10am-11.30am in Ngaremara market

Kilimani meeting Plates held on 18th Nov 2016 from 1.30pm-2.30pm at Kilimani Primary School

Attan meeting Plates held on 18th Nov 2016 from 10.00 am—1200 noon in Attan primary school

Plates of Kithima meeting held on 18th Nov 2016 from 2.00 pm—3.30 pm Kithima Market

Appendix iv: Project Map