KENYA ELECTRICITY SYSTEMS IMPROVEMENTS PROJECT (KESIP)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

April 2019

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act Cap 387
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESSF	Environmental and Social Screening Form
HIV	Human Immunodeficiency Virus
IESIA	Integrated Environmental and Social Impact Assessment
IP	Indigenous People
ISTS	Integrated Safeguard Tracking System
KESIP	Kenya Electricity Systems Improvement Project
KETRACO	Kenya Electricity Transmission Company Limited
KPLC	Kenya Power (Kenya Power and Lighting Company)
MoEP	Ministry of Energy and Petroleum
NEC	National Environment Council
NEMA	National Environmental Management Authority
OP	Operational Policy
OS	Operational Safeguards
PBO	Project Based Programs
PIT	Project Implementation Team
PR	Project Report
RAP	Resettlement Action Plan
RoW	Right of Way
RPF	Resettlement Policy Framework
PCB	polychlorinated biphenyl
PIT	Project Implementation Team
SESA	Strategic Environmental & Social Assessment
SHE	Safety, Health & Environment
ToR	Terms of Reference
UN	United Nations
UNCLOS	UN Convention on the Law of the Sea
WB	World Bank
WRA	Water Resources Authority

EXECUTIVE SUMMARY

Introduction

The country's long-term development blueprint, the Vision 2030, aims at transforming Kenya into a globally competitive, newly industrialized, middle income and prosperous country. The growth objectives underpinning the Vision 2030 require a sustainable annual economic growth rate of more than 10% supported by industry, agriculture and services. Efficient, accessible and reliable infrastructure has been identified as an enabler for achieving sustained economic growth, development and poverty reduction by lowering cost of doing business and improving the country's global competitiveness.

The electricity sub sector has adopted a 20-year rolling plan that will align the sector with the Vision targets. The plan provides the road map to meet the estimated power demand. Power generation sequence, necessary network upgrades and expansions required to adequately evacuate the generated power and efficiently meet the demand is proposed.

As part of the plan to achieve this target, the Government of the Republic of Kenya is seeking the financial support of US$370 million from the World Bank for the Kenya Electricity System Improvement Project (KESIP). The proposed implementation period is 5 years, from 2019 to 2024. The project would aim to improve the power systems and electricity access and reliability, in line with the Kenya Growth and Development Strategy. The Project will be coordinated by The Ministry of Energy (MOE) and implemented by KETRACO and KPLC.

Environment and Social Management Framework

The main purpose of the ESMF is to:

- Establish clear procedures and methodologies for the environmental and social assessment, review, approval and implementation of investments to be financed under the project;
- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to project investments;
- Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF; and
- Provide practical information resources for implementing the ESMF

Project Areas

KETRACO has identified 7 subprojects involving 132 kV and 220 kV transmission lines and associated substations. The exact lines and substations that can be supported under the proposed Project will be determined later based on priority, readiness, and environmental and social screening and assessment. A long-list of subprojects is provided in Annex D

Project Development Objectives

The proposed project development objectives (PDOs) are: (a) to increase the capacity of the transmission system and (b) to increase access to electricity. The achievement of development objectives will be assessed using the following key outcome indicators:

- Increase in nominal transmission capacity (MVA)
- People provided with new or improved electricity service (number)

Project Components

There are two implementing agencies for the project. KPLC, a public limited company listed on the Nairobi Stock Exchange will be responsible for implementation of the distribution network investment and associated technical assistance activities. KETRACO, a public sector company, will be responsible for implementation of the transmission line investment and associated technical assistance activities. MOE will be responsible for implementing the technical assistance component while also coordinating overall project activities.

The project comprises of three focused components but KETRACO will be involved in component 2 only. The various components have been elaborated below:

Component 1- Access Expansion and Distribution Network Strengthening (approximately US$ 235 million equivalent)

The proposed project will aim to support mostly grid densification and intensification and some grid expansion to reach about 120,000 new connections benefiting about 450,000 people. The exact lines and substations to be supported under the component will be determined during project implementation. The component has three sub components: (i) new medium and low voltage infrastructure to help address system bottlenecks for reducing losses, improving reliability, and create capacity to support last mile electrification (US$85 million); ii) connections of new consumers through Last Mile electrification (US$130 million); and (iii) Slum Electrification to connect consumers living in informal settlements (US$20 million). The component will be implemented by KPLC.

Component 2: Transmission Network Expansion and Strengthening (Approximately US$120 million equivalent)

This component will be implemented by Kenya Electricity Transmission Company Limited (KETRACO). The component is expected to introduce high voltage network to areas that have been serviced by long medium voltage lines to reduce technical losses and reinforce the existing medium voltage networks. The component will also increase transmission adequacy for interconnecting different regions of the country and improve reliability of power transmission and ensure compliance with N-1 contingency criteria. KETRACO has identified 6 sub-projects involving 132 kV and 220 kV transmission lines and associated substations and construction of three new 400/220kV substations estimated at US$298 million. The exact lines and substations that can be supported within the funding allocation for this category under the proposed Project will be determined later based on priority, readiness, and environmental and social screening and assessment. A long-list of sub-projects is provided in Annex D. The component is also expected to support an owner's engineer (firm), which will help KETRACO with preparation of design, bidding documents, bid evaluation, and project supervision during implementation phase. The funding requirement for the 6 transmission lines and three substations is around US$298 million. With the funding allocation available (US$120 million), only 2 or 3 lines and 1 or 2 substations can be supported under the Project.

Component 3: Technical Assistance and Capacity Building: (Approximately US$15 million equivalent):

The component will support KETRACO to carry out a detailed feasibility study in accordance with the PPP law to determine the technical, financial, legal, social and environmental feasibility of piloting development of some identified transmission lines under PPP arrangements, including establishing the value for money for PPP. The initial phase of the feasibility study will start soon with support from an on-going IDA credit (Eastern Electricity Highway Project, P126579) while the second phase will be supported under the proposed Project. Implementation of the PPP pilot will be supported by Africa50 and IFC Advisory who are currently in discussion with KETRACO. The feasibility study will be

supervised by IFC on behalf of KETRACO and closely coordinated with Africa50 to ensure a consistent approach for all the 5 lines included in the pilot PPP. The preparation of the relevant feasibility-stage safeguard instruments (ESIA and RAP, as appropriate) will also be supported under the Project.

The component will also include sector studies, capacity building, and training activities to help sustain and enhance the policy, institutional and regulatory arrangements and reforms of the GoK as well as gender and citizen engagement. Some of the studies to be supported under the component will include optimal power market design, system operation and dispatch guidelines for the Energy Regulatory Commission (ERC). The capacity building will also include training and activities to strengthen governance, management, technical and operation capacity of the sector agencies including the KPLC, KETRACO, ERC, KenGen, Geothermal Development Company (GDC), and Rural Energy Agency (REA). The Ministry of Energy (MOE) will implement this component in coordination with the sector agencies.

Project Beneficiaries

Project beneficiaries include households and businesses that will be connected to the electricity network for the first time and whose use of electricity will replace consumption of kerosene and other fuels for lighting and will enable productive activities thus contributing to economic growth.

A second group of beneficiaries will be the existing electricity consumers, including business customers of KPLC for whom the quality and reliability of electricity service will improve. Businesses suffer loss of sales, damage to equipment, and additional cost of electricity supply from standby generators when grid electricity supply is unstable.

By providing public financing for the last mile electrification, the project will help KPLC maintain its commercial viability while meeting the GoK social objective of universal access to electricity. By building capacity for KETRACO in PPPs and developing a cost reflective tariff initially for the PPP payments, and later for a gradual transition to full cost-recovery tariff, the project will help KETRACO on its path towards a state-of-the art transmission company able to leverage commercial financing for developing transmission infrastructure in Kenya.

Leveraging private sector investment in the development of transmission assets through PPPs arrangement will benefit GoK by releasing the scare public resources for investments in other priority areas including the social sectors where opportunities for attracting private financing is limited.

Safeguard Policies and Triggers

The Project will trigger World Bank OP 4.01: Environmental Assessment, OP 4.04: Natural Habitats, OP 4.36: Forests, OP 4.10: Indigenous Peoples, OP 4.12: Involuntary Resettlement andOP4.11: Physical Cultural Resources.

The ESMF is prepared to guide the selection and implementation of subprojects that will require precautionary measures related to EA (OP/BP 4.01). The World Bank's safeguard policy on Environmental Assessment (OP/BP 4.01) is to be complied with where potential risks and impacts are anticipated. In this case, therefore, project alternatives would be avoiding, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts where project selection, location, planning, design, and mitigating and managing through project implementation. Avoidance measures over migratory or compensatory measures should be the priority.

The Bank Operational Policy on Safeguards requires that ESMF be disclosed in country and accessed easily by the general public, and made available through the World Bank's website.

Environmental/Social Screening

The Environmental Specialist and the Social Safeguards specialist assigned into the PIU will coordinate and lead the screening process. They will be assisted with other environmental and social experts in their department. All proposed subproject will be subjected to the screening process to determine and assign them an environmental and social risk rating and further identify potential sensitive environmental and social receptors likely to be negatively impacted. The process will also identify critical issues that might be triggered by the subproject and would need further detailed investigations during environmental and social assessments. This process will also help in advising what safeguards tools (ESIAs, ESMPs, RAPs, ARAPs etc) will be required for the various subprojects. Most importantly, it will help in re-aligning, re-designing and where not possible dropping out sub-projects that have extreme high risk and the potential to negatively impact the environment, natural habitat and forests.

The environmental/social screening would involve: (i) reconnaissance of the subproject areas/routes and their surroundings; (ii) identification of the major subproject activities; and (iii) preliminary assessment of the impacts of these activities on the ecological, physicochemical and socio-economic environment of the subproject surrounding areas. A template form for Environmental and Social Screening for substation and power line are presented in Annex B (Form 2a and 2b). These will be reviewed and updated as needed during the process.

Following the screening process, KETRACO will assign each eligible subproject one of the following risk levels.

- **Level 1 - Low risk.**Subprojects that involve works but do not have impacts beyond generic construction impacts. These subprojects will require an ESMP consisting only of a description of the subproject and the Environmental and Social Clauses for contractor. These subprojects might also require an Abbreviated Resettlement Action Plan (ARAP) prepared under the Resettlement Policy Framework to address possible small pieces of temporary or permanent involuntary taking of land during project implementation. These ESMPs will be submitted to the Bank for review and clearance and will be disclosed by both the client and the Bank.

- **Level 2 - Medium Risk.** Subprojects that trigger environmental and social impacts. In addition to the Environmental and Social Clauses for Contractors, these subprojects will require an environmental and social assessment of each of the impacts and will define matching mitigation measures. These subprojects might also require an ARAP. These subprojects will require a set of E&S measures for mitigation and management of impacts and a report in the form of an Environmental and Social Action Management Plan (ESMP) will be prepared. As required by NEMA for medium risk projects the ESMP will also be submitted to NEMA as a "project report" to inform them of the project activities, geographical area and potential impacts of the proposed development. The requirement in terms of content for a PR report is given in section 9.3. These ESMPs and (Project Reports for NEMA), will be submitted to the Bank for review and clearance and will be disclosed by both the client and the Bank. Given KETRACO's current capacity challenge in terms of number and diversity of E&S specialists, they will engage services of an experienced consulting firm with a pool of divers environmental and social specialists to prepare both the Environmental and Social Safeguards tools required for this category of subproject.

- **Level 3 - High Risk.** Subprojects that trigger significant environmental and social impacts. These subprojects will require a full ESIA and Detailed ESMP. They might also require an ARAP or a RAP. All the safeguards documents prepared for this category will be submitted to the Bank for review and clearance, and will be disclosed by both the client and the Bank. Given KETRACO's current capacity and the nature of environmental and social challenges they may present; they will require diversity of E&S specialists. Consequently, KETRACO will engage an experienced consulting firm with a pool of divers

environmental and social specialists to prepare both the Environmental and Social Safeguards tools required for this category of subproject.

Analysis of Alternatives

The primary objective of the "analysis of alternatives" is to identify the location/technology for a particular subproject that would generate the least adverse impact, and maximize the positive impacts. The analysis of alternatives should be carried out at two different levels: (a) by KETRACO along with environmental/social screening; and (b) during carrying out of ESIA of a subproject, if needed (e.g., by the consultant engaged for this purpose). A simple format for analysis of alternatives is presented in Annex C (Form 3a and 3b).

Project Potential Environmental and Social Impacts

This ESMF provides for due mitigation process and actions starting with subproject environmental and social screening process. Then selection of environmentally suitable subprojects and/or sites, dropping of others that are not suitable or where possible re-designing and/or re-alignment them to avoid their E&S risks presented following screening and finally subjecting them to an environmental assessment as applicable. The PIU leader/coordinator with the assistance of the Environmental and Social specialist in the PIU will be responsible to ensuring that the Owners Engineer (OE) and/or the Design and Supervising Engineer (DSE) engaged by KETRACO integrates findings of various safeguards studies conducted into the final design before they are adopted for implementation.

Overall KESIP is likely to have positive impacts on the environment as well as positive socio-economic impact due to the Energy Supply, Cost Reduction and Reliability. However, implementation of KESIP subprojects is likely to cause negative impacts. The activities envisaged under subprojects cumulatively may have negative impacts if not well mitigated. See a summary in the table below.

Project Activities/Impacts	**Phase**
Avian Species	Construction
Avian Species	Operation
Fauna and Flora	Construction and operation
Landscape and Visual Amenity	Construction
Landscape and Visual Amenity	Operation
Community Safety	Construction
Environmental Health	Construction
Community Safety	Operation & construction
Chronic EMF effects	Operation
Acute EMF effects	Operation
Worker Health and Safety Rights	Construction
Worker Health and Safety Rights	Operation
Temporary loss of livelihoods and household income	Construction
Disturbance to economic activities and temporary loss during construction	Construction
Permanent loss of livelihoods and household income due to changes in land use and maintenance access.	Operation
Local employment opportunities, capacity building and economic development	Construction
Long term local employment opportunities	Operation
Damage/access to local infrastructure and services	Construction
Unplanned spillages (soil and water)	Construction and Operation
Risk during stringing activities	Construction
Fire and/or explosion due to dielectric oil release	Operation
Risk due to transmission line snapping and transmission tower/pylon collapse	Operation

In line with the World Bank safeguard policy on Environmental Assessment (OP/BP 4.01), a number of framework reports will be prepared under KESIP that will guide implementation of project activities by avoiding and minimizing negative environmental and social impacts through a number and structured steps, which are detailed in the main text of this framework.

Mitigation Measures

The right EA tools will be applied as and where necessary, based on the anticipated impacts and risks.

For projects on community land, prior to project implementation evidence of community consultation and approval of at least 2/3 of community representation as per the community land act 2016 requirements should be provided.

By considering certain issues during project formulation, it is often possible to reduce or eliminate some of the possible adverse environmental impacts during both construction and operational phases of a project. **Error! Reference source not found.** identifies a number of such issues to be considered for s ubstation and power line subprojects.

Table 1 Environmental and social considerations to be included in design to reduce/ eliminate the impacts for some major subprojects

Subproject	Issues to be Considered at Project Formulation Stage
Sub Station	Use of government-owned land or vacant/fallow (non-productive) land for construction of substation, where possible • Use of land located at close proximity to existing power lines/load centers, and road network (for easier transportation of material and equipment), where available • Avoiding lands that are susceptible to inundation/ storm surge1 • Avoiding ecologically and socially critical areas while selecting land for substations
Power Line	Avoiding homestead areas, forest, protected areas, game reserve, national park (as much as possible) while selecting routes of the power line • Avoiding crossing of rivers as much as possible, while selecting routes of power line • Maintenance of adequate clearance for right of way (RoW) • Keeping layout of power line tower/pole such that they do not interfere with movement of traffic/pedestrian • Selecting alignment of transmission line avoiding routes of migratory birds, nesting sites, significant bird habitat, and take off/ landing routs of aircrafts • Safety features in towers constructed over rivers against damage due to collision with water vessels • In order to avoid fire hazards, using technology in power line (and also substations) which trips the line in fraction of seconds

Institutional/Departments Responsible and Capacity enhancement

The main institutions involved with the implementation of the ESMF and resettlement activities are: KETRACO; National Land Commission (NLC); the National Environmental Management Authority (NEMA); and consultants. The implementation of activities will be under the overall guidance of the KETRACO.

Kenya Electricity Transmission Company (KETRACO) is the sole public utility responsible for transmission electric power throughout Kenya. NEMA is the regulatory body responsible for evaluating and approving ESIA, ESMP and RAP study reports for all infrastructure projects as well as for providing environmental approval, which must be obtained prior to the commencement of project implementation

Component 2 of KESIP will; (i) introduce HV network to areas that have been served by long MV lines so as to reduce technical losses and reinforced the existing MV networks; (ii) increase transmission adequacy for interconnecting different regions of the country; and (iii) improve reliability of power transmission and ensure compliance N-1 contingency criteria. KETRACO will provide overall coordination of component 2 of KESIP project. Thus, will be responsible for the implementation, management and monitoring all aspects of Component 2 of KESIP. Specifically, KETRACO will;

- Prepare, implement and monitor the necessary/required safeguards documents
- Select consultants and contractors needed for different tasks
- Carry out relevant studies and designs
- Acquire land and required way leaves
- Oversee construction of subproject components
- Monitor progress of project implementation
- Liaise with other government agencies for needed approvals

Reporting

In order to effectively manage the projects, safeguard risks KETRACO's E&S Office requires capacity-building measures. Additional staff to support this project will be needed, as well as training for members of the E&S Office and for project coordinators and surveyors.

Training areas have been identified covering;

- World Bank safeguard policies and procedures,
- ESIA procedures,
- ESMF implementation processes and reporting (including public consultation methods for PAPs and other stakeholders and resettlement planning and the implementation);
- checklist and format design;
- report writing;
- evaluation and reporting on community safety issues;
- national environmental and social impact assessment laws and standards
- environmental management system guidelines,
- principles and supporting system; and
- Geographic Positioning Systems (GPS).

The total cost for training and implementation of the ESMF is estimated at approximately USD 600,000. Actual costs will be determined during the implementation phase, when the specific number of people required for training will be identified and the level of technical assistance required. This cost will be part of project budget and supported by IDA.

Public Consultations

Appropriate consultations were carried out with stakeholders during the preparation of this ESMF. KETRACO organized a stakeholder forum on 22nd February 2018 with relevant Government agencies, County government officials, non-governmental organizations, non-state actors and civil society groups. Summary of comments are provided in annex E.

1 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This Environmental and Social Management Framework (ESMF) was prepared by the Kenya Electricity Transmission Company (KETRACO) to address the environmental and social impacts of the portion of the Kenya Electricity System Improvement Project (KESIP) that KETRACO will implement.

The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts of subprojects prepared during Project implementation. It includes guidelines to prepare measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts of subprojects, provisions for estimating and budgeting the costs of such measures, and information on the agencies responsible for addressing project impacts.

KETRACO has in parallel prepared a Resettlement Policy Framework (RPF) to meet the requirements of the World Bank's Resettlement Policy (OP 4.12).

Preparation of the ESMF by KETRACO is a major step in the development of KETRACO's Environmental and Social Management System (ESMS).

1.2 ESMF APPROACH AND METHODOLOGY

The general tasks undertaken in preparing this ESMF included interviews and desk and field work. The approach needed to develop the ESMF included:

- A description of the Project, its components and implementation arrangements, with a focus on the environmental and social sensitivities of the project, and on how the project will be designed, approved and implemented.
- An understanding of the legislative, regulatory and administrative regime that the Project will operate within, with a focus on requirements that will apply to the planning, approval and implementation of the project.
- An understanding of the institutional needs for implementing the ESMF. This included a review of the implementing agencies capacity to manage and monitor ESMF implementation, including ESIA preparation, review and approval. The analysis also covered inter-sectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

1.3 STRUCTURE OF THE DOCUMENT

The ESMF is divided into a main body with supporting information assembled into several annexes and Operational Tools and Guidelines. The main body of the ESMF: (a) establishes clear procedures and methodologies for the environmental and social assessment, review, approval and implementation of investments to be financed under the KESIP; (b) specifies appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to Project investments; (c) determines the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF; and (d) proposes a budget to implement recommendations outlined in the document.

The annexes contain relevant material referenced throughout the document while the Operational Tools and Guidelines provide the resources needed for implementing the KESIP Subproject Environmental and Social Review, Appraisal, Monitoring and Reporting Process.

2 PROJECT DESCRIPTION

KESIP aims to support expansion of transmission and distribution capacity to support achievement of GoK's electrification goals and contribute to improvement in efficiency and quality of electricity service delivery. The proposed IDA operation will support the much needed investment in medium and high-voltage network in order to introduce high voltage network to areas that have been serviced by long medium voltage lines to reduce technical losses. The proposed support will contribute to network expansion in new areas to support increased access to electricity to achieve the vision of universal access to electricity. It will pave the way for commercial financing to be sourced for transmission business for the first time at affordable terms by supporting the basic building blocks at KETRACO. With the help of a decent balance sheet, a cost-reflective wheeling charge, improved capacity in environment and social safeguards, it is expected that over time, KETRACO will be able to attract commercial financing and PPP like KPLC or KenGen without straining government budget.

The plan is aligned with Kenya's long-term development blueprint[1] and the Vision 2030 that aims at transforming Kenya into a globally competitive, newly industrialized, middle income and prosperous country.

The proposed Project aims to support creation of transmission and distribution infrastructure to enhance electricity service provision in Kenya. There are three components to the proposed Project – (i) expanding and strengthening the distribution network; (ii) expanding and strengthening the transmission network; (iii) technical assistance and capacity building primarily aimed at creating the basic building blocks for KETRACO to run as a commercially viable entity able to attract commercial financing.

The Project has three implementing agencies. Kenya Power (KPLC, formerly Kenya Power and Lighting Company), a public limited company listed on the Nairobi Stock Exchange will implement the distribution network investments and associated technical assistance activities. KETRACO, a public-sector company, will implement the transmission line investments and associated technical assistance activities. Ministry of Energy (MOE) will be implementing a technical assistance component and also coordinate overall project activities.

KETRACO will be implementing component 2 and part of component 3:

- **Component 1- Access Expansion and Distribution Network Strengthening (approximately US$ 235 million equivalent).** The proposed project will aim to support mostly grid densification and intensification and some grid expansion to reach about 120,000 new connections benefiting about 450,000 people. The exact lines and substations to be supported under the component will be determined during project implementation. The component has three sub components: (i) new medium and low voltage infrastructure to help address system bottlenecks for reducing losses, improving reliability, and create capacity to support last mile electrification (US$85 million); ii) connections of new consumers through Last Mile electrification (US$130 million); and (iii) Slum Electrification to connect consumers living in informal settlements (US$20 million). This component will be implemented by KPLC.

[1] Report No. 87024-KE.

- **Component 2: Transmission Network Expansion and Strengthening (Approximately US$120 million equivalent):** This component will be implemented by Kenya Electricity Transmission Company Limited (KETRACO). The component is expected to introduce high voltage network to areas that have been serviced by long medium voltage lines to reduce technical losses and reinforce the existing medium voltage networks. The component will also increase transmission adequacy for interconnecting different regions of the country and improve reliability of power transmission and ensure compliance with N-1 contingency criteria. KETRACO has identified 6 sub-projects involving 132 kV and 220 kV transmission lines and associated substations and construction of three new 400/220kV substations estimated at US$298 million. The exact lines and substations that can be supported within the funding allocation for this category under the proposed Project will be determined later based on priority, readiness, and environmental and social screening and assessment. A long-list of sub-projects is provided in Annex D. The component is also expected to support an owner's engineer (firm), which will help KETRACO with preparation of design, bidding documents, bid evaluation, and project supervision during implementation phase. The funding requirement for the 6 transmission lines and three substations is around US$298 million. With the funding allocation available (US$120 million), only 2 or 3 lines and 1 or 2 substations can be supported under the Project.

- **Component 3:** Technical **Assistance and Capacity Building: (Approximately US$15 million equivalent):** The component will support KETRACO to carry out a detailed feasibility study in accordance with the PPP law to determine the technical, financial, legal, social and environmental feasibility of piloting development of some identified transmission lines under PPP arrangements, including establishing the value for money for PPP. The initial phase of the feasibility study will start soon with support from an on-going IDA credit (Eastern Electricity Highway Project, P126579) while the second phase will be supported under the proposed Project. Implementation of the PPP pilot will be supported by Africa50 and IFC Advisory who are currently in discussion with KETRACO. The feasibility study will be supervised by IFC on behalf of KETRACO and closely coordinated with Africa50 to ensure a consistent approach for all the 5 lines included in the pilot PPP. The project will also support the preparation of the relevant feasibility-stage safeguard instruments (ESIA and RAP) that will need to be prepared. The ToRs for such Environmental and Social Assessments and RAPs will be prepared to meet the WB Performance Standards applicable to PPP transactions (in line with OP 4.03) and will submitted to the Bank for clearance before being adopted.

  The component will also include sector studies, capacity building, and training activities to help sustain and enhance the policy, institutional and regulatory arrangements and reforms of the GoK as well as gender and citizen engagement. Some of the studies to be supported under the component will include optimal power market design, system operation and dispatch guidelines for the Energy Regulatory Commission (ERC). The capacity building will also include training and activities to strengthen governance, management, technical and operation capacity of the sector agencies including the KPLC, KETRACO, ERC, KenGen, Geothermal Development Company (GDC), and Rural Energy Agency (REA). The Ministry of Energy (MOE) will implement this component in coordination with the sector agencies.

KETRACO has identified 6 subprojects involving 132 kV and 220 kV transmission lines and associated substations. The exact lines and substations that can be supported under the proposed Project will be determined later based on priority, readiness, and environmental and social screening and assessment. The long-list of subprojects is provided in Annex D.

3 REVIEW OF RELEVANT INSTITUTION

The Project will be an Investment Finance operation processed under World Bank Operational Policy 10.00. The Republic of Kenya will be the Borrower, and the Ministry of Energy and Petroleum (MoEP) will be the Executing Agency and beneficiary of the proposed loan. KPLC and KETRACO will serve as implementing agencies.

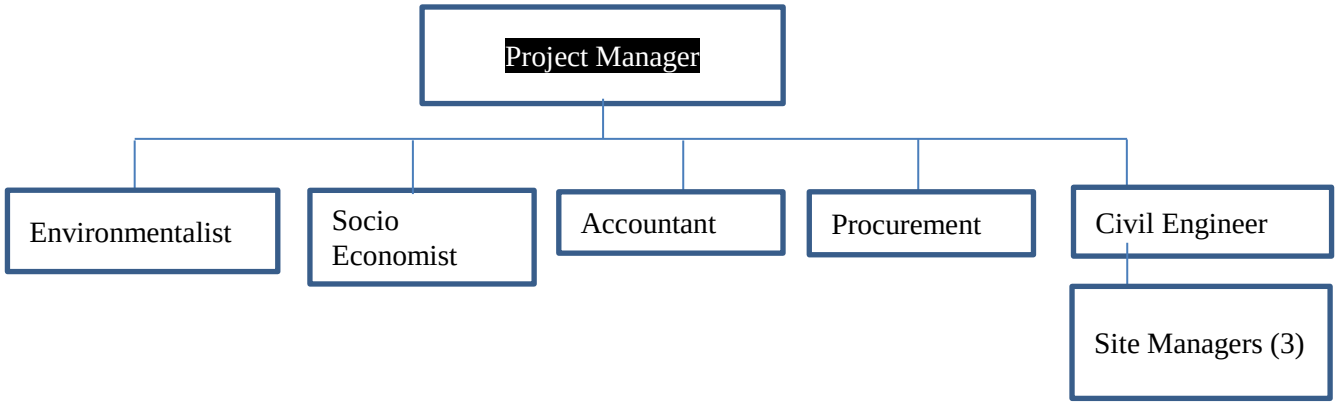
3.1 KETRACO

The MoEP created KETRACO in December 2008 to finance and own all new transmission assets in Kenya on behalf of Government. Since its establishment, KETRACO has sought to resource itself and build the institutional capacity required to carry out its mandate. This process is still ongoing, and it will take some time before it can take on the full responsibility of managing and operating its assets. In the meantime, KETRACO has a Mutual Cooperation and Provision of Services Agreement with KPLC that includes support in the following areas; (i) Technical, Operation & Support Services; (ii) Suitably trained and qualified staff; (iii) Procurement Services; and (iv) Training. KPLC, which will continue to own all existing transmission and distribution assets, has a proven experience in the implementation of transmission projects. KPLC is the largest utility in East Africa and has developed over 3,400 km of high-voltage transmission lines. Some of KPLC's staff members benefited from training on project management and procurement provided through donor support.

Project Implementation Team

KETRACO will set up a dedicated Project Implementation Team (PIT) to implement the Project. The PIT will be assisted by a consultant with experience in undertaking similar projects in the region. The PIT will report to the KETRACO Board Committee that will oversee project implementation, including the review of annual work plans and budgets. The consultant will prepare the technical specification and draft bid documents for transmission lines and substations.

The PIT will include a project engineer, three site managers, one civil engineer, one accountant, one procurement expert, one socio-economist and one environmentalist. KETRACO will submit the CVs for PIT members assigned to each subproject to the World Bank for non-objection. The organogram for project Implementation team is shown below.



ESMF Implementation

KETRACO will at all times remain responsible for the overall performance of all ESMPs. KETRACO is responsible for the implementation of the ESMF and companion RPF and VMGF. In addition, the Bank and the country's regulatory agency will provide periodic supervisory functions during the construction and operational phases of the project. Currently, KETRACO has 8 NEMA and Environmental Institute of Kenya (EIK) registered professionals, 12 socio-economists, 5 land surveyors, 2 safety officers and 4 land valuers/economists. Following analysis of organizational set up

and interviewing officials/ engineers, there is need to strengthen the institutional capacity of the agency. The recommendations relating to the capacity for planning and scheduling of related activities is provided in Chapter 13.

Roles and Responsibilities of Ketraco ES Unit

The Environmental and Social division of KETRACO will monitor compliance of the project to applicable environmental and social standards. The unit will be responsible for;

- Timely preparation of TORs for the ESIAs, ESMPs, RAPs and ARAPs for review and clearance by the Bank;
- Timely preparation of environmental and social screening forms for all the sub-project;
- Prior review and coordination for clearance of subproject ESIAs and ESMPs by the Bank and NEMA;
- Monitoring of ESMP implementation, including monitoring of mitigation measures and monitoring of contractors environmental and social performance;
- Training of project staff, implementing partners, and contractors;
- Preparation of quarterly reports summarizing monitoring results, to be included in the Project's Quarterly Reports to the World Bank
- Providing E&S monitoring oversight.
- Ensuring compliance to the WB safeguards standards and ESHS guidelines;
- Ensuring availability of adequate E&S resources to supervise and enforce compliance;
- Managing the Grievance redress mechanism
- Reviewing Contractor Management Plans (especially the Migrant Labor Management Plan)
- conduct independent E&S audits by appointing independent expert
- Hold responsibility to specialist studies where required to examine wildlife crossings, and their locations, in consultation with the KWS.
- Hold responsibility to baseline studies for those areas that qualify as Critical Habitat to ensure conformance to WB 4.04.
- Hold responsibility to ensure adequate consultation with vulnerable and marginalized groups.

KETRACO's Environmental and Social Unit has capacity to carry out ESIA and RAPs and hence they will implement medium and low risk Subprojects such as substation construction. ESIA and RAPS of high risk projects like transmission lines will be carried out by independent firms of consultants hired competitively by KETRACO. ESMP's for distribution lines will be done by the KETRACO E&S team with support of supervision consultants or individual accredited consultant hired by KETRACO. The E&S unit of KETRACO will review documents from consultant(s) and ensure they meet the required standards before forwarding them for further review and clearance by both the Bank and NEMA. KETRACO E&S unit will be responsible for the implementation of ESMP (as well as RAP) and preparation of quarterly reports, with support from supervision consultant. The supervision consultants must have an environmental as well as a social specialist in her team.

Ketraco safety unit is currently understaffed with only two officers responsible for overseeing the entire safety management of active lines and company operations. Despite this, the unit have developed tools and handbooks to guide contractors in safe work management. For KESIP the safety unit role will be to carry out screening and background checks prior to the appointment of contractors to check previous safety records and performance. The safety unit will also support the E&S unit to carry out contractor inductions before commencement in relation to;

- community health and safety to address social pathologies in communities affected by the project through promoting education and awareness programs for contractors.
- practical construction measures e.g batching, using fire extinguishers etc
- cultural sensitivity issues to address contractor behavior in relation to community resources and assets.

3.2 OTHER NATIONAL INSTITUTIONS

Table 2 details the roles and responsibilities of other national institutions.

3.3 CONTRACTORS

Contractors will be responsible for the implementation of the contractor's portion of subproject specific ESMP. The contractor shall employ an officer responsible for implementation of social/environmental requirements. This person will maintain regular contact with KETRACO"s Principal Environmental Officer.

3.4 WORLD BANK

World Bank will lay the benchmarks for all environmental and social safeguard issues concerned with the development and implementation of KESIP. It will provide overall supervision, facilitation and co-ordination of KESIP. It will also monitor funds and funds allocations; and project performance indicators. The World Bank will assess the implementation of the ESMF and recommend additional measures for strengthening the management framework and implementation performance, where need be. The reporting framework, screening procedures and preparation of management and mitigation plans shall be discussed and agreed by the Bank team and PIU during the early part of project implementation.

The World Bank Task Team will review site-specific safeguards instruments, e.g. ESMPs, ESIAs and RAPs to ensure that their scope and quality are satisfactory to the Bank.

The World Bank will also monitor the implementation of the different prepared instruments through regular supervision missions (which will include an environmental and/or social specialist) during which document reviews, and site visits and spot-checks will be conducted as needed

Table 2 Roles and responsibilities of other national institutions

Institutions	Responsibility	Relevance to the KESIP
The Ministry of Energy and Petroleum	The Ministry of Energy and Petroleum is responsible for energy policy and regulation of electricity and gas reticulation. The ministries mission statement is to facilitate provision of clean, sustainable, affordable, reliable, and secure energy services for national development while protecting the environment. The mandate of the ministry is! • Hydro power Development. • Geothermal Exploration and Development. • Thermal Power Development. • Oil and Gas Exploration. • Oil/Gas and Minerals sector capacity development. • Rural Electrification Programme. • Petroleum products, import/export/marketing policy Management. • Renewable Energy Promotion and Development • Energy Regulation, Security and Conservation. • Fossil Fuels Exploration and Development.	• MOEP will be coordinating agency for KESIP
Ministry of Lands and Physical Planning	The Directorate of Land is charged with the responsibility of ensuring efficient administration and sustainable management of the land resource in the country, while the Housing Directorate is responsible for policy formulation, coordination and monitoring of programmes concerning all issues of urban development	• The MoLPP is responsible for, among others: lands policy management, physical planning, land transactions, land adjudication, settlement matters, land registration, as well as land and property valuation services which is important in acquisition and resettlement issues for the KESIP, as well as urban planning.
Ministry of Environment and Natural Resource	This Ministry is responsible for policies and programmes aimed at improving, maintaining, protecting, conserving and managing the Country's natural resources (water, forestry, wildlife and environment).	• The KESIP will have to align with the policies and programs of this Ministries
Government Institutions and Authorities		
Kenya Electricity Transmission Company Limited	KETRACO is a 100% state-owned corporation incorporated on 2nd December 2008 under the Company's Act, Cap 486 as a State Corporation pursuant to the Sessional Paper No. 4 of 2004 on Energy. The Mandate of the Company is to plan, design, construct, own, operate and maintain high voltage electricity transmission grid and regional power interconnectors. KETRACO's Vision is to be a world-class electricity transmission company and the leading interconnector in Africa. The Mission of the Company is to provide reliable, efficient and effective electricity transmission and promote power trade for sustainable socio-economic development.	• The proposed KESIP Project will be implemented by KETRACO.

Institutions	Responsibility	Relevance to the KESIP
National Environment Management Authority (NEMA)	The responsibility of NEMA is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment. The role of National Environment Management Authority (NEMA) Kenya is stipulated in the Environmental Management and Coordination Act (EMCA), 1999 including ensuring environmental protection and enforcing the requirements of the EMCA.	• The principal role of NEMA in this project will be to review this bidding stage Environmental and Social Impact Assessment (ESIA) report and issue a license (EIA) for the project. • NEMA will also further review the final detailed ESIA prepared by at the detailed design stage and issue EIA license. • During the implementation of the project (construction and operation phase), NEMA will supervision and monitoring to ensure that the mitigation measures as specified in the ESIA are being followed and adhered to. • NEMA will issue improvement orders to contractors in the event that non-compliance to the ESMP/EIA is observed. • NEMA will review Environmental Audit reports submitted during project implementation as required by the EIA/EA regulations (2003).
County Government(s)	The counties of Kenya are geographical units envisioned by the 2010 Constitution of Kenya as the units of devolved government. Kenya has 47 counties. The counties are also single member constituencies for the election of members of parliament to the Senate of Kenya and special women members of parliament to the National Assembly of Kenya. County Governments are responsible for; county legislation as well as county development • Provide land for social facilities including markets, parking areas, drainage and access roads. • Collaborate on physical planning of relevance to the project road. • Review master plans for compatibility with the improved roads.	• The KESIP will cover 9 counties and liaison with county government authorities will be required for functions that fall under county government
The National Land Commission	The National Land Commission: • Manages public land on behalf of the national and county governments • Advises the national government on a comprehensive programme for the registration of land titles • Investigates present or historical land injustices, and recommends appropriate redress • Encourages the application of traditional dispute resolution mechanisms in land conflicts • Monitors/oversees land use planning throughout the country • Ensures that public land/land under the management of designated state agencies is sustainably managed • Manages and administers all unregistered trust land and unregistered community land on behalf of the county government • Develops and encourages alternative dispute resolution mechanisms in land dispute handling and management.	• The National Land Commission will undertake compensation of all the Project Affected Households (PAHs) identified by the Resettlement Action Plan prepared for this project in accordance with NLC Act 2012. The National Land Commission (NLC) will be engaged in the project on matters related to land acquisition as a result of physical displacement and will facilitate the compulsory acquisition of all land to be acquired in accordance with the Land Act 2012.

Institutions	Responsibility	Relevance to the KESIP
Kenya Wildlife Services (KWS)	Kenya Wildlife Service is a state corporation that was established by an Act of Parliament (Cap 376), now repealed by Wildlife Conservation and Management Act (WCMA 2013), with the following mandate of among others: Conserve and manage national parks, wildlife conservation areas, and sanctuaries under its jurisdiction. KWS undertakes conservation and management of wildlife resources across all protected areas systems in collaboration with stakeholders	• KESIP may traverse through protected areas and as such, KWS will be a key institution to be engaged.
Kenya Forest Service	Kenya Forest Service is a corporate body established under the Forest Conservation and Management Act no 34 of 2016 (henceforth referred to as the Act). The Act which was operationalized on 31st March 2017, gave the Service's mandate as "to provide for the development and sustainable management, including conservation and rational utilization of all forest resources for the socioeconomic development of the country and or connected purposes"	• KESIP may traverse through forests and as such, KFS will be a key institution to be engaged
National Museums of Kenya,	National Museums of Kenya (NMK) is a state corporation established by an Act of Parliament, the Museums and Heritage Act 2006. NMK is a multi-disciplinary institution whose role is to collect, preserve, study, document and present Kenya's past and present cultural and natural heritage. This is for the purposes of enhancing knowledge, appreciation, respect, and sustainable utilization of these resources for the benefit of Kenya and the world, for now and posterity. NMK's mutual concern for the welfare of mankind and the conservation of the biological diversity of the East African region and that of the entire planet demands success in such efforts.	• KESIP may affect important cultural heritage areas and as such, NMK will be a key institution to be engaged
Water Resource Authority	Water Resources Authority (WRA) is a state corporation established under Section 11 of the Water Act, 2016. Pursuant to Section 6 of the Act, the Authority is an Agent of the National Government responsible for regulating the management and use of water resources. The Water Act, 2016 makes extensive provisions on the Authority's role in regulating the use and management of water resources.	• KESIP may traverse water catchment areas and as such, WRA will be a key institution to be engaged
Kenya Civil Aviation Authority	Kenya Civil Aviation Authority is a state corporation of Kenya that is responsible for regulating the aviation industry in Kenya and for providing air navigation services in the Kenya flight region	• Erecting transmission line towers requires a permit from the Kenya Civil Aviation Authority
Department of Defense	Mandated to defend and protect the sovereignty and territorial integrity of the Republic of Kenya; assist and cooperate with other authorities in situations of emergency and disaster; and upon approval of the National Assembly, may be deployed to restore peace in any part of Kenya affected by unrest or instability.	• The Department of Defense must be consulted if KESIP transmission line passes next to key military installations

4 LEGAL AND REGULATORY FRAMEWORK

4.1 GENERAL OVERVIEW

This ESMF is prepared to:

- meet the requirements of the World Bank's Environment Assessment Policy (OP 4.01), including the World Bank Group Environment, Health and Safety (EHS) Guidelines, the EHS Guidelines, particularly the General Guideline, and the Guideline for Electric Power Transmission and Distribution
- comply with Kenya's environmental and social laws and regulations.

4.2 WORLD BANK REQUIREMENTS

The Project will trigger World Bank OP 4.01: Environmental Assessment, OP 4.04: Natural Habitats, OP 4.36: Forests, OP 4.10: Indigenous Peoples, OP 4.12: Involuntary Resettlement and OP4.11: Physical Cultural Resources. Most of the investments that are being financed by the World Bank are expected to have moderate environmental and social impacts, but some of the investments may have significant impacts and thus the project is classified as Category A (Full Assessment) in accordance with the World Bank Safeguards Policy OP/BP 4.01 (Environment Assessment).

The objective of the ESMF is to outline the mandatory procedures to be applied to KESIP to ensure the effective management of associated environmental and social issues. It seeks to both enhance environmental and social development benefits of the project and mitigate any adverse impacts, in line with GOK and World Bank policies and guidelines on management of environmental and social issues. Since the precise locations and potential impacts of future subprojects are not known, and cannot be identified prior to appraisal, the ESMF provides the basis for the environmental and social preparation needed for the subproject investments to be supported.

The following documents have been prepared for KESIP: (i) an Environmental and Social Management Framework (presented herein); (ii) a Resettlement Policy Framework (RPF); and (iii) a vulnerable and marginalized group framework (VGMF). The objective of the ESMF is to outline the mandatory procedures to be applied to the World Bank- financed Project investments to ensure the effective management of associated environmental and social issues. It seeks to both enhance environmental and social development benefits of the project and mitigate any adverse impacts, in line with GoK and World Bank policies and guidelines on management of environmental and social issues.

- Both the World Bank safeguards policies and GoK laws are generally aligned in principle and objective:
- Both require screening of subproject investments in order to determine if further environmental assessments (ESIAs) is needed.
- Both require ESIA before project design and implementation (which also includes an assessment of social impacts).
- Both require public disclosure of ESIA reports.
- EMCA recognizes other sectoral laws while WB has safeguards for specific interests.
- The Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project, which is equivalent to the EMCA requirements.
- Additionally, statutory annual environmental audits are required by EMCA.
- The national provisions for the management of resettlement related issues are not as fully developed and therefore not at par with the World Bank safeguard policy requirements. Thus, it is expected that the WB OP 4.12 will be mostly applied under the KESIP and a separate document to guide the process, i.e. a Resettlement Policy Framework (RPF) document will be prepared as a standalone report to support the social management and acceptability of the projects. In Kenya, it is a mandatory requirement under EMCA Cap

387 for all proposed development projects to be preceded by an ESIA study. Following publication of legal notice 150 amendment to 2003 the EIA/EA regulation which classified projects under schedule into High risk, Medium risk and low risk it is now possible to determine whether a subproject will require a full scale ESIA is necessary or not. Thus, under the laws of Kenya, environmental assessment is fully mainstreamed in all development process and starts with a screening process, which is consistent with World Bank safeguard policies on EA that calls for mandatory screening as well to determine the rating category and the required follow up actions. Project reports will be prepared for all the subproject investments under the KESIP to determine if they require a full scale ESIA. Further, in order to fully insure against triggers to WB safeguard policies, individual investments will be screened against each policy as part of the EA process.

A comparison Kenyan laws and World Bank Operational procedures is provided in annex F.

Since the precise locations and potential impacts of future subprojects are not known, and cannot be identified prior to appraisal, the ESMF provides the basis for the environmental and social preparation needed for the subproject investments to be supported under Component 2.

Regarding resettlement, since the extent and location of project investments is not known at this time, and any potential resettlement will only be identified when subprojects are being assessed, the RPF establishes the resettlement objectives and principles, organizational arrangements and funding mechanisms for any resettlement associated with the World Bank-financed Project.

All World Bank safeguard policies are listed below with descriptions for policies triggered by the Project:

Safeguard Policies	**Triggered?**	**Explanation**
Environmental Assessment OP/BP 4.01	Yes	Partial Assessment- assigned to projects that are likely to have limited and reversible environmental impacts, that can be readily be mitigated. There are no significant and /or irreversible adverse environmental issues anticipated from the project sub components to be financed under the Project, as the nature of civil works is limited to construction of Transmission and distribution power lines and Substations. The ESMF includes methodology to apply an environmental and social screening process that will guide in determining the potential environmental and social impacts of subprojects and in the application of appropriate mitigation measures. Site-specific ESIAs will be prepared during implementation and before construction, as required by EMCA Cap 387 and WB safeguards, of the subprojects. Screening of KESIP subprojects will be done to determine whether subprojects would require a full environmental assessment; NEMA approval will be sought before commencement of detailed design to ensure that good practices are included in the technical design. The ESMF will serve as the environmental safeguards document in cases where a full environmental assessment is not deemed necessary based on the findings of the screening. The ESMF also requires that all construction materials are sourced from firms that have undergone a satisfactory environmental impact assessment/audit and have received NEMA approval.
Natural Habitats OP/BP 4.04	No	The policy is triggered for KESIP for projects involving construction Transmission and distribution powerlines and Substations. These could be affected by clearing various natural

		habitats to space for the Substations and for the powerlines wayleave traces. Due diligence will be carried to prevent routing of powerlines and siting of Substations in sensitive ecological sites
Forests OP/BP 4.36	Yes	Some of the proposed are occurring in counties with protected forest reserves like Narok, Bomet, and Nyahururu. Project-related activities have the potential to affect the health and quality of these forests and the rights and welfare of local resident's dependent on forest resources. Therefore the policy is triggered.
Pest Management OP 4.09	No	The policy is not triggered. The project activities will not involve the use of pesticides for pest management at any stage. No pesticides or application machinery shall be procured. The projects do not include purchase or use of pesticides. Any clearing of vegetation will be undertaken manually.
Physical Cultural Resources OP/BP 4.11	Yes	Investments may involve excavation activities which can lead to impacts on physical and cultural resources. The project will screen for PCRs and chance finds, and will include in the ESIAs/ESMPs appropriate plans and measures that will be put in place during the implementation of the project so as to protect PCRs. The EA that will be prepared for such projects will include a physical cultural resources management plan that includes (a) measures to avoid or mitigate adverse impacts on physical cultural resources; (b) provisions for managing chance finds; (c) any necessary measures for strengthening institutional capacity for the management of PCR; and (d) a monitoring system to track progress of these activities.
Indigenous Peoples OP/BP 4.10	Yes	The project will be implemented in counties with presence of vulnerable and marginalized communities. A social assessment will be undertaken and a social management plan/Indigenous Peoples Development Framework prepared that would include provision of free prior and informed consultations and a grievance-redress mechanism. The identified mitigating measures should be incorporated into the project design.
Involuntary Resettlement OP/BP 4.12	Yes	This policy may be triggered especially for the transmission lines and substations. A Resettlement Policy Framework (RPF) will be prepared to guide project investments with regard to land acquisition and compensation of the affected people. The RPF will be disclosed before appraisal of the project. Based on the RPF guidance, each sub –project in will be screened, and if RAPs are found to be necessary, they will be prepared, cleared, disclosed and implemented prior to the commencement of civil works, in accordance with World Bank OP/BP 4.12 (Involuntary Resettlement).
Safety of Dams OP/BP 4.37	No	The policy is not triggered as KESIP projects will not include construction of dams as defined in the policy.
Projects on International Waterways OP/BP 7.50	No	The policy is not triggered as the project will not undertake any activities in the catchment areas of international waterways and shared aquifers.

Projects in Disputed Areas OP/BP 7.60	No	The project will not support or implement activities in disputed areas.

Whenever applicable, the Environmental and Social Impact Assessments/Environmental and Social Management Plans (ESIAs/ESMPs), Resettlement Action Plan (RAPs), and Vulnerable and Marginalized Group Plans (VMGPs) would be developed for individual subprojects during project implementation.

Environment, Health and Safety Guidelines

The World Bank Group Environment, Health and Safety (EHS) guidelines are referenced in footnote 1 of OP 4.01. A complete list of industry-sector guidelines can be found at: www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines.

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). They define acceptable pollution prevention and abatement measures and emission levels in World Bank financed projects.

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them.

The application of the Guidelines to existing facilities may involve the establishment of site-specific targets with an appropriate timetable for achieving them. The environmental assessment process may recommend alternative (higher or lower) levels or measures, which, if acceptable to the World Bank, become project- or site-specific requirements.

If less stringent levels or measures than those provided in the EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent.

Due to the nature of KESIP activities, the General Guidelines and the Guideline for Electric Power Transmission and Distribution should be used as appropriate.

4.3 REVIEW OF NATIONAL LAWS, REGULATION AND POLICIES

Over seventy sector-specific statutes include legal provisions for natural resource management in Kenya. For a long time, the country lacked an umbrella legislative guide for harmonious and holistic environmental management. As such, resources were managed sectorally in accordance with existing statutes.

As these statutes were contradictory at times, in 1999, the Government of Kenya enacted the Environmental Management and Co-ordination Act (EMCA) and as amended in 2015 is an umbrella legal framework under which the environment is being managed. EMCA establishes the institutional framework under which environmental management is coordinated. EMCA prevails over all other Sectoral laws relating to the environment in cases of conflict or contradictions. It also grants the public a *locus standi* in matters of the environment.

This section details the legislative environmental and social requirements for KESIP. National (Kenyan) laws deemed relevant for the successful implementation of all environmental and social components of the Project are presented in this section.

Error! Reference source not found. below describes legal provisions and their relevance to KESIP

Table 3 National Laws relevant to KESIP

National Legislation	Brief Description	Relevance to KESIP
Kenya Constitution, 2010	This is the supreme law in the Country and it, among other things, establishes the right of every person to a clean and healthy environment.	The project should be consistent with the sustainable development provisions enshrined in the Constitution.
Environmental Management and Coordination Act (EMCA) cap 387	Establishes the appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. It addresses itself primarily to Environmental Impact Assessment (EIA).	The environmental and social impacts of the project will have to be ascertained to inform any future subproject-level ESIAs.
The Environmental (Impact Assessment and Audit) Regulations, 2003	These Regulations apply to all policies, plans, programmes, projects and activities specified in EMCA. They also recognise as a measure of environmental assessment at a strategic level.	The ESIA of the subprojects will be undertaken to comply with the requirements of these Regulations and will ensure that environmental and social considerations are integrated into the project.
Land Act, 2015	Revises, consolidates and rationalises land laws, to provide for the sustainable administration and management of land and land-based resources, and for connected purposes.	The project will have to consider the land tenure systems in the respective Counties traversed by the project.
National Land Commission Act, 2012	Makes provision as to the functions and power of the National Land Commission, qualification, and procedures for appointments to the Commission, and gives effect to the objects and principles of devolved government in land management and administration	The project will have to consider the land tenure systems in the respective Counties traversed by KESIP.
Land Registration Act, 2012	This is an Act of Parliament intended to revise, consolidate and rationalise the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes.	The project will have to consider the land tenure systems in the respective Counties traversed by KESIP.
Antiques and Monuments Act, Cap 215 and National Museums and Heritage Act, Cap 216,	These Acts been used for gazettement of areas of historical importance, museums and threatened heritage as they protect the archaeological, historical, and cultural sites such as monuments, elements or structures of an archaeological nature, inscriptions, and cave dwelling.	All reasonable measures will need to be taken to ensure that the integrity of any historical monuments and objects of archaeological, paleontological, ethnographical, and traditional interest are not affected by the implementation of KESIP.

National Legislation	Brief Description	Relevance to KESIP
Physical Planning Act, Cap 286	The Physical Planning Act is the main statute that provides for the planning in Kenya. It provides for the various types of plans, their contents, and the procedures for the preparation of the same.	KESIP should confirm to the requirements within the Physical Planning Act and land use planning. Of special significance is the need to undertake the plan through a participatory process that requires the involvement of stakeholders in the planning process
Kenya Roads Act No. 2 of 2007	Provides for the establishment of the Roads Authorities	The Roads Authorities are key Stakeholders in the development of the project.
The Energy Act, 2006	Deals with all matters relating to all forms of energy including the generation, transmission, distribution, supply and use of electrical energy as well as the legal basis for establishing the systems associated with these purposes	KESIP is an energy infrastructure project
Forestry Services Act, 2005	The Act led to the establishment of Kenya Forest Service which is charged with management of forests in consultation with the forest owners. The body enforces the conditions and regulations pertaining to logging, charcoal making and other forest utilisation activities.	KESIP may traverse through forests and as such, project planning will need to ensure that disruption of the environment in these areas is minimised and appropriate mitigation measures are established and implemented.
Water Act, 2016	Provides for the management, conservation, use and control of water resources and for acquisition and regulation of rights to use water; to provide for the regulation and management of water supply and sewerage services.	The implementation of the project should conform to sound integrated water resource management practices.
Public Health Act (Cap 242)	This is an Act of Parliament to make provision for securing and maintaining health	The necessary public health safeguards will have to be factored into the project.
Civil Aviation Act No. 21 of 2013	This Act establishes the Kenya Civil Aviation Authority (KCAA) with the objective and purpose to economically and efficiently plan, develop and manage civil aviation, regulate and operate a safe civil aviation system in Kenya in accordance with the provisions of this Act	Transmission line construction projects must obtain a permit for towers to be erected from the Kenya Civil Aviation Authority.
Wildlife Conservation and Management Act (2013)	This Act establishes the different strategies to conserve and protect Kenya's Wildlife. In the Act, conservation measures and management principles are guided by effective public participation and ecosystem approach.	It is important that KESIP considers participatory approach to implementing the different strategies to ensure sustainable development for places where Wildlife Conservation regions are located-.

National Legislation	Brief Description	Relevance to KESIP
The Community Land Act, No. 27 of 2016	The Act came into force on 21 September 2016.The Act aims at: • Giving effect to Article 63 of the Constitution of Kenya, 2010 (the Constitution) which provides for a classification of land known as community land. To this end, the Constitution provides that community land shall vest in and be held by communities. • Providing for, first, the recognition, protection, and registration of community land rights. Second, the management and administration of community land. • Third, the role of county governments in relation to unregistered community land and related matters. The Act repeals the Land (Group Representatives) Act (Chapter 287 of the Laws of Kenya) and the Trust Lands Act (Chapter 288 of the Laws of Kenya).	The project many traverse community owned land
The Occupational Safety and Health Act, 2007	This is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes.	The safety, health and welfare of all the workers associated with KESIP will need to be assured in line with all the provisions of this Act throughout the Project lifecycle (construction and operational phases).
The Employment Act No 11, 2007	The Act is enacted to consolidate the law relating to trade unions and trade disputes, to provide for the registration, regulation, management and democratisation of trade unions and employers organisations and federations. Its purpose is to promote sound ations through freedom of association, the encouragement of effective collective bargaining and promotion of orderly and expeditious dispute the protection and promotion of settlement conducive to social justice and economic development for connected purposes. This Act is important since it provides for employer – employee relationship that is important for the activities that would promote management of the environment at a workplace.	With the Contractor and KeTRACO being primary employers during the construction and operational phases of KESIP, they are bound by this law to abide to its stipulations on employee management and relations. The Contractor and KeTRACO must respect workers' rights to join (or not join) unions of their choice and to engage with those unions which workers are members of in relation to collective bargaining, disciplinary proceedings and retrenchment of workers.

4.4 KETRACO ENVIRONMENTAL POLICY

Ketraco has adopted the following policies related to environmental issues.

The objective of the Safety, Health and Environment (SHE) Management System is to ensure that SHE concerns are managed in a comprehensive and effective manner. The Kenya Electricity Transmission Company Limited (KETRACO) has prepared SHE Management System with the specific aim of complying with Occupational Safety and Health Act(OSHA), 2007; Environmental Management & Coordination Act, 1999; Energy Regulatory Board's Environment, Health and Safety Policy Framework for the Electric Power sub-sector, 2005; its internal SHE Policy and donor requirements.

Environmental Policy

As a responsible organization, KETRACO prides itself in being committed to environmental protection and conservation. Borrowing from the principle of sustainable development and guided by the Environmental Management and Co-ordination Act (EMCA), 1999 among other local and international legal legislations including donors conditionalities KETRACO's ensures all its project activities undergo a process of thorough investigation to identify impacts they may have on the environment and social wellbeing and formulate mitigation measures that are necessary to avoid, minimize or offset predicted adverse impacts. Some tools used in this process include Environmental and Social Impact Assessment (ESIA), Environmental Audits (EA), Geographic Information Systems (GIS), Resettlement Action Plan, (RAP) and Indigenous People Plan (IPP).

Further to this, KETRACO cooperates with Environmental Agencies, Donors and the Public on programmes to protect the environment; provide the necessary training for its employees to ensure that they have the knowledge and capability to conduct operations in a manner that is consistent with sound environmental practices; and also provides the necessary resources, advice and guidance to ensure implementation and communication of this policy.

Health and Safety Policy

It is the policy of KETRACO to conduct all its operations in a healthy and safe manner and in compliance with OSHA, 2007 and other relevant legislations. KETRACO recognizes that prevention of accidents and ill health is essential to the efficient operation of its business. Accordingly, the control and management of health and safety issues commands at least equal prominence, when balanced against operational and commercial considerations. KETRACOs principal safety and health objective is to provide a safe working environment, for employees, contract personnel and members of the general public who may be put at risk by the activities of the Company. KETRACO recognizes the value of its employees and considers their wellbeing to be the major factor in the success of all its business activities.

SHE Policy Integration

KETRACO is committed to providing safe working environment for all its employees, and to being mindful of its impact on environment, where ever it operates. The aim of the company's SHE policies is to enable the company to assure itself and external stakeholders, such as regulators, donors, contractors, partners and Licensing Authorities, that the Company is conscious of Safety, Health and Environment implications of its operation. It endeavours to protect its people, assets and operations against injury, damage or loss by working within the framework of this SHE Management System and integrating the policies into all its activities.

KETRACO aims to assess potential SHE impacts of planned projects and operation and to maintain high standards of awareness and training. It expects all its employees, contractors and suppliers to be aware of, and promote understanding of, SHE issues in the context of its business, and to put forward any suggestions they may have, with regards to the context, or applicability, of the SHE Management System.

The company's SHE Management System takes into account international and national legislation requirements and demonstrates its commitment to continued improvement in SHE performance. The Company will provide the necessary training for its employee to ensure that they have the knowledge and capability to conduct operations in a manner that is consistent with the KETRACO's SHE Management Systems. It also provides the necessary resources, advice and guidance to ensure implementation and communication of this policy, monitor and audit all aspects of its compliance and develop contingency plan for emergency situations.

From: https://www.ketraco.co.ke/environment/environmental-policy.html

4.5 INTERNATIONAL CONVENTIONS AND TREATIES

As Kenya is a signatory to various international conventions and laws that are relevant to KESIP.

United National Convention of Biological Diversity (CBD)

The three goals of the CBD are to promote the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. Kenya, as a signatory of this convention, is supposed to work towards achieving the three goals.

This convention has been domesticated in The Environmental Management and Co-Ordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006.

Convention on the Conservation of Migratory Species

The convention on migratory species (CMS) was adopted to conserve migratory species of wild animals given that migratory species are seen as an international resource. Such species may be terrestrial or marine. The convention's agreement on the conservation of African-Eurasian migratory water birds is specific on the need to protect the feeding, breeding, and wintering habitats, the main ones being wetlands and open water bodies.

This convention has been domesticated in the Wildlife (Management and Conservation) Act (2013).

United Nations Framework for Convention on Climate Change (UNFCCC)

Signed in 1992 at UNICED, the convention addresses the principles of common but differentiated responsibility and precautionary action. Its main objective is to achieve the stabilization of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with climate systems and within a specific timeframe which will allow ecosystems to adapt naturally to climate change, to ensure that food

Paris Agreement

Kenya ratified the Paris Agreement. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C. The Paris Agreement is a bridge between today's policies and climate-neutrality before the end of the century. Governments agreed;

- a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels;
- to aim to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change;
- on the need for global emissions to peak as soon as possible, recognizing that this will take longer for developing countries;
- to undertake rapid reductions thereafter in accordance with the best available science.

The United Nations Convention to Combat Desertification (UNCCD)

This Convention was adopted on 17th June 1994 in Paris and came into force on 26th December 1996. Its purpose is to address the problem of the degradation of land by desertification and the impact of drought, particularly in arid, semi-arid and dry semi-humid areas. Kenya ratified the Convention on 24th June 1997. The provisions are domesticated in several Acts of Parliament. Section 46 of EMCA requires County Environment Committees to identify areas that require re-forestation or afforestation as well as to mobilize local communities to carry out these activities. The Contractor will ensure that only necessary land clearing is undertaken during road construction

4.6 POLICIES AND PLANS

Policy Paper on Environment and Development (Sessional Paper No 6 of 1999)

The overall goal of this Sessional Paper is to ensure that environmental concerns are integrated into the national planning and management processes and provide guidelines for environmentally sustainable

development. The objectives of the Paper are to conserve and manage the natural resources of Kenya including air, land, flora, and fauna and promote environmental conservation with regard to soil fertility, soil conservation, biodiversity, and to foster afforestation activities; and to protect water catchment areas. More importantly the Policy emphasizes the enhancement of public awareness and appreciation of the essential linkages between development and environment, involving NGOs, private sector, and local communities in the management of natural resources and their living environment and ensures that an environmental impact assessment report is undertaken for all public and private projects and programmes. *KESIP must ensure that it promotes this integrated approach to environmental management and development, without compromising the livelihoods of the local community.*

Vision 2030

Kenya Vision 2030 is the country's development blueprint covering the period 2008-2030. It aims to transform Kenya into a newly industrialised, ''middle income country providing a high quality life to all its citizens by the year 2030''. The vision was developed through an all-inclusive and participatory stakeholder consultative process with Kenyans from all parts of the country.

Vision 2030 is based on 3 key pillars namely: Economic, Social, and Political Pillars. These pillars are anchored on the following foundations: macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology and innovation; land reform; human resources development; security and public sector reforms.

The Kenya National Climate Change Response Strategy

The vision of the Strategy is for a prosperous and climate change resilient Kenya. The mission is to strengthen and focus nationwide actions towards climate change adaption and greenhouse gas (GHG) emission mitigation. The following measures are proposed to counter potential threats to the energy sector in Kenya:

- accelerate the development of geothermal energy;
- accelerate the development of green energy including wind, solar and ☒renewable biomass; and
- energy efficiency.

National Land Policy, 2009

The National Land Policy provides for the policy actions for addressing environmental problems such as the degradation of natural resources, soil erosion and pollution of air, water and land.

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

National Environmental Policy, 2013

Kenya Vision 2030 is the country's development blueprint covering the period 2008-2030. It aims to transform Kenya into a newly industrialised, "middle income country providing a high quality life to all its citizens by the year 2030''. The vision was developed through an all-inclusive and participatory stakeholder consultative process with Kenyans from all parts of the country**.** The objectives of this Policy are to:

- Provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources.
- Strengthen the legal and institutional framework for good governance, effective coordination and management of the environment and natural resources.

- Ensure sustainable management of the environmental and natural resources such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods.
- Promote and support research and capacity development as well as the use of innovative environmental management tools such as incentives, disincentives, total economic valuation, indicators of sustainable development, Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), Environmental Audits (EA) and Payment for Environmental Services (PES).
- Promote and enhance cooperation, collaboration, synergy, partnerships and participation in the protection, conservation, sustainable management of the environment and natural resources.
- Ensure the inclusion of cross-cutting and emerging issues such as poverty reduction, gender, disability, HIV/AIDS and other diseases in the management of the environment and natural resources.
- Promote domestication, coordination, and maximization of benefit from Strategic Multilateral Environmental Agreements (MEAs).

Table 4: Relevant Policies

Policies	Brief Description	Relevance to the KESIP
Vision 2030	Long-term development blueprint for the country. It aims to transform Kenya into "a newly industrialized, middle-income country providing a high quality of life to all its citizens.	Contribution to economic and social development in the ten counties is among the key objectives of the KESIP and this is in tandem with Kenya's transformation theme of Vision 2030.
National Land Policy, Sessional Paper No. 3 of 2009	The National Land Policy provides a platform for addressing current issues such as access to land, land use planning, restitution of historical injustices, environmental degradation, conflicts, unplanned proliferation of informal settlements, out-dated legal framework, institutional framework, and information management.	The implementation of the KESIP will need to be consistent with the provisions of this Policy in order to avoid conflicts. Among the issues that will have to be addressed, are the modalities for the acquisition of land in order to accommodate activities prescribed by the KESIP.
Environment and Sustainable Development Policy, Sessional Paper No. 6 of 1999	This Policy aims to harmonize environmental and developmental goals for sustainability. It also provides comprehensive guidelines and strategies for government action on the environment and development.	Activities associated with the implementation of the KESIP could give rise to both environmental and social impacts. Therefore, the specific projects within the KESIP should be developed in a sustainable manner.
Wildlife Policy, Sessional Paper No. 3 of 1975	This Policy governs wildlife management in Kenya and its goal is "to optimize returns from this resource, taking account of returns from other land use". The policy not only recognises economic benefits from tourism and consumptive uses but also the intangible benefits that include the aesthetic, cultural and scientific gains that accrue from conservation of habitats and the fauna within them.	The project may affect protected and wildlife dispersal areas. Potential impacts on these will need to be assessed and minimised.
Energy Policy, 2005	The Energy Policy seeks to ensure an adequate, quality, cost-effective and affordable supply of energy to meet development needs, while protecting and conserving the environment, with a bias towards the exploitation of green energy	KESIP must align to the provisions of this policy.
Gender Policy, 2011	This aims at ensuring inclusion of gender related issues in all government PPP to ensure that the needs and interests of each gender are addressed.	Gender concerns will have to be mainstreamed into the KESIP

Policies	Brief Description	Relevance to the KESIP
National Policy for the Sustainable Development of Northern Kenya and other Arid Lands Sessional Paper No. 8 of 2012	The goal of this policy is to facilitate and fast-track sustainable development in Northern Kenya and other arid lands by increasing investment in the region and by ensuring that the use of those resources is fully reconciled with the realities of people's lives. The objectives of this policy are: Strengthen the integration of Northern Kenya and other arid lands with the rest of the country and mobilise the resources necessary to ensure equity and release the region's potential. To improve the enabling environment for development in Northern Kenya and other arid lands by establishing the necessary foundations for development. To develop alternative approaches to service delivery, governance and public administration which accommodate the specific realities of Northern Kenya and pastoral areas. To strengthen the climate resilience of communities in the ASALs and ensure sustainable livelihoods.	Some of KESIP project areas may fall in Northern Kenya counties and should conform to form this policy
Plans		
Various County Integrated Development Plans (CIDPs)	The CIDPs are development blueprints made by each of the 47 Counties in Kenya for the period between 2013 – 2017	KESIP project will need to be aligned to the CIDPs of the counties the project will affect.

5 ENVIRONMENTAL AND SOCIAL CONTEXT

KETRACO has identified 7 subprojects involving 132 kV and 220 kV transmission lines and associated substations provided in the list provided in Annex D. This section presents a a broad description of the physical, biological, and socioeconomic baseline environment of the counties where the identified subprojects occur. The project will be implemented in nine counties as identified in **Error! Reference source not found.**.

5.1 BIOPHYSICAL ENVIRONMENT

Error! Reference source not found. provides a broad description of the biophysical environment in the counties where the subprojects have been identified.

Table 5 Counties where KETRACO has identified subprojects

County	Area (KM^2)	Population (2017 projection)
Nakuru	7,495	2,046,395
Laikipia	8,696	479,082
Baringo	11,075	723,411
Nyandarua	3,108	712,595
Kilifi	12,246	1,466,856
Embu	2,818	577,390
Samburu	20,182	319,708
Kitui	24,385	1,086,598
Narok	17,921	1,239,320
Trans Nzoia	2,495.6	1,100,794

Source; respective County CIDPs

Table 6 Biophysical Environment of the Counties where subprojects are being considered

County	Physical and Topographic features	Climatic Condition	Biodiversity Areas and protected areas
Narok	The county lies in the Great Rift Valley, home to several major rivers, arid and rugged landscapes, and volcanic landforms with areas of prominent geothermal activities. The highland areas of Mau escarpments, rising to an attitude of 3,100m above sea level provides fertile ground for farming. Production of wheat and barley has made the county acquire the tag; of bread basket of the country. Mau Complex is also the source of major rivers like Mara and Ewaso Nyiro with Mara River being the single major river that passes through Maasai Mara Game Reserve ultimately draining into Lake Victoria.	The climate of Narok County is strongly influenced by the altitude and physical features. The county has five agro-climatic zones namely; humid, sub-humid, semi-humid to arid and semi-arid. Two-thirds of the County is classified as semi-arid. Temperatures range from 200C (January- March) to 100C (June- September) with an average of 180C. Rainfalls amounts are influenced by the passage of inter tropical convergence zones giving rise to bi-modal rainfall pattern. Long rains are experienced between the months of February and June while the short rains are experienced between August and November. Rainfall ranges from 2,500 mm in wet season to 500 mm during the dry season. The March to June season receives high intensity rainfalls that support growth of vegetation, which is food for wild animals. This climatic characteristic has been influencing the migration of wildebeest into Kenya from Serengeti in June in search of vegetative food and return migration to Serengeti in November after the vegetation diminishes. The seasons are also important to farmers in planning for planting and harvesting.	A section of the held gate national park is within Narok County. This National Park measures 68 km2 in an area beset with geothermal activity within the Rift Valley. It supports a range of species including: Giraffe, Eland, Hartebeest, Buffalo, Gazelles, Antelope, Lion, Leopard, Cheetah, Klipspringer, Rock Hyrax and Chanler's Mountain Reedbuck. Avifaunal diversity in the NP encompasses 103 enumerated species with notable ones including Vulture, Ragles and Augur Buzzard. Rare bird species documented in the Protected Area are the Verreaux's Eagle and the Lammergeyer, Ruppel's Griffon and Hooded Vultures. The National Park is under consideration for designation as a World Heritage Site. Narok County hosts the Mau forest ecosystem. Mau Forest Complex: These forests cover 4,047.21 km2 comprising of the following forest blocks: Chemorogok, Eastern Mau, Eburu, Kilombe hill, Lembus, Londiani, Maji Mazuri, Western Mau, Maasai Mau, Mau Narok, Molo, Northern Tinderet, Olposimoru, Olposimoru Excision, South West Mau, South Mau, Tinderet, Transmara, West Molo, West Mau, and Nabkoi. They are the source for rivers in the Lake Victoria and Mara basins. This complex forms the largest closed canopy forest in the country. Vegetation patterns cover a broad altitudinal zonation, and include lower montane forest, thickets of bamboo *Arundinaria alpina* mixed with forest and grassland, and montane sclerophyllous forest near the escarpment crest.
Bomet County	Bomet County is characterized by undulating topography that gives way to flatter terrain in the south. The overall slope of the land is towards the south, except the north eastern part which rises eastwards towards the 3,000 m high Mau Ridges. The land slopes gently from Kericho plateau to about 1,800 m in the lower area where the land is generally flat with a few scattered hills in Chepalungu and Sigor plain	Rainfall in the County is highest in the lower highland zone with a recorded annual rainfall of between 1000 mm and 1400 mm. The upper midland zone which lies west of the rift valley experiences uniform rainfall while in the upper midland zone on the southern part of the County, rainfall is low. Rainfall is evenly distributed except for the short dry season in January and February. The wettest months are April and May. Overall, there is little break between short	A section of Mau Forest Complex is in Bomet County. These forests cover 4,047.21 km², comprising of the following forest blocks: Chemorogok, Eastern Mau, Eburu, Kilombe hill, Lembus, Londiani, Maji Mazuri, Western Mau, Maasai Mau, Mau Narok, Molo, Northern Tinderet, Olposimoru, Olposimoru Excision, South West Mau, South Mau, Tinderet, Transmara, West Molo, West Mau, and Nabkoi. They are the source for rivers in the Lake Victoria

	The County has several rivers: Kipsonoi river flows through Sotik to Lake Victoria,Chemosit flows through Kimulot in Konoin Sub-County, Nyongores flows from the MauForest southwards through Tenwek area, Amalo which originates in the Transmara Forest (Kimunchul) flows along south-western boundary of the County, and Tebenik/Kiptiget Rivers, which flow along the northern boundaries of the County. Dams are found in the drier zones of Chepalungu, parts of Sotik sub-county and Longisa in Bomet East sub-county. The County borders a long stretch of Mau forest which is an indigenous forest	and long rains in the whole County. In the extreme south, rains start in November and continue intermittently until June. June to November is the dry season. In the extreme north, rains start towards the end of March and continue intermittently up to the end of December. The temperature levels range from 160 C to 240 C with the coldest months between February and April, while the hot seasons fall between December and January. There are abundant water sources and even distribution of rain almost throughout the year. This explains why agriculture and livestock production are main economic activities of the County.	and Mara basins. This complex forms the largest closed canopy forest in the country. Vegetation patterns range amongst broad altitudinal zonation, lower montane forest, thickets of bamboo Arundinaria alpina mixed with forest and grassland, and finally to montane sclerophyllous forest near the escarpment crest.
Baringo	According to the Baringo ADP (2015-2016), the County consists of 29.9% forest of which 6.7% is gazetted forest and 13.2% is community forest. Natural vegetation in the County comprises of several species of acacia and grasses, characteristic of a dry savannah area.	According to the Baringo County Annual Development Plan (ADP) 2015- 2016, the rainfall in Baringo varies from 1,000 mm to 1,500 mm per annum in the highlands to 600 mm per annum in the lowlands. The rainfall patterns follow those for Nakuru County which is a bimodal rainfall pattern, with short rains in October - December and the long rains falling between March and May. Temperature in the County varies between average of 15º C (June to October) to an average of 35º C (December to March). However, the average temperature is about 28º C for most of the year. The temperature and rainfall regimes near Lake Bogoria National Reserve combine to give Lake Bogoria a hot, arid to semi-arid climate (Baringo ADP 2015-2016).	Lake Baringo and Lake Bogoria are within Baringo County. The Lake provides critical refuge for the Phoenicopterus minor (Lesser Flamingo), with a population of 1 to 1.5 million. It supports over 300 waterbird species whilst the shoreline fringe of the lake and associated acacia woodland provide critical habitat for the endangered Tragelaphus strepsciseros (Greater Kudu) and other mammals. Lake Bogoria and Baringo are also a National Reserve.
Nyandarua	The main physical features of the county include Kinangop Plateau and Ol'kalou/Ol'joroOrok plateau which have slopes that are interrupted by low undulating hills. The gentle slopes flatten to plain-like features encouraging formation of marshlands and swamps. The county was affected by volcanic and faulting which gave rise to major land forms, the Great Rift Valley to the west and Aberdare ranges to the east. The highest point of the Aberdare ranges is 3999m above sea level. There are steep slopes that have undergone great transformation through weathering creating shallow valleys and gorges. The ranges drop gradually in a series of faults giving way to an escarpment that has been broken into sharp valleys occasioned by change in levels of the river courses. There are eight permanent rivers; Malewa,	The county experiences moderate to low temperatures. The highest temperatures are recorded in the month of December, with a mean average of 25^0 C while the lowest is recorded in the month of July, with a mean average temperature of 12^0 C. The cold air rises during clear nights on the moor lands of the Aberdare Ranges flows down the Plateau, through the valleys west of the plateau. The temperatures in these valleys can fall to between 1.2^0 C and - 1.3^0 C which last for few hours before sunrise. The County experiences two rainy seasons: Long rains from March to May with a maximum rainfall of 1600 mm and short rains from September to December and with a maximum rainfall of 700 mm. The rainfall intensity varies according to the	Nyandarua hosts the Aberdare NP that occupies 765.7 km2 and is part of the greater Aberdare ecosystem on the Kikuyu escarpment of the Eastern Rift Valley. It supports 56 of the 67 tropical highland species of fauna in Kenya. These include, amongst others, Elephant, Black Rhino, Leopard, Spotted Hyenas, Olive Baboon, Black and White Colobus Monkeys, Buffalo, Warthog, Bushbuck, Giant Forest Hog, Bongo, Golden Cat, Serval Cat, African Wild Cat, African Civet Cat and The Blue Duiker. It is an IBA, located within the Kenya Mountains EBA, with at least 290 bird species documented.

	Ewaso Narok, Pesi, Turasha, Chania, Kiburu, Mkungi and Kitiri. Lake Ol'bollosat which is the largest water mass in the county is fed by streams and underground water seepage from the Aberdare and Dundori hills. Human activities and clearing of the catchments areas for settlement has affected its natural refilling system and its existence is threatened.	location. Areas near the Aberdare slopes receive sufficient rainfall with the plateau receiving scanty and erratic rainfall.	The montane forest within the Aberdare ecosystem is one Kenya's five important gazetted water towers. It is a Key Biodiversity Area of the EAM, which is subset of the Mt Kenya – Aberdare Eastern Afromontane Biodiversity Corridor. Aberdare is under consideration for designation as a World Heritage Site.
Laikipia	The altitude of Laikipia County varies between 1,500 m above sea level at Ewaso Nyiro basin in the North to a maximum of 2,611 m above sea level around Marmanet forest. The other areas of high altitude include Mukogodo and Ol Daiga Forests in the eastern part of the county at 2,200 m above sea level. The county consists mainly of a plateau bordered by the Great Rift Valley to the West, the Aberdares to the South and Mt. Kenya massifs to the South East all of which have significant effects on the climatic conditions of the county. The county drainage is dominated by the Ewaso Nyiro North basin with its tributaries having their sources in the slopes of the Aberdares and Mt. Kenya. These tributaries include Nanyuki, Timau, Rongai, Burguret, Segera, Naromoru, Engare, Moyak, Ewaso Narok, Pesi and Ngobit rivers. The flow of these rivers matches the county's topography which slopes gently from the highlands in the South to the lowlands in the North. The rivers determine to a large extent the settlement patterns, as they are a source of water for human and livestock consumption as well as irrigation activities. There are two major swamps in the county namely; Marura Swamp which runs along the Moyot valley in Ol-Pajeta Ranch and the Ewaso Narok Swamp around Rumuruti town. The swamps have some agricultural potential if properly protected and managed. However, they are currently under pressure due to encroachment for human settlement and agricultural production. The South-western part of the county has the highest potential for forestry and mixed farming due to its favourable climatic conditions. These conditions have resulted in some areas especially around Marmanet being the most densely populated. The eastern and northern parts of the county are suitable for grazing while the plateau lying in the central and the northern parts of the county is suitable for ranching.	The county experiences a relief type of rainfall due to its altitude and location. The annual average rainfall varies between 400mm and 750mm though higher annual rainfall is observed on the areas bordering the slopes of Mt. Kenya and the Aberdare Ranges. North Marmanet receives over 900mm of rainfall annually; while the drier parts of Mukogodo and Rumuruti receive slightly over 400mm annually. The Laikipia plateau receives about 500mm of rain annually, while Mukogodo Forest receives an average rainfall of about 706mm annually.	The county is endowed with several natural resources. These include pastureland, rangeland, forests, wildlife, undulating landscapes and rivers among others. The county has gazetted forest area totaling to 580 Km2 comprising of both the indigenous and plantation forests. The indigenous forests include Mukogodo and Rumuruti which are under threat from encroachment. The plantation forests include Marmanet and Shamaneik. Laikipia County is richly endowed with wildlife, which is widely distributed in the semi-arid areas extending to Samburu, Meru and Mt. Kenya wildlife corridors. Most of the wildlife is found in the large scale private ranches, which occupy over 50 per cent of the total area of the county. The rest is found in-group ranches predominantly owned by the Maasai, in the gazetted forests of Mukogodo, Rumuruti and Marmanet and other uninhabited tracts of land in the county. Though this is an important natural resource, it has been a source of conflict between the farming and pastoralist communities. Among the major wildlife species found in the county are the zebra, giraffe, lion, leopard, elephant, buffalo, and the rhinoceros though there are other smaller species also in abundance particularly the African wild dog and gazelles.

Samburu	The County consists of several highlands, plateaus and lowlands including the famous Suguta Valley. Fault escarpments bound its sides while red clays, boulders and gravel fans cover the floor. The valley is characterized by beach terraces which give evidence that it was once part of Lake Turkana. High-level plateaus built by repeated floods of lava from the Rift Valley dominate the eastern part of the valley. Kirisia rising to 2,500m above sea level is the highest point of the plateau. The lava fields make a very thin layer of soil which hardly supports any vegetation. The volcanic hills on Lorroki Plateau are covered by shallow dark to dark brown rocky and stony soils especially to the north. In the South West and high-altitude areas of the county, rainfall is above 600 mm per annum and the soils are comparatively deep suitable for arable farming. Generally, the topography, soil and rock types and vegetation cover influences the population distribution and settlement patterns in the county. Kirisia Division is predominantly covered by sandy loam and sandy clay soils, mostly lithosol (shallow stony soils) and cambisols. In the areas covered by lithosols, water run-off is common causing serious erosion. Lorroki Division is also predominantly covered by sandy loam soils. The soils are mostly well-drained phaezems although some parts are covered by shallow lithosols, including areas around Suguta Marmar where the risk of flooding is classified as medium. The lithic phase of the soils encourage run–off during periods of high precipitation. Samburu North comprising of Baragoi and Nyiro divisions is mainly consist of boulderly cambisols and lithosols soils. The soils are particularly more stony and rocky in the southern slopes of Mt Nyiro and Ndoto Mountain. These soils are shallow and have a lithic phase, a characteristic that makes them prone to erosion	Rainfall in the County follows erratic pattern varying significantly both in temporal and spatial scale. The County experiences both short and long rains. The driest months are January and February. The long rainy season falls in the months of March, April, and May. A part from South Horr and Wamba areas, short rains occur during the months of July and August, sometimes extending into September. At Wamba and South Horr areas, the short rainy season is usually delayed and occurs in October and November and sometimes extends into December. This short rainy season succeeds a dry spell during the month of June. Rain distribution varies across the county. The southwest plains and the Lorroki Plateau receive between 500 mm and 700 mm of rain annually. The Nyiro and Ndoto Mountains and Matthews range, however, receive the highest amount of rainfall between 750 mm and 1250 mm per annum. The central basin and the plains east of the Matthews Range are the driest parts of the county with annual rainfall of between 250 mm and 500mm. Temperatures in the County vary with altitude and mean temperatures generally range between 24 0C and 33 0C. The central plains and the region east of the Matthews Range have the highest temperatures while the highland belts in the North Eastern side of Lorroki Plateau are cooler	There is a total of 3,250 km2 of gazetted forests translating to a 15.4percent forest cover in the county. This mainly consists of indigenous forests uniformly distributed across the county. The main tree species are the acarcia, commisera, brocella which are dominant in the lowlands of Samburu North and Samburu East as well as sections of Samburu Central. The highland species include: cedar,podo, chepnuts and olea, Africana amongst others these are mainly found in kirisia and porror areas. The most endangered species are the Cedar and Podo because of their value in construction of houses particularly in upcoming urban/trading centres
Embu	Embu County is characterised by highlands and lowlands and slopes from North-West towards East and South-East with a few isolated hills such as Kiambere and Kiang'ombe. It rises from about 515m above sea level at the River Tana Basin in the East to 5,199m at the top of Mt. Kenya in the North West. The southern part of the county is covered by	The rainfall pattern is bi-modal with two distinct rain seasons. Long rains occur between March and June while the short rains fall between October and December. Rainfall quantity received varies with altitude averaging to about 1,067.5 mm annually and ranging from 640 mm in some areas to as high as 1,495 mm per annum. Temperatures range	Embu County hosts a section of the 213,082-hectare Mt. Kenya Forest Reserve that bestrides the equator in the central highland zones of Kenya. Administratively, this includes forest areas surrounding the mountain itself and adjacent forest blocks of Lower Imenti, Upper Imenti, Thunguru hill, Njuki-ini East, Njukiini West and Kierera.

	Mwea plains which rise northwards, culminating in hills and valleys to the northern and eastern parts of the county. There are also steep slopes at the foot of Mt. Kenya. The County is served by six major rivers which are Thuci, Tana, Kii, Rupingazi, Thiba and Ena. There are also some major dams which generate hydroelectric power for the country that are partly in the county. These include Masinga, Kiambere, Kindaruma and Gitaru dams which are situated along the Tana River. The most conspicuous physical features in the county are Mt. Kenya, Kiang'ombe hills, Kiambere hills, Mwea game reserve, River Tana, Masinga dam, Kamburu dam, Kindaruma dam, Kiambere dam and Gitaru dam.	from a minimum of 12^0C in July to a maximum of 30^0 C in March with a mean of 21^0C. The extensive altitudinal range of the county influences temperatures that range from 20^0 C to 30^0 C. July is usually the coldest month with an average monthly temperature of 15^0 C while September is the warmest month with an average monthly temperature rising to 27.1^0 C. There is however localised climate in some parts of the county especially the southern region due to their proximity to the Kiambere, Masinga, Kamburu and Kindaruma dams	The forest reserve has great potential for tourism development. In addition to having a recorded 880 plant species, the lush natural forests teem with wildlife including the African elephant, leopard, buffalo, giant forest hog, bongo, and the black fronted duiker. There are also numerous attractive features including panoramic views of the peak of Mt. Kenya, waterfalls, caves, and salt licks. Tourism activities here include wildlife safaris, bird watching, trout fishing and nature walks. Mt. Kenya has earned global conservation recognition including being designated a UNESCO World Heritage Site and an Important Bird Area (IBA).
Kitui	Kitui County has a low-lying topography with arid and semi-arid climate. Its rainfall distribution is erratic and unreliable. The Kitui County altitude ranges between 400m and 1800m above sea level. The topography of the county can be divided into hilly rugged uplands and lowlands. The general landscape is flat with a plain that gently rolls down towards the east and northeast where altitudes are as low as 400 metres. The highlands, namely Migwani, Mumoni, Kitui Central, Mui, Mutitu Hills and Yatta plateau, receive relatively high rainfall compared with lowlands of Nguni, Kyuso and Tseikuru. The central part of the county is characterised by hilly ridges separated by wide low-lying areas and has slightly lower elevation of between 600m and 900m above sea level to the eastern side of the county. To the western side of the county, the main relief feature is the Yatta Plateau, which stretches from the north to the south of the county and lies between Rivers Athi and Tiva. The plateau is characterised by plain, wide, shallow-spaced valleys.	The climate of the Kitui County is hot and dry with unreliable rainfall. The climate falls under two climatic zones, arid and semi-arid, with most of the County being classified as arid. The County experiences high temperatures throughout the year, ranging from 14°C to 34°C. The hot months are between September and October to January and February. The maximum mean annual temperature ranges between 26°C and 34°C whereas the minimum mean annual temperature ranges between 14°C and 22°C. July is the coldest month with temperatures falling to a low of 14°C while the month of September is normally the hottest with temperature rising to a high of 34°C. Due to the high temperatures experienced in the county throughout the year, the rate of evaporation is high with a mean annual potential evaporation in the central and north-western regions of the county ranging between 1800 to 2000mm while in the eastern and north-eastern regions, the range is from 2200 to 2400mm. The bulk of the County falls within 1800 to 2200mm range. The rainfall pattern is bi-modal with two rainy seasons annually. The long rains fall in the months of March to May. These are usually very erratic and unreliable. The short rains which form the second rainy season fall between October and December and are more reliable. The rest of the year is dry and the annual rainfall ranges between 250mm-1050 mm per annum with 40% reliability for the long rains and 66% reliability for the short rains. Rainfall is highly unpredictable from year to year.	Kitui county hosts the Ngai Ndethya Game Reserve. The protected area, which is 227 km2 in size and part of Tsavo Conservation Area, features savannah grasslands ecosystems. 19 large mammals have been documented in this Protected Area, and between 100 and 200 bird species.

Kilifi	Kilifi County has four major topographical features. The first one is the narrow belt, which forms the coastal plain and varies in width of 3km to 20km. The coastal plain lies below 30m above sea level with a few prominent peaks on the western boundary including hills such as Mwembetungu. Across this plain run several creeks resulting in excellent marine swamps that are endowed with mangrove forests and present potential for marine culture. This zone is composed of marine sediments, including coral, limestone, marble, clay stones and alluvial deposits that support agriculture. To the west of the coastal plain lies the foot plateau characterized by slightly undulating terrain. The plateau falls between 60m and 150m altitude and slopes towards the sea. Several dry watercourses traverse the surface with underlying Jurassic sediments consisting of shells, sandstones and clays. In this zone, grassland and stunted vegetation prevail. The coastal range falls beyond the foot plateau and has distinct low range of sandstone hills and ranges between 150m to 450m high. These hills include Simba, Kiwava, Daka, Wacha, Gaabo, Jibana, Mazeras and Mwangea. The Nyika plateau that rises from 100m to 340m above sea level and occupies about two thirds of the county area covers the lower lying ground along the western side of the county. The plateau is less populated with a thin vegetation cover, shallow depressions and gently undulating terrain. This is an arid and semi-arid zone, which is suitable for ranching. The drainage pattern for the county is formed by a permanent river (Sabaki) and seasonal rivers, which drain into Indian Ocean through the various creeks along the coastline. The seasonal rivers are Nzovuni, Rare, Goshi and Kombeni. There are also streams which include Wimbi, Muhomkulu and Mleji.	The average annual rainfall ranges from 300mm in the hinterland to 1,300mm at the coastal belt. The coastal belt receives an average annual rainfall of about 900mm to 1,100mm with marked decrease in intensity to the hinterland. Areas with highest rainfall include Mtwapa and to the north of the coastal strip around the Arabuko Sokoke Forest. Evaporation ranges from 1800mm along the coastal strip to 2200mm in the Nyika plateau in the interior. Evaporation rate is highest from January to March in all parts of the county. The annual temperature ranges between 21^0C and 30^0C in the coastal belt and between 30^0C and 34^0C in the hinterland. The county experiences relatively low wind speeds ranging between 4.8 km/hr and 12 Km/hr.	Kilifi County hosts Part of the Tsavo Conservation Area (TCA) and together with Tsavo West NP they form one of the largest protected areas in the world. Tsavo East NP expands over an area of 13,747 km². It supports Elephant, Rhino, Buffalo, Lion, Leopard, Hippo, Crocodile, Waterbuck, Lesser Kudu, Gerenuk and Hirola. It is an IBA in which over 500 species of birds have been documented. Together with Tsavo West and Chyulu Hills they form the Tsavo Parks and Chyulu Complex which are being considered for designation as a WHS.
Trans nzoia	Trans Nzoia County is generally flat with gentle undulations rising steadily towards Mt. Elgon in the northwest with an altitude of 4,313m above the sea level. It is the second highest mountain in Kenya. Mount Elgon is an important ecosystem shared between Trans Nzoia and Bungoma Counties in Kenya and the Republic of Uganda hence it is a unique resource for environmental and wildlife conservation. On average the County has an altitude of	The County has a highland equatorial type of climate. The rainfall is well distributed throughout the year. The annual rainfall ranges between 900 mm and 1400 mm. The slopes of Mt. Elgon to the west receive the highest amount of rainfall while the region bordering West Pokot County receives the least. The County experiences bi-modal rainfall pattern. The long rains occur from April to June, while the short rains fall from July to October.	Tranzoia County hosts the Mt Elgon ecosystem. 169 km2 of the transboundary ecosystem of Mt Elgon is gazetted as a National Park in Kenya. The ecosystem, which has high floral diversity, features the gazetted Mt Elgon FR. Within the NP, key faunal species are Elephant, Buffalo, small antelopes, Duiker, Black and White Colobus, Blue Monkey, and Red-tailed Monkey. Mt Elgon is an IBA, located within

	1,800m above sea level. The altitude varies from 4,313m above sea level in Mt. Elgon and gradually drops to 1,400 m above sea level towards the north. Because of the hilly nature, especially the northwest and the eastern parts of the county, there are difficulties in communication especially during the rainy season when roads sometimes become impassable. The County has two major rivers namely Rivers Nzoia and Suam. River Nzoia and its tributaries Sabwani, Ewaso, Rongai, Koitobos and Noigamet flow into Lake Victoria while Suam River drains into Lake Turkana, through River Turkwel. The water from the rivers could be utilized for the generation of hydroelectric power for use to support rural electrification, irrigation, fisheries and domestic consumption. These activities could also contribute towards flood mitigation. River Nzoia catchments and its tributaries are however threatened by encroachment, agriculture, and other human activities along the riverbanks. Most of the natural forest cover is found in Mt. Elgon and the Cherangany Hills. However, continued pressure from human activities has had a significant negative effect on the forest cover. The forests in the County are critical to the climatic conditions of the territorial boundaries of the county and beyond as they form part of the water catchments for Lakes Turkana and Victoria.	The mean temperature in the County is 18.6°C. However, temperatures range from a low of 10°C to a high of 30°C. The county has favourable climate for both livestock and crop production. The average daily relative humidity is 65 percent and the wind speed is two knots.	the Kenya Mountains EBA, within which 57 bird species have been documented. The PA is the last known refuge for Petropedetes dutoiti (Du Toit's Torrent Frog) (CR) and Otomys barbouri (Barbours Vlei Rat) (EN), therefore it is a designated AZE. Moreover, the ecosystem is one of Kenya's 5 major gazetted water towers. In connection, the catchment within the ecosystem is a Freshwater Key Biodiversity Area (FWKBA) of the Eastern Afromontane, whilst the montanous ecosystem is a composite Key Biodiversity Area of the EAM. Due to its uniqueness as water, the ecosystem is also designated as a UNESCO MAB.

5.2 SOCIOECONOMIC BASELINE

This section describes the socio-economic receiving environment of the counties where KETRACO has identified the subprojects. The baseline information is presented at national and county levels.

People and culture

The Bantu are the largest single group of people found within the counties identified for subprojects and they are also the single largest population division in Kenya. The Bantu are mainly farmers. There are three main clusters of Bantu in Kenya:

- Those near the Coast and in the plains a short distance inland. These are mainly the Pokomo, Taita, Makonde, Taveta tribes as well as the 'nine tribes' of the Mijikenda;
- The Central Highlands Bantu, mainly found around Mount Kenya and the Nyandarua (Aberdare) Range. These are comprised of the Chuka, Embu and Mbeere, Kamba, Kikuyu, Meru and various related tribes; and
- Those in and to the north of the Lake Victoria Basin in the far west of the country, specifically the Gusii (Kisii), Kuria, and the various Luhya sections.[1]

Although each of these tribes shares Bantu as a root language, their own languages (of which there are usually many dialects and variations) are not necessarily mutually understandable.

The second largest group of people within the KESIP affected counties are the Nilotes. The Nilotic-speaking tribes comprise the Luo, Maasai, Pokot, Samburu, Turkana, and many of the subgroups which constitute the Kalenjin. They mainly occupy the western Kenya's Rift Valley. The Nilotes are traditionally cattle-herders, although some groups, notably the Luo and Kalenjin, have converted to agricultural ways of life.

While this classification of people is true for most rural areas and some smaller towns, the same cannot be said of big towns such as Nairobi, Nakuru and Mombasa. In these areas, there are diverse people including other Africans, Arabs, Indians, and Europeans who come from different cultural backgrounds[2].

The two main groups of people in the KESIP affected counties are Bantus and Nilotes and, culturally are farmers. Therefore, most of the goods expected to originate from the areas these people occupy will be mostly agricultural goods; food and cash crops and, live animals and animal products. Conversely, these groups of people constitute the market for agricultural inputs as well as a market for industrial consumer goods.

Population density

Within the subproject identified counties, high population densities occur in the following: Trans Nzoia, Narok, Nakuru, Kitui and Kilifi. Moderate population densities are found in Nyandarua, Bomet, Embu. Low population densities are in Samburu and Laikipia Counties (see **Error! Reference source not found.**).

Education profile

[1] ( ) http://www.bluegecko.org/kenya/contexts/bantu.htm

[2] ( ) http://www.bluegecko.org/kenya/contexts/bantu.htm

Major urban areas in Kenya have high education levels but there are very large disparities with regards to levels of education within these populations. Mombasa, Nairobi, Nakuru, Eldoret and Kisumu all have gaps between highest and lowest wards in share of residents with secondary school education or higher levels. In most rural counties, education levels are lower but the gap, while still large, is somewhat lower than that experienced in urban areas.

The share of residents with secondary education or higher in Nairobi (50.8%) is more than that of an average Kenyan County. Conversely, those living in rural counties are less likely to have any secondary education compared to an average Kenyan. The proportion of individuals with secondary education in male headed households is higher than that for female headed households across all counties.

The Counties with the highest share of primary education are concentrated in the Western part of the Country, specifically Siaya, Vihiga and Busia. Elgeyo Marakwet.

The percentage of residents by level of education varies from County to County. The Counties with the highest residents without formal education are Kwale and Kilifi, while Counties with the lowest residents without formal education are Nairobi and Kiambu. The Counties with residents with the lowest level of primary education are Kajiado and Mombasa and the Counties with residents with the highest level of primary education are Kitui, Nyandarua, Elgeyo Marakwet, Nandi, Busia and Kericho. The Counties with residents with the lowest level of secondary education are Kwale and Mombasa and Counties with residents with the highest level of secondary education are Nairobi, Kiambu and Mombasa.

Health profile

According to the Ministry of Health (2013), Kenya currently has a total of 9,694 health facilities that are government, private, NGO and religious owned. The majority of Kenya's population receives healthcare services from the public sector. The range of services includes:

- **Preventive services**, which includes routine childhood immunizations and environmental activities to control mosquito breeding
- **Promotive services** that are mostly educational services provided to the general population on healthy lifestyles and available interventions
- **Curative and rehabilitative services**, which include all treatment activities available at hospitals and other healthcare facilities

Under the devolved government system, healthcare facilities are organised into 6 levels as follows:

Level 1: Community Health Services, which are community-based demand services
Level 2: Dispensaries for both public and private health services providers
Level 3: Health Centres, provided by county governments
Level 4: Sub County Referral Hospitals, which are managed by the respective County Governments
Level 5: County Referral Hospital, which are managed by the National Government
Level 6: National Referral Hospitals, which comprise of facilities that provide highly specialized services and include all tertiary referral facilities

All the subproject identified counties, have Level 1-4 healthcare facilities.

About 52% of Kenya's population have access to basic health services within 5 km. However, access to basic primary health care and referral services remains a significant challenge. Significant disparities in service availability exist between rural and urban areas and in hard to reach areas. Mortality rates remain high and the causes of death in both the Country and KESIP affected Counties include:

- HIV/AIDS (29.3%)
- Perinatal Conditions (9.0%)
- Lower Respiratory Infections (8.1%)

- Tuberculosis (6.3%)
- Diarrhoea (6.0%)
- Malaria (5.8%)

Other causes of death include cerebrovascular diseases, ischaemic heart disease, road traffic accidents and violence.

Land Use

Land use types where the subprojects have been identified vary significantly as it traverses northwards through the landscape. Factors such as land value, zoning rules that control development, technology, climate and proximity to network infrastructure (e.g. availability of water, electricity and telecommunication) influence the land use along the Corridor.

Residential, commercial, educational, public purpose, public utilities, transportation, and industrialization are the land uses found in the KESIP affected counties. Changes in land use are very popular as land that was previously meant for agricultural purposes is being changed to residential, commercial and industrial land uses.[1]

[1] ( ) http://www.bluegecko.org/kenya/contexts/bantu.htm

6 TYPOLOGY OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

6.1 OVERVIEW

This section presents the assessment of potential environmental and social impacts associated with the construction and operation of the Project. The section provides potential impact throughout the project phases.

The section distinguishes between the impacts associated with generic construction activities that would be the direct responsibility of contractors from sector-specific impacts that would be the responsibility of KETRACO.

Impacts that are directly related to construction activities would be directly managed by contractors. They also include impacts related to the construction or management of project related facilities by the contractor, such as offices, storage facilities or guard houses.

Local contractors are expected to conduct all works using workers that already reside in the cities where the works are conducted. Thus, subprojects will trigger minimal labor influx and contractors will be discouraged from building or operate residential labor camps to host such workers.

The following is a list of the expected construction and operation phase related impacts

6.2 GENERAL ENVIRONMENTAL AND SOCIAL IMPACTS

The typical generic environmental impacts from construction activities include:

- Dust generation during excavation, backfilling, and compaction
- Increased levels of noise and vibration due to heavy vehicles and construction machineries
- Air pollution due to emissions from construction vehicles and machinery
- Poor management of liquid wastes, leading to soil or groundwater pollution
- Poor disposal of construction debris and waste materials
- Poor management of runoff water
- Bad odors
- Landslides and soil erosion
- Destruction of vegetation
- Destruction of significant physical cultural property
- Changes to the flow of water
- Restricted access
- Production of hazardous, or potentially hazardous, wastes from: (i) clearing of damaged materials; and (ii) use of chemical materials during construction
- Work related accidents and injuries
- Risk to workers from hazardous material used for construction, such as acetylene, petroleum, diesel, lubricating oil, paints, and chemicals.
- Poor onsite sanitation or water supply, leading to illness and disease
- Risk to workers due to the ongoing security concerns in the area and;
- Impacts related to occupational health and safety, labor influx, GBV and SEA;
- Land take resulting to involuntary resettlement;
- Erosion of cultures and deterioration in livelihoods of VMGs;

The management of sector specific impacts will be the responsibility of KETRACO. **Error! Reference source not found.** provides description of sector-specific, construction and operation phase impacts.

Table 7 Environmental and Social Impacts

Impact	Construction Phase	Operation Phase
Avian Species	• Disturbance due to noise, vibration and human and vehicle presence • Loss of habitat as a result of RoW or other project infrastructure	• Bird strikes along transmission lines
Terrestrial Fauna and Flora	• Loss of habitat due to the construction of the tower/monopole infrastructure and RoW	• Maintenance along the RoW including clearing of vegetation and use of herbicides
Landscape and Visual Amenity	• Presence of construction vehicles and workforce	• Presence of transmission lines and towers/monopoles • Permanent clearance of vegetation
Community Health and Safety	• Potential impacts on community safety, in particular road accidents and trespass on the sites resulting in accidents leading to injuries or fatalities. • Environmental health: changes to the environment due to increased noise and vibrations, decreased air quality and, inadequate management of waste.	• Community safety and welfare due to the physical presence of the transmission lines and substations. • Community health over exposure to EMF
Workers Health and safety	• Impacts on workers' health and safety, in particular from road accidents, slip, and trip and falls hazards during tower erection and stringing activities, exposure to chemicals and inconsistent use of PPEs, resulting in accidents leading to injuries or fatalities. • Impacts on workers' rights from violations of labour laws in particular with respect to enforcement of health and safety measures by the employer such as the use of appropriate PPEs during construction of transmission lines and the substations.	• Impacts on workers' health and safety in particular during operation of the substations including operation of the onsite transformers, waste management and disposal and from occupational hazards such as electrocution during line maintenance and the exposure to chemicals. • Impacts on worker's rights from lack of enforcement of health and safety measures by the employer such as the use of appropriate PPEs during maintenance of transmission lines and operations of substations.
Land and livelihoods	• Temporary loss of livelihoods and household income as a result of temporary land taken. • Disturbance to economic activities (agriculture, husbandry and businesses) and temporary losses during construction.	• Permanent loss of livelihoods and household income due to changes in land use. • Disturbance to economic activities and temporary losses during maintenance.
Economy and Employment	• Creation of temporary employment opportunities (primarily unskilled workforce). • Long-term benefits from capacity enhancement of local labour through on-the-job and formal training opportunities. • Creation of local economic development and diversification opportunities as a result of the use of local facilities and goods and services by the Project (e.g. water supply provider, waste management facilities, etc.)	• Creation of long-term employment opportunities for maintenance and monitoring.
Spillages	• Soil and surface water degradation due to fuel spills during construction activities (refuelling, maintenance machinery)	• Soil and surface water degradation as a result fuel spills due to maintenance activities of the transmission lines and substations.
potential unplanned events Community health and safety	• Risks during stringing activities.	• Dielectric oil release that have the potential to ignite, create fire or explosion and could lead to fatalities. • Potential disaster due to transmission line snapping, transmission tower/pylon collapse.

Impact	Construction Phase	Operation Phase
Cumulative Impacts	• Cumulative impacts are expected to occur during the construction phase of the Project as the impacts are likely to have an additive impact in relation to existing activities within the project area. It is not expected that there will be many cumulative effects during operations as it is unlikely that there will be additional transmission lines in the same right RoW or near the planned lines	• where two different types of impacts react with each other to create a new impact (e.g. water abstraction from a watercourse might exacerbate the impacts caused by increased sediment loading

6.3 KESIP IMPACTS TO BE MITIGATED BY KETRACO

- Temporary land-take for construction purposes.
- Loss of Land and property
- Land affected by the construction and operation of the proposed transmission line falls into two categories:
    - Right of Way
    - Wayleave

Right of Way

The Right of Way (ROW) is the land required for a maintenance track under the line and the location of the towers. This corridor is 5m (2.5m on either side of the centreline) in width, which suffices for both the access part and the four foundations of towers.

KETRACO will determine whether land falling within 5m wide ROW will remain the property of its current owners (land titles would then not be transferred) or whether it should be fully transferred to KETRACO. This land must always be accessible by KETRACO for maintenance purposes. Whether transferred or not, land falling in the RoW of way is deemed not to have any residual value for its current owner, and should, therefore, be compensated in full to its present owners.

Wayleave

The way-leave is recognized as the safety corridor outside of which negative impacts from transmission lines are assumed to be negligible. The width of the corridor depends on the line voltage. The Kenyan standard is a 30m wide corridor for a 132Kv transmission line.

Titles for the way-leave land will not be transferred from the present land owners; this land will remain their property. This land is, however, subject to the following restrictions:

- No construction is allowed in the Corridor; and
- All vegetation is to be kept below 6ft height (1.8m).

In the way-leave outside of the 5m Right of Way, cultivation or other uses of land may continue provided the above –mentioned restrictions are complied with by the owner and the occupants of the land. KETRACO must also notify the land owners 3 days prior to maintenance works.

6.4 CUMULATIVE IMPACTS

Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past present or reasonably foreseeable future activities.

This section provides a description and analysis of the potential cumulative effects of the proposed transmission and distribution powerline and substations project and considers the effects of any such changes on:

- The biophysical environment; and

- Socio-economic conditions

Cumulative Impact Analysis

For the most part, cumulative impacts or aspects thereof are too uncertain to be quantifiable, due to mainly lack of data availability and accuracy. This is particularly true of cumulative impacts arising from potential or future projects, the design, or details of which may not be finalized or available and the direct and indirect impacts of which have not yet been assessed. Given the limited detail available regarding such future developments, the analysis that follows is necessarily of a generic nature and focuses on key issues and sensitivities for the project and how these might be influenced by cumulative impacts with other activities. In most cases, only qualitative assessments of cumulative impacts are possible, i.e. they are not formally rated.

Cumulative Biophysical Impact

The potential cumulative impact associated with the KESIP is the potential loss of biodiversity through a decrease in vegetation and faunal habitat. Operation of the facility may also cause a decrease in avifauna. The clearing of natural vegetation is occurring at an increasing rate within some Flats area because of human population growth and development. The clearing of indigenous vegetation is resulting in a decrease in biodiversity and suitable habitat for fauna. The development proposed is likely to exacerbate the loss of biodiversity through the direct loss of natural vegetation within the powerline wayleave, as well as indirectly through enabling the further construction of the ring feed powerlines and providing an additional supply of electricity to the area which may facilitate further development initiatives. However, with the implementation of the proposed mitigation recommendations the cumulative impact on avifauna is anticipated to below.

Cumulative Socio-Economic Impact

The proposed powerline development has the potential for positive cumulative socioeconomic impacts. The construction powerlines and substations will provide an additional supply of electricity to the several proposed areas all over the country. This dedicated, additional supply of electricity will enable many previously un-serviced households to receive electricity, thereby improving the standard of living for the people within the surrounding rural area. The power outages, which are currently occurring in the area on a relatively frequent basis, will also decrease accordingly.

7 IMPACT MITIGATION MEASURES

The primary objective of the ESMP is to ensure implementation of the identified "mitigation measures" in order to reduce adverse impacts and enhance positive impacts. Besides, it would also address any unexpected or unforeseen environmental impacts that may arise during construction and operational phases of the subprojects.

The mitigations are not intended to be exhaustive in content but rather to indicate in general to the scope of ESIAs and ESMPs. It is entirely possible that additional impacts will be identified during impact assessment studies or audit preparation and will require additional mitigation measures. In the ESIAs and ESMPs, impacts shall be categorized according to project phase (planning, construction, operation, and decommissioning) and for all project types

The ESMP should clearly lay out: (a) the measures to be taken during both construction and operation phases of a subproject to eliminate or offset adverse environmental impacts or reduce them to acceptable levels; (b) the actions needed to implement these measures; and (c) a monitoring plan to assess the effectiveness of the mitigation measures employed.

The environmental management program should be carried out as an integrated part of the project planning and execution. It must not be seen merely as an activity limited to monitoring and regulating activities against a pre-determined checklist of required actions. Rather it must interact dynamically as a subproject implementation proceeds, dealing flexibly with environmental impacts, both expected and unexpected. For all subprojects to be implemented under KESIP, the ESMP should be a part of the Contract Document

The major components of the ESMP include:

- Mitigation and enhancement measures
- Monitoring plan
- Estimation of cost of EMP
- Institutional arrangement for implementation of EMP

7.1 MITIGATION AND ENHANCEMENT MEASURES

Construction Phase

The overall impact assessment of the proposed subprojects (substations and power lines) reveals that most of the adverse impacts could be minimized or eliminated by adopting standard mitigation measures; there is also scope to enhance some of the beneficial impacts to be generated from the proposed subprojects. This section describes the mitigation and enhancement measures that could be applied to the subprojects under KESIP.

In order to identify mitigation/enhancement measures, the potential impacts have been categorized into: (a) "general impacts", which are typical common impacts to be experienced in most subprojects, and (b) "subproject specific impacts". Table 9 shows typical activities to be carried out under different subprojects, corresponding "general impacts" and suggested mitigation and enhancement measures. It also assigns responsibility for implementation of mitigation and enhancement measures. Obviously all subprojects would not generate all the impacts listed in at the same level/magnitude (see Table 8). Table 8 provides general guidelines of mitigation and enhancement measures for the most significant "general impacts". Table 9 shows "subproject specific" impacts during construction phase and corresponding mitigation/enhancement measures.

Operational Phase

During the operational phase, the KETRACO will be responsible for the operation and maintenance of the infrastructure to be developed under KESIP. Apart from regular operation and maintenance, a number of issues would require special attention for reducing/avoiding possible adverse environmental impacts; for example, regular maintenance and management of storm drains in the substations to reduce risk of water pollution.

With respect to storm drains, utmost efforts must be made to keep it operational (i.e., flowing) by restricting discharge of solid wastes into it and by periodically cleaning the drain. Adequate monitoring is also needed to make sure that the storm drain does not receive direct discharge of toilet wastewater from the office, residential quarters located within the substation area. Such discharges would contaminate the drainage water and eventually the receiving water body (river), and would bring about a wide range of adverse environmental and health outcomes.

Accidental spillage of transformer/generator fuel into the drainage system is also a serious concern, which can cause environmental pollution. Spilled fuel from transformer/generator, if not properly disposed, could bring about adverse health and environmental impacts.

Proper management of traffic and pedestrian movement could often minimize increased risks of accidents during the maintenance of transmission lines by KETRACO near the roadways. Movement of heavy vehicles (loaded trucks) in local roads is a common cause of road damage at many subproject sites. Table shows some important subproject specific impacts during operational phase and corresponding mitigation measures.

Table 8 Typical "general impacts" during construction phase of subprojects and corresponding mitigation and enhancement measures

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
Construction and operation of labor shed for workers	• Generation of sewage and solid waste; water/ environmental pollution	• Construction of sanitary latrine/ septic tank system	Contractor (Monitoring by KETRACO)
	• Health of workers	• Erection of "no litter" sign, provision of waste bins/cans, where appropriate • Raising awareness about hygiene practices among workers	
	• Possible development of labor camp into permanent settlement	• Availability and access to first-aid equipment and medical supplies • Contractor to remove labor camp at the completion of contract	
	• Outside labor force causing negative impact on health and social well-being of local people	• Contractor to employ local work force, where appropriate; promote health, sanitation and road safety awareness	
General construction works for subprojects	• Drainage congestion and flooding	• Provision for adequate drainage of storm water • Provision of adequate diversion channel, if required • Provision for pumping of congested water, if needed • •Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the wet season	Contractor (Monitoring by KETRACO
	• Air pollution	• • Ensure that all project vehicles are in good operating condition • Spray water on dry surfaces/ unpaved roads regularly • Maintain adequate moisture content of soil during transportation, compaction and handling • Sprinkle and cover stockpiles of loose materials (e.g., fine aggregates) • Avoid use of equipment such as stone crushers at site, which produce significant amount of particulate matter	
	• Traffic congestion, obstruction to pedestrian movement	• Schedule deliveries of material/ equipment during off-peak hours • Depute flagman for traffic control • Arrange for signal light at night	
	• Noise pollution	• Use of noise suppressors and mufflers in heavy construction equipment • Avoid using of construction equipment producing excessive noise at night • Avoid prolonged exposure to noise (produced by equipment) by workers • Regulate use of horns and avoid use of hydraulic horns in project vehicles	
	• Water and soil pollution • Destruction of aquatic habitat	• Prevent discharge of fuel, lubricants, chemicals, and wastes into adjacent rivers/ drains. • Install sediment basins to trap sediments in storm water prior to discharge to surface water. • keep noise level (e.g., from equipment) to a minimum level, as certain fauna are very sensitive to loud noise (e.g., during transmission tower construction over river/wetlands)	
	• Felling of trees, clearing of vegetation	• Replant vegetation when soils have been exposed or disturbed. • Plantation to replace felled trees	

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
	• Accidents	• Follow standard safety protocol. • Environmental health and safety briefing. • Provision of protective gears as specified in OSHA 2007 • Provision of appropriate protective measures against accidental fall from elevated height (e.g. using body harness, waist belts, secured climbing devices, etc.)	
	• Spills and leaks of oil, toxic chemicals	• Good housekeeping. • Proper handling of lubricating oil and fuel. • Collection, proper treatment, and disposal of spills.	
Health and Safety	• Exposure to physical hazards from use of heavy equipment and cranes; trip and fall hazards; • Exposure to dust and noise; falling objects; work in confined spaces; • Exposure to hazardous materials; • Exposure to electrical hazards from the use of tools and machinery.	• A safety observer must be appointed at each subproject site by the Contractor before the commencement of work. • Only allowing trained and certified workers to install, maintain, or repair electrical equipment. • Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines; • Proper Personal Protective Equipment(PPE) for all workers and others associated with work. • Where rehabilitation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined before work. • Preparation of C-ESMPs relevant to the project safety risk. This will include but not limited to: Labour recruitment Plan - HR Policy/Manual - ESHS Code of Conduct - Migrant Labour Management plan - Hazard and Risk Assessment and Management - OH&S Plan - Community Health and Safety Management Plan - Hazardous Materials Management Plan - Water Quality Management Plan - Air Quality, Noise and Vibration Management Plan - Waste Management Plan - Emergency Preparedness and Response Plan - Clearing and Revegetation Plan - Erosion Control and Sedimentation Plan - Emissions Control Plan - Invasive Plans Management Protocol Waste Management Plans,	Contractor (Monitoring by KETRACO)

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
	• Potential negative impacts of the asbestos and another dangerous and hazardous material.	• Follow NEMA Asbestos handling and disposal guidelines • Where Asbestos is found in a sub project the ESMP/ESIA/PR report must include the Asbestos disposal guideline	Contractor (Monitoring by KETRACO)
All construction works	• Beneficial impact on employment generation • General degradation of environment • Discovery of historical items and cultural remains	• Employ local people in the project activities as much as possible. • Environmental enhancement measures, such as plantation, landscaping, traffic/ direction signs. • Follow "chance find procedure" (see Annex I) for protection of cultural resources	Contractor (Monitoring by KETRACO)
Impacts related to labor influx, GBV and SEA	• Emotional abuse (such as systematic humiliation, controlling behavior, degrading treatment, insults, and threats); • Physical violence (such as slapping, kicking, hitting, or the use of weapons); • Sexual violence, which includes any form of non-consensual sexual contact, including rape; • Early/forced marriage, which is the marriage of an individual against her or his will often occurring before the age of 18, also referred to as child marriage; • Economic abuse and the denial of resources, services, and opportunities (such as restricting access to financial, health, educational, or other resources with the purpose of controlling or subjugating a person); • Trafficking and abduction for exploitation; and, • IPV perpetrated by a former or current partner, includes a range of acts of violence	• Client to undertake a project's social assessment to include assessment of the underlying GBV risks and social situation. The GBV risk assessment will identify and map GBV prevention and response actors/service providers at all levels in the project's area of influence with particular attention to available capacity to provide quality, GBV response services in the project area of influence. The client will also prepare, in consultation with contractors, a GBV Action Plan to be implemented by the project to manage GBV and SEA risks. In addition, the contractor will be expected to prepare a GBV and Child Protection Codes of Conduct to be signed by their workers. The Action Plan to include an indicative budget for its implementation. • Ketraco to have a GBV specialist to support project implementation and have a social /environmental specialist in the supervision consultant's team with GBV specific skills to supervise issues related to GBV (e.g., supervise signing of Codes of Conduct (CoCs), verify working GRM for GBV is in place, refer cases where needed) and work with GBV Services Providers as entry points into service provision to raise awareness of the GRM.	Ketraco

Table 9"Subproject specific impacts" during construction

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
Construction of Sub Station			
Setting up and operation of asphalt plant and bitumen preparation area (for Sub-station access road construction), if needed	• Air and noise pollution affecting nearby settlements	• Locate plant away from residential settlements • Consider use of emulsified bitumen	Contractor (Monitoring by KETRACO)
	• Possible water pollution (surface and groundwater) bituminous products/ solvents	• Strict control to avoid spills; surround plant area with a ditch with a settling pond/ oil trap at the outlet; provision for adequate clean up	
	• Cutting down trees to use as fuel wood for heating bitumen	• Strictly prohibit use of fuel wood for heating bitumen	
	• Effect on traffic and pedestrian safety	• Employ traffic control measures and limit possible disruption to non-construction traffic	
Rehabilitation of Substations	• Possible PCB contamination from dismantling of old transformers with PCB	• Treat PCB of old transformers following specified methods (e.g. dehalogenation, electrochemical oxidation, etc.)	Contractor (Monitoring by KETRACO
Construction/ Rehabilitation of Transmission Line			
Installation of poles of transmission / distribution lines adjacent to roadways	• Traffic congestion/ traffic problems • Safety	• Not storing electric poles/transmission tower components over busy roads/ highways • Following standard safety protocols while erecting poles and stretching cables • Taking appropriate protective measures against accidental fall from elevated height (e.g. using body harness, waist belts, secured climbing devices, etc.)	Contractor (Monitoring by KETRACO
Construction of power line through natural habitat or tree plantation area	• Impact on biodiversity, vegetation and habitat	• If there's no alternative, felling, pollarding, lopping and pruning of trees for electric clearance, whenever necessary, to be done with permission from the local forest office/appropriate authority; • Hand clearing of vegetation • Strict prohibition on use of chemicals for forest clearance/Row maintenance. • Use of existing path/access roads for movement of man and machinery; • Carrying tower materials into forests by head loads	Contractor (Monitoring by KETRACO)

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
Construction of Sub Station			
Tower foundation in rivers	• Impact on fisheries and other aquatic life in rivers	• Installation of underwater enclosures to minimize noise propagation • Use signage and construction of fender(if necessary)	Contractor (Monitoring by KETRACO)
Soil Erosion and degradation in challenging topography	• Impact of soil erosion and affectation of productive lands along the wayleave especially for mountainous topography.	• Requirement for drains maintenance • Requirement of drains maintenance, especially in mountainous topography of the wayleave in order to avoid soil erosion and affectation of productive lands along the wayleave.	Contractor (Monitoring by KETRACO)

Table 10 "Subproject specific impacts" during operational phase and corresponding mitigation measures

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
Substation			
Operation of drains in the substations	• Pollution of downstream water body	• Stop direction connection from sanitation facilities to storm drain; ensure installation of septic tank in all establishments	KETRACO
	• Blockage in the drain due to disposal of solid waste	• Creation of awareness; improve SWM system, installing cover in open drains/manholes (if any) • Regular maintenance/ cleaning of the drain	
generators and transformers	• Pollution of soils and water (e.g., from spilled oil, spent oil, other waste)	• Restriction on disposal of spent oil, oil contaminates waste and other waste into the environment; creation of awareness • Strict control to avoid spills; provision for adequate clean up spill kits • Procure NEMA authorized hazardous waste handler to collect and management any oil or oil contaminated waste;	KETRACO
Operation of Substation	• Security	• Ensuring security of Substation in collaboration with law enforcing agencies • Keeping complain book at Substation for recording of people's complaints	

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
	• Safety, Health	• Ensuring availability of adequate safety gears at Substations • Keeping clean the conduits used for laying the cables connecting switchgears and transformers with proper drainage provisions to prevent the growth of disease vectors such as mosquitoes and flies	
Management and disposal of old transformers	• Used transformer may contain Polychlorinated Biphenyl which is harmful to the environment and human health	• Storage should be in a building with an adequate roof and walls that is in a location selected to protect the PCBs from the possibility of release. Storage facilities should not be in a flood plain. Leaking equipment should be stored in metal drums with lids. Containment should prevent escape of PCBs into the environment through volatilization and containers should carry PCB marks. • Use of authorized hazardous waste handlers to dispose transformers	KETRACO
Soil Erosion and degradation in challenging topography	• Impact of soil erosion and affectation of productive lands along the wayleave especially for mountainous topography.	• Requirement for drains maintenance • Requirement of drains maintenance, especially in mountainous topography of the wayleave in order to avoid soil erosion and affectation of productive lands along the wayleave.	Contractor (Monitoring by KETRACO)
Transmission Line			

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
Regular maintenance	• Safety	• Regular patrolling along the power lines to identify the need for regular and immediate maintenance operation • Inspection immediately after a major storm/rainfall event • Regular cutting and trimming of trees around power lines • Taking appropriate protective measures against accidental fall from elevated height during regular maintenance operations (e.g. using body harness, waist belts, secured climbing devices, etc.) • Provision for shutting down of line in case of snapping of line • Regular monitoring of power lines to prevent electricity pilferage	KETRACO
Installation of new transformers	• Safety	• Adequate caution should be taken to carry out installation works by personnel at elevated height • Instrument should be properly anchored with poles	KETRACO
Maintenance of transmission lines	• Traffic congestion, obstruction to pedestrian movement, safety • Impact on biodiversity, vegetation, habitat	• Depute flagman for traffic control • Arrange for signal light at night • Following standard safety protocol • Felling, pollarding, lopping and pruning of trees for RoW maintenance to be done with permission from the local forest office/appropriate authority	KETRACO

Activity/Issue	Potential Impact	Proposed Mitigation Measure	Responsible party
Health and Safety	• Safety • Exposure to EMF • Exposure to chemicals • Exposure to electrical hazards from the use of tools and machinery.	• Only allowing trained and certified workers to maintain, or repair electrical equipment • Taking appropriate protective measures against accidental fall from elevated height during regular maintenance operations (e.g. using body harness, waist belts, secured climbing devices, etc.) • Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines; • Proper Personal Protective Equipment (PPE) for all workers and others associated with work. • Training of workers in the identification of occupational EMF levels and hazards • Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure • Use of signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment	KETRACO

8 ENVIRONMENTAL AND SOCIAL SCREENING AND APPRAISAL PROCESS

As the client, the Environmental and Social division of KETRACO will monitor compliance of the project to applicable World Bank Safeguard Operational Policies as well as the international laws and conventions that bear relevance to the implementation KESIP.

KETRACO Environment section will assign a focal person to screen all subproject that it will be implement under component 2 of KESIP. Screening will determine the environmental and social issues that the subproject might trigger, and the type and level of assessment required. For the relevant feasibility-stage safeguard instruments (ESIA and RAP) that will need to be supported under component 3, the ToRs for such Environmental and Social Assessments and RAPs will be prepared to meet the WB Performance Standards applicable to PPP transactions (in line with OP 4.03) and will submitted to the Bank for clearance before being adopted.

KETRACO will identify subprojects, prepare the subproject description, "environmental/social screening" and "analysis of alternatives". The subsequent sections of the ESMF presents guidelines (in the form of a simple format) for the preparation of description of the subprojects. The ESMF also presents a simple format for "environmental and social screening" of subprojects and "analysis of alternatives", to be carried out by the KETRACO. Based on these and other relevant preliminary investigations, KETRACO will assess the sub-project environmental and social risks and the recommend the appropriate environmental and social assessment.

Prior review and clearance requirements for the World Bank regarding ToRs, ESIAs and ESMPs is detailed in the following section.

8.1 PREPARATION OF THE TORS

Senior Environmental officers within KETRACO will prepare draft ToRs ESIAs and ESMPs, and through the KETRACO Project Manager will submit them to the World Bank for review and clearance. Annotated outlines for ESIAs, ESMPs and TOR are annexed. ESMPs should identify and summarize expected subproject environmental and social risks and impacts following mitigation and present measures designed to attain these results, including monitoring and reporting requirements, expected timelines for their implementation, and costs and accountability for the implementation and supervision of the agreed mitigation measures. It should specify the parameters to be monitored, methods to be used, sampling locations, and the frequency of measurements.

8.2 PREPARATION OF THE SAFEGUARD INSTRUMENTS

KETRACO will competitively select consultants to prepare ESIAs and ESMPs for subprojects classified as high risk under the risk classification provided in section 8.5. For subprojects classified as medium and low risk preparation of ESIA's and ESMPs will be done in house by the environmental and social unit of KETRACO. The designated officer within KETRACO will supervise the preparation of the instruments and interact with the consultants. The KETRACO Project Manager will submit draft ESIAs and ESMPs to the World Bank for review, clearance and disclosure.

8.3 IMPLEMENTATION OF SUBPROJECT MITIGATION MEASURES

KETRACO are responsible for implementing measures in ESMPs that are beyond the control of contractors. In addition, subprojects should regularly consult with project affected persons and communities throughout subproject implementation, as necessary, to address safeguards-related issues that affect them.

8.4 SCREENING AND REVIEW PROCESS

The Environmental Specialist and the Social Safeguards specialist assigned into the PIU will coordinate and lead the screening process. They will be assisted with other environmental and social experts in their department. All proposed subproject will be subjected to the screening process to determine and assign them an environmental and social risk rating and further identify potential sensitive environmental and social receptors likely to be negatively impacted. The process will also identify critical issues that might be triggered by the subproject and would need further detailed investigations during environmental and social assessments. This process will also help in advising what safeguards tools (ESIAs, ESMPs, RAPs, ARAPs etc) will be required for the various subprojects. Most importantly, it will help in re-aligning, re-designing and where not possible dropping out sub-projects that have extreme high risk and the potential to negatively impact the environment, natural habitat and forests.

The environmental/social screening would involve: (i) reconnaissance of the subproject areas/routes and their surroundings; (ii) identification of the major subproject activities; and (iii) preliminary assessment of the impacts of these activities on the ecological, physicochemical and socio-economic environment of the subproject surrounding areas. A template form for Environmental and Social Screening for substation and power line are presented in Annex B (Form 2a and 2b). These will be reviewed and updated as needed during the process.

Following publication of legal notice 150 that made amendment to the Act EMCA 1999 by classifying projects under schedule 2 into High risk, Medium risk and low risk making it possible to determine whether a subproject will require a full scale ESIA or a project report.

On 19 August 2016, the Government of Kenya published a special issue gazette (Kenya Gazette Supplement No. 137), which replaces the Second Schedule of the Environmental Management and Coordination Act (No. 8 of 1999) with low, medium and high risk projects that require an Environmental and Impact Assessment (EIA). It is now mandatory that infrastructure projects, including transmission lines require that an EIA be conducted, and therefore a **Screening Inception Note to the NEMA** and **Preliminary Project Report** is no longer required.

The listed projects in schedule 2 must undergo mandatory EIA. EMCA does not provide an exclusion list hence projects not included in Schedule 2 of EMCA need to be subjected to screening in order to determine the type of environmental assessment required to ensure compliance;

Following the screening process, KETRACO will assign each eligible subproject one of the following risk levels.

- **Level 1 - Low risk.**Subprojects that involve works but do not have impacts beyond generic construction impacts. These subprojects will require an ESMP consisting only of a description of the subproject and the Environmental and Social Clauses for contractor. These subprojects might also require an Abbreviated Resettlement Action Plan (ARAP) prepared under the Resettlement Policy Framework to address possible small pieces of temporary or permanent involuntary taking of land during project implementation. These ESMPs will be submitted to the Bank for review and clearance and will be disclosed by both the client and the Bank.

- **Level 2 - Medium Risk.** Subprojects that trigger environmental and social impacts. In addition to the Environmental and Social Clauses for Contractors, these subprojects will require an environmental and social assessment of each of the impacts and will define matching mitigation measures. These subprojects might also require an ARAP. These subprojects will require a set of E&S measures for mitigation and management of impacts and a report in the form of an Environmental and Social Action Management Plan (ESMP) will be prepared. As required by NEMA for medium risk projects the ESMP will also be submitted to NEMA as a "project report" to inform them of the project activities, geographical area and potential impacts of the proposed development. The requirement in terms of content for a PR report is given in section 9.3. These ESMPs and (Project Reports

for NEMA), will be submitted to the Bank for review and clearance and will be disclosed by both the client and the Bank before submission to NEMA for review and licensing. Given KETRACO's current capacity challenge in terms of number and diversity of E&S specialists, they will engage services of an experienced consulting firm with a pool of divers environmental and social specialists to prepare both the Environmental and Social Safeguards tools required for this category of subproject.

- **Level 3 - High Risk.** Subprojects that trigger significant environmental and social impacts. These subprojects will require a full ESIA and detailed ESMP. They might also require an ARAP or a RAP. All the safeguards documents prepared for this category will be submitted to the Bank for review and clearance, and will be disclosed by both the client and the Bank before submission to NEMA for review and licensing. Given KETRACO's current capacity and the nature of environmental and social challenges they may present, they will require diversity of E&S specialists. Consequently, KETRACO will engage an experienced consulting firm with a pool of divers environmental and social specialists to prepare both the Environmental and Social Safeguards tools required for this category of subproject.

ESMF will supplement the categorization of subproject risks using sensitivity criteria. The sensitivity criteria are to be estimated based on the intrinsic environmental and social risk associated with (i) the type of intervention to be carried out (e.g., maintenance, expansion, upgrading, new infrastructure); and (ii) the specific type of infrastructure proposed. Where a single subproject includes multiple types of activities/interventions or infrastructure, the risk rating is assigned based on the highest level of risk applicable for any component of the subproject.

The sensitivity (or vulnerability / importance) of the impacted resource or receptor shall be defined using one of the following designations: **low, medium or high**. As per the magnitude rating, the definition for each designation varies on a resource/receptor basis. Where the resource is physical (for example, a water body) its quality, sensitivity to change and importance (on a local, national, and international scale) are considered.

Where the resource/receptor is biological or cultural (for example a protected area), its importance (for example, its local, regional, national, or international importance) and its sensitivity to the specific type of impact are considered.

Where the receptor is human, the vulnerability of the individual, community or wider societal group is considered

The sensitivity criteria are designed further in the table below.

Category	**Social and Resettlement Sensitivity**				**Environmental Sensitivity**
	Physical and Economic Displacement	**Community Infrastructure and Resources**	**Socio-Economics and Income-Generating / Subsistence Livelihoods**	**Socio-Cultural Characteristics and Intangible/ Living Cultural Heritage**	
High	Dense permanent housing (larger populations) or areas highly significant for livelihoods not available elsewhere.	Substantial or highly significant infrastructures present (school, hospital, medical centre etc.).	Area is essential for principle livelihoods.	Presence of large number / highly sensitive intangible / living cultural heritage sites. E.g. pilgrimage sites, modern tombs, graves or cemeteries or religious buildings.	Landscapes that • feature concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels; *and* • feature ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance; *and*

Category	Social and Resettlement Sensitivity				Environmental Sensitivity
	Physical and Economic Displacement	**Community Infrastructure and Resources**	**Socio-Economics and Income-Generating / Subsistence Livelihoods**	**Socio-Cultural Characteristics and Intangible/ Living Cultural Heritage**	
					• feature rare, threatened, or endangered ecosystems, habitats or refugia.
Medium	Small-medium groups of houses, priority areas used frequently for livelihoods, or businesses potentially requiring economic resettlement.	Some infrastructure presents with some alternatives available.	Area is significant for principle livelihoods.	Individual grave sites.	Landscape features that include ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.
Low	Individual houses or small communities, non-priority areas used for livelihoods.	Some infrastructure present although typically accessed at alternatives sites.	Area is used for livelihoods.	Intangible cultural heritage sites known to be used. E.g. views or landscapes.	Ecologically important areas that do not form part of recognized protected areas
Negligible	No significant human land use for livelihoods / housing.	No significant areas used to collect resources or house infrastructure.	Area only occasionally used for livelihood activities.	No significant culturally- sensitive areas.	Other areas not considered sensitive.

Analysis of Alternatives

A designated officer within KETRACO will carry out screening for all proposed alternative sites for substations and routes of the power line based on the screening form (see annex B). Then, utilizing the information contained in the completed "screening forms (annex B.)", the analysis of alternatives would be carried out by using Form (annex C) Important considerations in analysis of alternatives routes (for new power lines) include avoiding homestead areas, as much as possible; avoiding crossing of rivers as much as possible. If the homestead areas (or other sensitive infrastructure) are not avoidable in any of the options, KETRACO will consult with the owner/respective authority and get their written consent/permission for the construction of transmission/distribution lines in. On the other hand, use of a government-owned land for construction of a new substation would significantly reduce adverse socio-economic impacts. If that is not possible, efforts should be made to avoid ecologically or socially critical areas for construction of substation.

The primary objective of the "analysis of alternatives" is to identify the location/technology for a particular subproject that would generate the least adverse impact and maximize the positive impacts. The analysis of alternatives should be carried out at two different levels: (a) by KETRACO along with environmental/social screening; and (b) during carrying out of ESIA of a subproject, if needed (e.g., by the consultant engaged for this purpose).

In general, for any subproject, the analysis of alternative should focus on:

- Alternative location (for substation) or route (for power line);
- Alternative design and technology;
- Costs of alternatives; and
- No subproject scenario.

Subsequently, if a particular subproject requires further environmental assessment (ESIA), the analysis of alternatives should be carried out in more details (by the consultant engaged for this purpose), including quantitative estimates for some parameters (e.g., cost of different technologies). Based on the outcome of this detailed "analysis of alternatives", the subproject location/route, technology may have to be modified.

9 SUBPROJECT ESIA AND ESMP

Depending on the type of environmental and social impacts, KeTRACO will be required to undertake environmental and social due diligence according to the guidance in the ESMF, the Resettlement Policy Framework, and the Indigenous Peoples Planning Framework.

All subprojects will be submitted to a screening process and depending on the risk ratting assigned, the appropriate safeguards documents will be prepared to manage the anticipated impacts. All the resultant documents will be submitted to the world Bank for review and clearance in line with the below E&S requirements for each risk category:

9.1 ENVIRONMENTAL ASSESSMENT

For Level 1 – Low Risk sub-projects: no further environmental due diligence necessary.

For Level 2 – Medium Risk sub-projects: a set of E&S measures for mitigation and management of impacts will be attached in the form of a Detailed Environmental and Social Management Plan (ESMP). As required for medium risk projects the ESMP will also be presented to NEMA as a project report to inform them of the project activities, geographical area and potential impacts of the proposed development. The requirement in terms of content for a Project Report (PR) is given in section 9.3. The ESMP will require the World Bank review and clearance whilst the and Project report will require NEMA review and issuance the ESIA License.

For Level 3 – High Risk sub-project: KeTRACO is required to undertake an ESIA study in order to obtain an environmental permit from NEMA and to get World Bank No Objection to ESIA TOR and draft ESIA. KeTRACO will prepare the ESIA and submit it to NEMA and the World Bank for review and approval/no objection. Figure 1 describes the national EIA process.

- For land acquisition and/or resettlement: verification of land tenure will be attached to the Detailed Application. Any sub-projects that would cause any other form of resettlement as defined in the Resettlement Policy Framework should submit a Resettlement Action Plan as part of the Detailed Application.
- Indigenous Peoples: if project screening indicates that Indigenous Peoples would be affected by the sub-project (positively or negatively), the Applicant should prepare a Vulnerable People's Development Plan.

9.2 PREPARATION OF ESIA'S

The major activities to be carried out for ESIA include: (i) identification of subproject influence area; (ii) establishment of "baseline environment", against which impacts of the proposed subproject would be evaluated; (iii) analysis of alternatives; (iv) identification of major subproject activities during both construction and operational phases; (v) assessment, prediction and evaluation of impacts of major project activities on the baseline environment; (vi) carrying out public consultations and (vii) identification of mitigation measures and preparation of environmental management plans (EMP) including monitoring requirements, and social management framework (SMF) including resettlement policy framework, and grievance redress mechanism. The ESMF presents detail guidelines for carrying out each of these major activities.

9.3 PREPARATION OF PROJECT REPORTS (PRS)

Project Reports (PRs) are prepared as a means of informing NEMA of the activities, geographical area and potential impacts of the proposed development. A PR would give a description of the project, baseline information of project area, potential impacts and mitigation measures associated with the project. Preparation of a PR will be the responsibility of the proponent who would hire a NEMA registered expert for this purpose. After receipt of the project report NEMA shall send copies of the

report to Lead Agencies with interest in the proposed project and give them 21 days to comment on the report. Upon expiry of this period NEMA compliance officers shall visit the proposed project site, interview the proponents and stakeholders, and assess the project's impacts in view of their observations at the site and the concerns raised by stakeholders. After review of the report NEMA can approve the proposed project and issue an ESIA/EIA license or advise for an ESIA study to be undertaken within 30 days from the time of submission of the report.

The Environmental Management and Coordination Act (EMCA) require that all subprojects be subjected to a review and screening process in order to determine whether an ESIA is necessary or otherwise. Subprojects will each need to be reviewed independently for potential environmental and social impacts.

KESIP will not provide support until (i) the applicant has presented the WB with a certified copy of the positive conclusion of the relevant national authority or - as the case may be - the World Bank determines that no further environmental review is required, and (ii) the World Bank has reviewed and cleared the environmental documentation and issued its formal no objection.

Consultation and Disclosure Requirements

For each subproject, the designated officer within KETRACO will organize consultations with individuals and communities that might be affected by the subproject. The purpose of the consultations will be to: (i) inform them about the activities to be undertaken, their timetable and possible impacts, and; (ii) document and address their concerns. Consultation summaries should be included in safeguard instruments, including who was consulted, where and when, what concerns were expressed, and how these concerns were addressed. The records of consultations are kept in the Project Office. These consultations should be initiated as early as possible, as soon as subproject screening has been completed. Subprojects classified as HIGH risk will carry out at least three participation process, and subprojects classified as MEDIUM and LOW risk will carry out at least two participation process as per the requirement of Kenya's environmental legislations.

Provisions and specifics for consultations, including budgets, will be included in the relevant ToRs and subsequent safeguards documents.

In addition to the environmental documentation requirements described above, World Bank Operational Policy 4.01 (paragraphs 15 and 16), and the WB Policy on Access to Information stipulates that the following consultation and disclosure requirements be utilized for all Category A subprojects:

During the EA process, the applicant shall consult groups affected by the subproject and local NGOs about the subproject's environmental and social aspects and take their views into account. The applicant shall initiate such consultations as early as possible. Consultations with stakeholders should take place only once after a draft EA report is prepared. In addition, the applicant shall consult with such groups throughout project implementation as necessary to address EA-related issues that affect them.

For meaningful consultations, the applicant shall apply the following disclosure requirements:

- The applicant shall provide relevant material in English and/or the local language (as appropriate) in a timely manner prior to consultation;
- The applicant shall make the draft ESIA/EIA report including a detailed summary of the ESIA/EIA conclusions available at a public place accessible to groups affected by the subproject and local NGOs.

Table below illustrates the typical process and time taken to process an PR through NEMA as per Legal Notice 101 of EMCA. The statutory review period is maximum 30 days effective the date of receipt of a Project Report by NEMA.

Steps	Action	Actor	Time requirement
1	Preparation and submission of PR to NEMA. NEMA receives EPR, issues a receipt and acknowledgement.	KESIP, EIA Expert	Depends on Complexity of Project, may take 10-15 days
2	NEMA sends copies of PR to Lead Agencies for comments	NEMA	7 days assuming all requirements are fulfilled
3	Lead agencies review PR and issue comments	Lead Agencies	15 days (minimum) after receipt of PR from NEMA.
4	Review of PR by NEMA	NEMA	Within 20 days of PR receipt
5	Communication of findings from NEMA review to KETRACO	NEMA	Within 30 days of PR receipt

Typical outcomes of review of Project Reports from NEMA are likely to be as follows:

Where NEMA and Lead Agencies ascertain that a project report has disclosed adequate mitigation for identified impacts, NEMA would issue an EIA License authorizing the project to proceed. The license would specify conditions to be met by the proponent for during construction and operation of the project. Typical conditions include:

Period after issuance of license within which the subproject must commence, usually 24 months;

The proponent must seek written approval from NEMA for any operational changes; The period after commencement of the project within which the proponent should undertake an Environmental Audit and submit an EA report to NEMA;

NEMA to take appropriate action against the proponent in the event of breach of any of the conditions of EIA license.

If the PR does not disclose adequate mitigation measures or that the project has significant irreversible environmental and social impacts the proponent will be required to undertake an ESIA study. NEMA will write to the proponent to undertake scoping, prepare Terms of Reference (ToR) for ESIA study and submit these for approval prior to commencement of the study.

9.4 ESIA STUDY

The stages in preparation of an ESIA/EIA Study report are as follows:

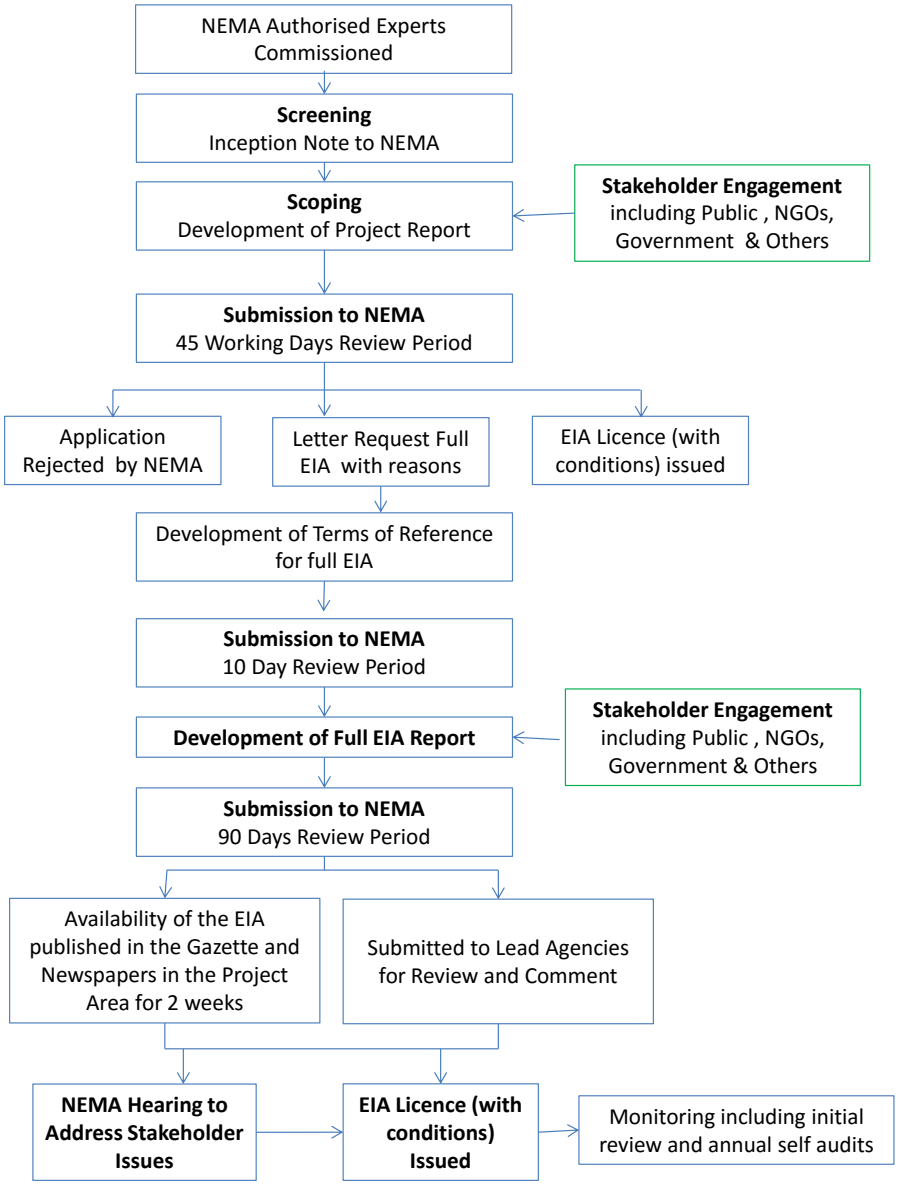


Figure 1: stages in preparation of an ESIA/EIA Study

Scoping Report

Scoping provides a mechanism for consulting with NEMA and Lead Agencies and agreeing on the content and methodology of EIA at an early stage in the process. Key objectives of preparing a scoping report are to:

- Give a project description and its area of influence;
- Identify the topics and issues to be addressed in the EIA;
- Define the approach and methodologies for conducting baseline studies;
- Define the approach to and methodologies for predicting environmental impacts and for evaluating the significance and severity of environmental effects;
- Identify the methods to be adopted for incorporation of mitigation measures and other environmentally driven modifications into the project;
- Define the consultation strategy to be applied during the EIA process;
- Seek comments from key stakeholders on the scope of the EIA, the approach and work plan.

The Scoping Report will therefore contain a description of project site and project activities, methodology and scope of EIA, the composition of the EIA team (including their experience and field of expertise), project budget and timelines.

ESIA/EIA Study Report

Upon review and approval of the Scoping Report, NEMA will advise that an ESIAEIA Study be undertaken. The ESIA Study will entail a systematic investigation of all impact areas as identified in the scoping report, and will entail the following:

- Project Description: A description of key components of the proposed project, the implementing agents, a brief history of the project and its justification;☒Baseline information:
- Baseline environmental information comprising physical, biological and socio-economic conditions of the site to be assembled and evaluated;
- A description of the pertinent legislation, regulations and standards, as well as environmental policies applicable to the proposed project and the appropriate authority jurisdictions;
- Identification of impacts related to project elements and an analysis of severity and duration of impacts;
- Prescription of mitigation measures and development of an environmental management plan to neutralize the effects of negative impacts;
- Development of a monitoring plan to ensure that the proposed mitigation measures are implemented and the desired remediation effects achieved;☒
- Public consultation and documentation of stakeholder views.

All the information gathered will be compiled into an ESIA/EIA Report prepared in the same format as the PR and submitted to NEMA headquarters for review and decision making. The review process will entail advertising of the project in the media and may include a public hearing meeting. The review period may take a maximum of 90 days.

Public Review of the ESIA/EIA Report

Upon review of the ESIA/EIA report, NEMA will prepare a summary of the report and advertise it in the press for public review. The purpose of this is to allow all stakeholders to read and understand how they would be affected by the project. The public review period lasts a minimum of 60 days. After expiry of the public review period, NEMA will collate the comments submitted from the public and hand them over to the proponent highlighting which key issues require to be addressed. The proponent in liaison with the ESIA/EIA expert will prepare written responses either into an additional chapter or an addendum to the ESIA report. This chapter will clearly explain how each of the comments and concerns raised by the public have been addressed and resolved.

Once NEMA is satisfied that the revised ESIA/EIA Study report addresses all the issues raised by stakeholders it would issue an ESIA/EIA license.

World Bank safeguard policies require that environmental reports for projects are made available to project affected groups, local NGOs, and the public at large. Public disclosure of EIA reports is also a requirement of the national EIA procedures in line with the provisions of EMCA, 1999 as elaborated in the Environmental Impact Assessment and Audit Regulations, 2003.

Disclosure of EIA study reports prepared in line with EMCA provisions should follow the same procedure. EMCA does not require disclosure of final environmental project reports. However, in order to meet WB disclosure requirements, environmental project reports (PRs).

The approved version of the report should be posted at NEMA websites as well as WB Info Shop to ensure all interested parties can access it.

9.5 PREPARATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The preparation of an ESMP should include the following key sections:

Summary of Impacts:

Anticipated adverse environmental impacts should be identified and summarized as well as their relationship to social impacts and the appropriate mitigation measures.

Description of Mitigation measures

The mitigation measures proposed for the various impacts should be described in relation to the corresponding impacts while stating the conditions under which they are required. Adequate description of the consultations should be done and justified.

Description of monitoring program

A detailed monitoring program should be described in the ESMP, listing environmental performance indicators and their link with impacts and mitigation measures. The ESMP should also describe the parameters to be measured, methods to be used, sampling location and frequency of measurements, detection limits and a clear definition of thresholds that indicate the need for corrective measures. Monitoring and supervision schedules should be clearly stated and agreed with the Bank to ensure timely detection of needs for remedial action and also provide information on the level of compliance with ESMP in accordance with Bank safeguards.

Legal requirements and bidding/contract documents

The ESMP should be incorporated in all legal documents to enforce compliance by all contractors participating in the project. The ESMP should be summarized and incorporated in the bidding and contract documents. In the event where the subproject ESMPs are not ready by the time of bidding, the generic ESMP for such a project will be used for bidding.

Institutional arrangements

The ESMP should clearly state who is responsible for monitoring, execution of remedial action and the reporting order and format to allow for a defined channel of information flow. It should also recommend institutional strengthening for relevant agencies and the funding authorities for the various activities.

Capacity Development and Training

To support timely and effective implementation of environmental project components and mitigation measures, the ESMP draws on the EA's assessment of the existence, role, and capability of environmental units on site or at the ministry level. If necessary, the ESMP recommends the establishment or expansion of such units, and the training of staff, to allow implementation of EA recommendations. Specifically, the ESMP provides a specific description of institutional arrangements i.e. who is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental management capability in the agencies responsible for implementation, most ESMPs cover one or more of the following additional topics: (a) technical assistance programs, (b) procurement of equipment and supplies, and (c) organizational changes.

Implementation Schedule

The frequency, timing and duration of mitigation measures and monitoring should be stated in the implementation schedule. Links between mitigation measures and development of relevant institutions and legal requirements of the project should be stated.

Reporting

The order of information flow as it concerns monitoring reports should be clearly defined. The relevant officers to receive these reports should be those who have authorities to facilitate implementation of the results of the monitoring. These reports should also be communicated to the Bank via media to be

agreed and specified in the ESMP. Adequate arrangements should be made by the Bank to facilitate the circulation of the ESMP through the selected means.

Cost estimate

The cost of carrying out monitoring and implementation of the mitigation measures at the various stages of the project should be integrated into the total cost of the project and factored into financial negotiations. These costs should include administrative, design and consultancy, operational and maintenance costs – resulting with meeting required standards and project design.

10 MONITORING AND REPORTING

This section will detail the procedures to monitor the implementation of subproject ESMPs during subproject implementation, including the compliance of contractors with their Contractor ESMPs. It will describe monitoring schedules and accountability, the types of reports, who reports, who gets the reports, when and how frequently reports are prepared, the management of corrective actions, and define a set of standard indicators that will reported on. The same set of indicators will be included in every subproject ESMP.

KETRACO will monitor the overall implementation of the ESMF, most particularly the:

- timely preparation of environmental and social screening forms for all subprojects (list of subprojects by risk category by date)
- timely preparation and clearance of subproject ESIAs and ESMPs, as needed (list of instruments with dates)
- management of prior review requirements of the World Bank (non-objection requests with dates)
- monitoring of ESMP implementation, including monitoring of mitigation measures and monitoring of contractors environmental and social performance (indicators)
- training of project staff, and contractors (list of persons, dates and places)

KETRACO will prepare:

- quarterly reports summarizing monitoring results, to be included in the Project's Quarterly Reports to the World Bank
- reports that aggregate and analyse monitoring results ahead of regular World Bank implementation support missions
- an annual evaluation of all environmental and social monitoring activities, which will be submitted to the World Bank as part of overall project implementation reporting

KETRACO will establish, maintain, and update a database of subprojects that will include for each subproject:

- type of subproject, name of subproject
- safeguards risk level
- timeline (clearance of screening form, clearance of ToRs, clearance of safeguard instruments)
- supervision reports during implementation
- contractor reports
- noncompliance by contractors
- cross references to the Grievance Redress Mechanism's log of complaints.

Monitoring of Contractors

KETRACO will monitor and document (including pictures) contractor environmental and social performance for each subproject throughout construction. This will involve both spot check visits to work locations, and reviews of records kept by the contractor and of reports submitted by the contractor.

The frequency of site visits should be commensurate with the magnitude of activities and their associated environmental and social impacts, but should be at least once a month for all subprojects at least once a month. Sites where serious accidents are recorded should be visited within one working day of the accident.

Each visit and interaction with a contractor should be documented in the database, including identification of contractor noncompliance, the significance of the non-compliance, and guidance provided on actions to be taken. KETRACO will follow up as needed to ensure timely resolution of issues of noncompliance with environmental and social clauses. This may include additional visits to the contractor's site or offices, further communications with contractor personnel, issuance of notices

of deficiency or warnings to the contractor, and other actions as needed (see the chapter on environmental and social clauses for contractors).

At any stage of construction or other work, if the contractor has not taken appropriate action to achieve compliance with the environmental and social clauses after repeated notices of violation and warnings of noncompliance, and significant environmental or social impacts are occurring or imminent, KETRACO should order the contractor to stop work until environmental and social performance is brought under control and up to acceptable standards.

Completion Reports

Upon completion of subprojects, KETRACO will prepare a subproject completion report, to identify any unresolved environmental or social, with recommended remedial action. This report will be shared with the Program Manager who will decide the way forward.

For subprojects with significant environmental or social impacts, the completion report might recommend periodic routine inspections/monitoring during operation of the facility by dedicated environmental and social specialists.

ENVIRONMENTAL AND SOCIAL CLAUSES FOR CONTRACTORS

Most environmental and social impacts of subprojects will result from activities directly under the control of contractors and will be mitigated directly by the same contractors. For the majority of subprojects, the ESMP will consist solely of measures implemented by subcontractors. As a consequence, ensuring that contractors effectively mitigate construction related impacts is the core of the Project's mitigation strategy. This will be done by ensuring that the environmental and social management of construction activities are mandatory parts of construction works contracts.

KETRACO will incorporate standardized environmental and social clauses in tender documentation and contract documents, so that potential bidders are aware of environmental and social performance requirements expected from them, are able to reflect that in their bids, and required to implement the clauses for the duration of the contract. KETRACO will enforce compliance by contractors with these clauses.

The clauses cover four issues:

1. Environment, Health and Safety (EHS)
2. Environmental and social monitoring by contractor
3. Environmental and social liabilities
4. Grievance mechanism for workers

These clauses will also be referred to in all subproject ESMPs. Subproject ESMPs will also specify any training required for contractors to understand and satisfactorily meet the Project's environmental and social requirements.

10.1 ENVIRONMENT, HEALTH AND SAFETY

The purpose of the environment, health and safety (EHS) clauses for contractors is to define minimum standards of construction practice acceptable to KETRACO. ESHS clauses will be included in the bidding documents and contracts to be executed to obligate the contractor to comply with the ESMF, RPF, VMGP, ESMPs, CESMPs and the WBG Environmental, Health, and Safety (EHS) Guidelines (General and Specific Guidelines for Electric Power Transmission and Distribution).

EHS Supervisor

In addition of Contractor's general arrangement to carry out the project works, the Contractor must hire at least one environment, health and safety supervisor on a full time basis for each subproject before the commencement of work. The Contractor/Subcontractor shall abide by the rules of regulation of the Occupational Health and Safety as stipulated in the OSHA 2007 and the WBG Environmental, Health, and Safety (EHS) Guidelines (General and Specific Guidelines for Electric Power Transmission and Distribution). The contractor shall also abide by the clauses of health and safety in General Conditions and Particular Conditions of Contract of the bid document.

Role of environment, health and safety supervisor

Primary role is to monitor the movement of people, workers and equipment, give timely warnings of any risk or non-compliance with safe work procedures and, where necessary, stop work if a risk situation escalates or cannot be minimized as well as look the potential environmental issues (air pollution, noise level, water quality, waste management etc.).

The tasks of environment and safety supervisor include the following:

- Ensure first aid facilities and personal protective equipment (PPE) for workers at the sites
- Provide orientation to workers before start of the subproject activities.
- Warn the workers of any imminent or deteriorating risk situation that could result in an accident, and instruct when it is safe to proceed

- Ensure restrain from undertaking any other tasks that may distract the workers focus on the work, mainly, work on or near live overhead conductors, work on transmission and communication towers.
- Stop the work, if necessary safety would not be ensured
- Pause the work while the safety observer changes position.
- Ensure special safety during elevated work platform work or crane operations on or near live conductors.
- Ensure proper collection and disposal of solid wastes within the construction site.
- Ensure proper infrastructure facilities, water supply and sanitation facilities for all workers.

The contractor will prepare a monitoring report on environment and safety for each subproject at every month during the construction/rehabilitation of transmission line or substation.

General Environmental and Social Clauses

KETRACO will incorporate environmental and social clauses in tender documentation and contract documents, so that potential bidders are aware of environmental and social performance requirements expected from them and are able to reflect that in their bids. KETRACO will enforce compliance by contractors with these clauses.

These clauses will be referred to in all subproject ESMPs. Subproject ESMPs will also include any training required for contractors to understand and satisfactorily meet the Project's environmental and social requirements.

The following set of clauses will be included in the tender documentation

1. General environmental and social clauses
2. Environmental and social monitoring by contractor
3. Environmental and social liabilities

Contractor Environmental and Social Management Plan

Prior to starting construction, the contractor must prepare and submit a Contractor Environmental and Social Management Plans (CESMPs) to the OE or supervision engineer (representing KETRACO) for review and acceptance. The CESMPs will provide a detailed explanation of how the contractor will comply with the project's safeguard documents such as the ESMP, and demonstrate that sufficient funds are budgeted for that purpose. The CESMPs will include specific mitigation measures based on the ESMP, the final design, the proposed work method statements, the nature of the project site, etc. They will also be informed by the work risk assessment and impacts identified by the ESIAs study. Primarily the C-ESMP will include but not limited to:

- Labour Influx Management Plan;
- Workers' Camp & Accommodation Management Plans (if contreactor retains a construction camp);
- Gender-Based Violence action plan including an Accountability and Response Framework
- Stakeholders Engagement and Communication Plan,
- Emergency Response Plan,
- Waste Management Plan,
- Occupational Health and Safety Management Plan,
- Air Quality and Dust Management Plan,
- Water Resources Management Plan,
- Noise and Vibration Management Plan,
- EHS Code of Conduct and
- A working and accessible Grievance Redress Mechanisms.
- Chance find management plan etc

Gender based Violence

The contractor must address the risk of gender-based violence, through:

i) mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women;
ii) informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted;
iii) introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination)
iv) adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence.

Child Labor

Contractors must not employ workers below the age of 18.

Labor influx

Where contractors and labor come from outside the local area, contractors will need to maintain labor relation relations with local communities through labor codes of conduct.

Roads

In order to carry out the construction works, it may be necessary to close or divert certain specified roads, either permanently or temporarily during the construction period. The contractor should arrange diversions for providing alternative route for transport and/or pedestrians.

After breaking up, closing or otherwise interfering with any street or footpath to which the public has access, the Contractor shall make such arrangements as may be reasonably necessary so as to cause as little interference with the traffic in that street or footpath during construction of the construction works as shall be reasonably practicable.

Wherever the construction works interfere with existing public or private roads or other ways over which there is a public or private RoW for any traffic, the Contractor shall construct diversion ways wherever possible.

Movement of Trucks and Construction Machinery

The Contractor moving solid or liquid construction materials and waste shall take strict measures to minimize littering of roads by ensuring that vehicles are licensed and loaded in such a manner as to prevent falling off or spilling of construction materials and by sheeting the sides and tops of all vehicles carrying mud, sand, other materials and debris. Construction materials should be brought from registered sources in the area and debris should be transferred to assigned places in the landfill with documented confirmation.

Traffic Safety Measures

The Contractor shall provide, erect and maintain such traffic signs, road markings, barriers and traffic control signals and such other measures as may be necessary for ensuring traffic safety around the construction site.

The Contractor shall not commence any work that affects the public motor roads and highways until all traffic safety measures necessitated by the work are fully operational.

Access across the Construction Site and to Frontages

In carrying out the construction works, the Contractor shall take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of the adjacent properties, and to the public generally. The Contractor shall maintain any existing RoW across the whole or part of the construction site and public and private access to adjoining frontages in a safe condition and to a standard not less than that pertaining at the commencement of the contract. If required, the Contractor shall provide acceptable alternative means of passage or access to the satisfaction of the persons affected.

Noise and Dust Control

The Contractor shall take all practicable measures to minimize nuisance from noise, vibration and dust caused by heavy vehicles and construction machinery.

This includes:

- respecting normal working hours in or close to residential areas
- maintaining equipment in a good working order to minimize extraneous noise from mechanical vibration, creaking and squeaking, as well as emissions or fumes from the machinery
- shutting down equipment when it is not directly in use
- using operational noise mufflers
- Provide a water tanker, and spray water when required to minimize the impact of dust
- limiting the speed of vehicles used for construction

Waste Disposal

The Contractor must agree with the municipality about arrangements for construction waste disposal. The municipality shall designate a dumping site or landfill for the disposal of solid waste.

The contractor will take measures to avoid soil and groundwater contamination by liquid waste.

Protection of the Existing Installations

The Contractor shall properly safeguard all buildings, structures, works, services or installations from harm, disturbance or deterioration during the construction period. The Contractor shall take all necessary measures required for the support and protection of all buildings, structures, pipes, cables, sewers and other apparatus during the concession period, and to repair any damage occurs in coordination with Municipality and concerned authorities.

Protection of Trees and Other Vegetation

The Contractor shall avoid loss of trees and damage to other vegetation wherever possible. Adverse effects on green cover within or in the vicinity of the construction site shall be minimized. The contractor will restore vegetative cover, where feasible.

Physical Cultural Resources

The contractor will train construction crews and supervisors to spot potential archaeological finds. In the event of a potential find, the contractor will inform KETRACO who will in turn liaise with the archaeological department at the Ministry of Culture, or a local university for quick assessment and action.

Clearance of Construction Site on Completion

The Contractor shall clear up all working areas both within and outside the construction site and accesses as work proceeds and when no longer required for the carrying out of the Construction works. All surplus soil and materials, sheds, offices and temporary fencing shall be removed, post holes filled and the surface of the ground restored as near as practicable to its original condition.

Worker Health and Safety

To avoid work related accidents and injuries, the contractor will:

- Provide occupational health and safety training to all employees involved in works
- Provide protective masks, helmet, overall and safety shoes, safety goggles, as appropriate
- Provide workers in high noise areas with earplugs or earmuffs
- Ensure availability of first aid box
- Provide employees with access to toilets and potable drinking water
- Train workers regarding the handling of hazardous materials
- Store hazardous materials as per the statutory provisions of occupational health and safety act of 2007???

Site Construction Safety and Insurance

Further to enforcing the compliance of environmental management, contractors are responsible on providing insurance for construction labors, staff attending to the construction site, citizens for each subproject, the insurance requirements and clauses are stated in the bidding documents complying to the labor law.

10.2 ENVIRONMENTAL AND SOCIAL MONITORING BY CONTRACTORS

KETRACO will require that contractors monitor, keep records and report on the following environmental and social issues for their subproject:
The following list should be used in a manner proportional to the size, risk and impacts of each subproject.

i. Safety: hours worked, recordable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, and so forth).
ii. Environmental incidents and near misses: environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned.
iii. Major works: those undertaken and completed, progress against project schedule, and key work fronts (work areas).
iv. E&S requirements: noncompliance incidents with permits and national law (legal noncompliance), project commitments, or other E&S requirements.
v. E&S inspections and audits: by contractor, engineer, or others, including authorities—to include date, inspector or auditor name, sites visited and records reviewed, major findings, and actions taken.
vi. Workers: number of workers, indication of origin (expatriate, local, nonlocal nationals), gender, age with evidence that no child labor is involved, and skill level (unskilled, skilled, supervisory, professional, management).
vii. Training on E&S issues: including dates, number of trainees, and topics.
viii. Footprint management: details of any work outside boundaries or major off-site impacts caused by ongoing construction—to include date, location, impacts, and actions taken.
ix. External stakeholder engagement: highlights, including formal and informal meetings, and information disclosure and dissemination—to include a breakdown of women and men consulted and themes coming from various stakeholder groups, including vulnerable groups (e.g., disabled, elderly, children, etc.).
x. Details of any security risks: details of risks the contractor may be exposed to while performing its work—the threats may come from third parties external to the project.
xi. Worker grievances: details including occurrence date, grievance, and date submitted; actions taken and dates; resolution (if any) and date; and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report.
xii. External stakeholder grievances: grievance and date submitted, action(s) taken and date(s), resolution (if any) and date, and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report. Grievance data should be gender-disaggregated.
xiii. Major changes to contractor's environmental and social practices.
xiv. Deficiency and performance management: actions taken in response to previous notices of deficiency or observations regarding E&S performance and/or plans for actions to be taken—these should continue to be reported until KETRACO determines the issue is resolved satisfactorily.

10.3 ENVIRONMENTAL AND SOCIAL LIABILITIES OF CONTRACTORS

Contractors will be legally and financially accountable for any environmental or social damage or prejudice caused by their staff, and thus are excepted to put in place controls and procedures to manage

their environmental and social performance. A breakdown for the cost of noncompliance for each mitigation measure will be enclosed in bidding documents. These will include:

- Mitigation measures to be included in the contract will be specified in the subproject ESMP
- Deductions for environmental noncompliance will be added as a clause in the Bill of Quantities (BOQ) section
- Environmental penalties shall be calculated and deducted in each submitted invoice
- Any impact that is not properly mitigated will be the object of an environmental/social notice by KETRACO
- For minor infringements and social complaints, an incident which causes temporary but reversible damage, the contractor will be given a notice to remedy the problem and restore the environment. No further actions will be taken if the Project engineer confirms that restoration is done satisfactorily.
- For social notices, the Project engineer will alert the contractor to remedy the social impact and the follow the issue until solved. If the contractor does not comply with the remediation request, work will be stopped and considered under no excused delay
- If the contractor hasn't remedied the environmental impact during the allotted time, the Project engineer will stop the work and give the contractor a notification indicating a financial penalty according to the non-complied mitigation measure that was specified in the bidding document.
- No further actions will be required if the Project engineer sees that restoration is done satisfactorily. Otherwise, if Contractor hasn't remedied the situation within one day any additional days of stopping work will be considered no excused delay.
- Environmental notifications issued by the Project engineer might include one or more environmental penalty.
- In the event of repeated noncompliance totaling 5% of the contract value, the Project Engineer will bring the environmental and social notices and the deduction history to KETRACO procurement in order to tack a legal action.

10.4 GRIEVANCE MECHANISM FOR WORKERS

Contractors will put in place a Grievance Mechanism for their workers that is proportionate to their workforce, according to the following principles[5]:

- ***Provision of information.*** All workers should be informed about the grievance mechanism at the time they are hired, and details about how it operates should be easily available, for example, included in worker documentation or on notice boards.
- ***Transparency of the process***. Workers must know to whom they can turn in the event of a grievance and the support and sources of advice that are available to them. All line and senior managers must be familiar with their organization's grievance procedure.
- ***Keeping it up to date.*** The process should be regularly reviewed and kept up to date, for example, by referencing any new statutory guidelines, changes in contracts or representation.
- ***Confidentiality.*** The process should ensure that a complaint is dealt with confidentially. While procedures may specify that complaints should first be made to the workers' line manager, there should also be the option of raising a grievance first with an alternative manager, for example, a human resource (personnel) manager.
- ***Non-retribution.*** Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal.
- ***Reasonable timescales.*** Procedures should allow for time to investigate grievances fully, but should aim for swift resolutions. The longer a grievance is allowed to continue, the harder it can be for both sides to get back to normal afterwards. Time limits should be set for each stage of the

[5] Based on Annex D of the Guidance Note for IFC's Performance Standard 2.

process, for example, a maximum time between a grievance being raised and the setting up of a meeting to investigate it.

- ***Right of appeal***. A worker should have the right to appeal to KETRACO or national courts if he or she is not happy with the initial finding.
- ***Right to be accompanied.*** In any meetings or hearings, the worker should have the right to be accompanied by a colleague, friend or union representative.
- ***Keeping records***. Written records should be kept at all stages. The initial complaint should be in writing if possible, along with the response, notes of any meetings and the findings and the reasons for the findings.
- ***Relationship with collective agreements.*** Grievance procedures should be consistent with any collective agreements.
- ***Relationship with regulation.*** Grievance processes should be compliant with the national employment code.

11 STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

The purpose of Stakeholder Consultation and Information Disclosure Mechanism is to:

- Inform: Promote stakeholder understanding of issues, problems, alternatives, opportunities and solutions through balanced and objective information sharing;
- consult: To obtain feedback and acknowledge concerns and aspirations of stakeholders on analysis, alternatives, and decisions with regard to KESIP projects;
- Engage: Work directly with stakeholders to ensure that their concerns and aspirations are understood and considered and to assure them that their concerns / aspirations would be directly reflected in the developed alternatives; and that feedback will be provided on how their input influenced the final decision.
- Empower: Make stakeholders partners in each aspect of the decision, including development of alternatives and identification of preferred solution so as to ensure ownership of subprojects at grassroots level.

11.1 STAKEHOLDER CONSULTATION

KETRACO organized an interagency consultation meeting on 22nd February 2018 with institutional stakeholders including the Kenya Wildlife Service (KWS), the National Museums of Kenya (NMK), the Kenya Forestry Service (KFS), the Kenya Civil Aviation Authority (KCAA; for civil aviation security), the National Environment Management Agency (NEMA), and the representatives from County Governments, NGO, CBOs and indigenous communities.

The objectives of the consultation was to disclose information on KESIP and disclose the draft safeguard document to relevant stakeholders, particularly the communities affected and to provide opportunity to the stakeholders to voice their opinions and concerns on different aspects of the project.

The opinions and suggestions of the stakeholders would assist in taking appropriate decisions for effective environmental management of the components. It would help facilitate and streamline decision making whilst fostering an atmosphere of understanding among individuals, groups and organizations, who could affect or be affected by the subprojects.

A record of stakeholders consulted, a summary of the feedback received and a brief explanation of how the feedback was addressed is provided in annex E.

11.2 PUBLIC DISCLOSURE

For projects such as the KESIP, the World Bank procedures require that an ESMF (and RPF) are prepared and publicly disclosed prior to project appraisal. This allows the public and other stakeholders to comment on the possible environmental and social impacts of the project, and for the Appraisal Team to strengthen the frameworks, particularly measures and plans to prevent or mitigate any adverse environmental and social impacts.

Towards this end, this document will be publicly released through the World Bank's InfoShop, and in public locations in Ethiopia prior to project appraisal. The documents should be made available in English in compliance with the World Bank's Public Consultation and Disclosure Policy. ESIAs (and RAPs) for each KESIP-funded Subproject will also be disclosed as part of the public consultation and disclosure process.

12 HANDLING OF PROJECT GRIEVANCES AND COMPLAINTS

12.1 INTRODUCTION

This section describes the overall approach to Project's grievance mechanism, including the role and responsibility of both KETRACO and the contractor.

The overall objective of the grievance redress mechanism is to establish an effective communication channel among the stakeholders for providing a timely and efficient two-way feedback mechanism to address any complaints made about the project, including those from members of the communities, local businesses and other stakeholders, as well as raising public awareness on the projects and on the availability of a grievance redress mechanism. The grievance redress procedure suggests resolution of grievances in the spirit of mediation between the parties, and will comply with the spirit of World Bank and Government of Kenya standards and practices.

KETRACO has put in place and implement a grievance redress mechanism for this project that will build on the Grievance Redress Mechanisms that it has already set up in the context of other projects, which have worked thus far. This GRM will be harmonized with the GRM to be put in place as part of the Project Resettlement Action Plan (RAP) as well as the GRM to be established by the Contractor.

KETRACO GRM will detail the procedures that communities and individuals who believe they are adversely affected by the Project can use to submit their complaints, as well as the procedures that will be put in place to systematically register, track, investigate and promptly resolve complaints.

KETRACO, and its Contractors, will each set up a focal point to handle Project activity-related complaints. Multiple access points (telephone, complaint box, website, email, text message, etc.) should be provided and advertised at subproject level so that beneficiaries have different ways to voice their concerns.

KETRACO will have the overall responsibility to address concerns brought to the attention of the focal points regarding any environmental and/or social impacts due to Project activities. Copies of complaints shall be recorded in the activity files and the progress reports, including the number and type of complaints and the results of their resolution.

12.2 GRIEVANCE REDRESS STEPS

Where to Report Complaints and Grievances

In the project area, several government and non-government agencies are mandated to receive complaints and grievances from the public and they include among others:

a) The Office of the Ombudsman

This office is mandated to investigate the actions of public authorities including State Government departments, prisons, hospitals, schools and technical colleges, local governments, and public universities.

b) Kenya National Human Rights Commission

The mandate of the KNCHR is to enhance the promotion and protection of human rights in Kenya.

c) Ethics and Anti-Corruption Commission (EACC) of Kenya

Ethics and Anti-Corruption Commission gathers information on corruption occurring in Government and the public Sector from a variety of sources which include members of the public, heads of government departments and agencies, officials working in both the public and private sectors and the media.

d) County and Sub-County Offices

These offices promote and facilitate community participation in the development of policies and plans, and delivery of services in the county.

e) Ministry of Interior and Coordination of National Government

This Ministry was created through the executive order No. 2/2013. It is charged with mandates, including; National government coordination at counties; Internal State functions; National Cohesion and Reconciliation Management; Chief Officers within the auspices of the Ministry include:

- the County Commissioners (CCs) and Deputy County Commissioners (DCCs),
- sub-county officers,
- chiefs/assistant chiefs

f) Village Elders, Local Leaders and Politicians

These leaders represent community interests and disseminate them by providing leadership, identification of community concerns and fears and mobilization of the community for individual and community development.

g) Kenya Electricity Transmission Company

KETRACO has customer desk at projects office and at the Headquarters in Nairobi. Complains, comments, suggestions and concerns are received here by trained officers. The officers sort what is received and forward it to relevant officers. This is guided its service charter.

h) National Land Commission

This is the body mandated by law to acquire land for public use. The commission addresses all land acquisition and valuations grievance.

i) Kenya's Dispute Resolution Centre (DRC)

KETRACO could also use the Kenya's Dispute Resolution Centre (DRC), which is an independent, not-for-profit organization that promotes the prompt, effective and economic resolution of disputes through arbitration.

12.3 PROPOSED GRIEVANCE REDRESS MECHANISM

The following action lines will be considered:

- Identifying and engaging key stakeholders both in the community and the project
- Understanding the current environment
- Defining the scope of grievances and
- Determining the purpose and goals of a grievance mechanism.

KETRACO and its contractor will facilitate the community in forming Grievances Redress Mechanism Committees (GRMC) along the road corridor and within the locations that are traversed by the road project.

a) Identifying and engaging key actors in the community and the project

When establishing the grievances redress mechanism, KETRACO and its contractor will identify key stakeholders in the project area and seek for their support in the formation and operationalization of the mechanism. Effective stakeholder assessment will be necessary in order to identify leaders within the community who are trusted by the community. Therefore, people of decision making authority will be identified and approached for such cooperation.

It will also be important to ensure that there is proper representation from different community segments, such as women, youth and people living with disability among others. Such diversity will help in making the GRM be easily understood, assist with communication and educating others on the need and importance of the mechanism.

The process of identifying key stakeholders ensures that different players are committed to the process and that main decision makers a re committed to the process and that they will respond to complaints quickly. Identification of key actors also build trust between the Contractor and the community and allows the parties to engage each other in a constructive manner.

b) Understanding the Current Environment

To understand the type of grievances and complaints existing in the project area, KETRACO and its contractor will undertake an assessment of the grievances that are likely to arise and any existing local methods, procedures, or capacity to handle them.

Understanding the current environment involves visiting the project area and the community frequently to determine what kind of concerns the community have on the project. This step will help in understanding the types of complaints and grievances that are likely to be arise and be addressed.

c) Definition of the Scope of Grievances

To describe the range of the grievances within the project area, it means visiting the community frequently and finding out how people are affected by the daily operations of the project. The interaction of the project and the community forms the basis of scope of grievances and complaints.

d) Determine the on how to respond to grievances and complaints

To address complaints and grievances raised, KETRACO and its contractor will develop a plan or blueprint broken down into the following primary components.

e) Formation of a GRM Committee

The local committee (preferably location) with membership drawn from the identified stakeholders serves best. The core mandate of the committee is to receive complaints and submit them to the concessionaire and KETRACO for resolution.

Local people need a trusted way to voice and resolve concerns linked to a development project, and companies need an effective way to address community concerns. A locally based grievance resolution mechanism provides a promising avenue by offering a reliable structure and set of approaches where local people and the company can find effective solutions together.

- Development of Complaint and Grievances tools

To document people's grievances there is need to develop documents that will accommodate grievances raised. Such documents include:

✓ Complaint Form to be filled and filed by the complainant
✓ Complainants Register that contains all persons who have raised some grievances.
✓ Establishment of complaints collecting point or centre where aggrieved persons can walk and register their complaints or grievances.

- Receive and register a complaint.

When complaints and grievances are raised they will be:

✓ Received and acknowledged,
✓ Registered and filed for action
✓ Complaints is resolved and finalized
✓ Complaint is not resolved and finalized

- Screen and Assess the Complaints.

✓ The concessionaire receives and acknowledges receipt of grievances from the contractor
✓ Screens, assesses and resolves the complaints and grievances

✓ Screened and assessed grievances are not resolved and are referred to the GRM Committee for resolution.

- Resolution by the Location GRM Committee

On receipt of the grievances from the concessionaire, the GRM Committee will:
✓ Receive and Acknowledge the receipt of the grievances
✓ Resolve and finalize the complaints
✓ Complaints and grievances not resolved and finalized but referred to Sub – County GRM Committee for resolution.

- Resolution by the Sub -County GRM Committee

✓ Receive and acknowledge receipt of the grievance
✓ Resolves the grievance
✓ Does not resolve but refers it to KETRACO for resolution

- Resolution by KETRACO

✓ KETRACO arbitrates and resolves the grievance.

Standard prescribed forms including grievance registration form, grievance disclosure form, grievance log and grievance redress monitoring form will be used. Clearly indicate the focal persons (this will be Social and Environmental specialist for social and environmental grievances accordingly).

The GM will clearly indicate how a complaint can be submitted. This can be by a letter, verbally, email, telephone, SMS, WhatsAPP message, SMS etc. All grievances, suggestions/comments will be recorded in a Grievance Register by the Focal Person(s) / Complaint Handling Officer within specified working days of the receiving of the grievances. A unique number will be assigned to each grievance, suggestions, and comment

Procedure for Grievances

The steps taken by the company for receiving and handling any such concerns are outlined below

STEP 1: Submitting a grievance to Contractor/Resident engineer

A grievance can be submitted in a number of ways:

- During regular meetings held between communities and concessionaire;
- Through the Local Consultative Forums established in the affected villages;
- During informal meetings with concessionaire; Through communication directly with management – for example a letter addressed to site management, or other operational offices
- Directly by e-mail to RE/contractor
- Placing a comment in the community suggestion boxes by dedicated fellows; and
- Through the Community Liaison Officer (CLO).

For grievances that have been submitted informally, the CLO will arrange for a meeting where the grievance can be explained in full, written down, and agreed upon. For all grievances the CLO will be the main point of contact, responsible for updating the complainant about the process.

STEP 2: Logging the grievance

Once a grievance has been received, it must first be logged in the grievance database register and the CLO will be informed. This register is a live document.

STEP 3: Providing the initial response

The person/community/stakeholder that lodged the initial grievance will then be contacted within 3 days to acknowledge that concessionaire has logged the complaint. This response will either accept or refute possible responsibility for the grievance.

This notification will include details of the next steps for investigation of the grievance, including the person/department responsible for the case.

STEP 4: Investigating the grievance

Concessionaire will aim to complete investigation within two weeks of the grievance first being logged. Depending on the nature of the grievance, the approach and personnel involved in the investigation will vary. A complex problem may involve external experts for example. A simpler case may be easier, and quicker to investigate. Contractor will involve the aggrieved in this investigation, where possible, to ensure participation.

Contractor, through the CLO, will continually update the aggrieved on the progress of the investigation and the timeline for conclusion.

STEP 5: Concluding/resolving the grievance

Concessionaire will outline the steps taken to ensure that the grievance does not re-occur. Consultation with aggrieved parties and views sought about company recommendations. If complainant is satisfied, then sociologist/CLO should seek their sign off from Resident Engineer and Project Manager.

STEP 6: Taking further steps if the grievance remains open

If, however the grievance still stands then the CLO will initiate further investigation and determine the steps for future action. This will be referred to the Resident Engineer who will constitute a team to determine a team to address the grievance and determine if the client must be notified.

12.4 RECORD KEEPING

All comment responses and, grievances are to be logged using the Comment Response, and Grievance logging forms and registers. This includes details of the comments/grievance, the commenter/aggrieved, and ultimately the steps taken to resolve the grievance. Hard copies of the form are to be kept at the project sites, whilst soft copies will be saved on the Contractor server. Any accompanying documentation e.g. written statements, photographic evidence, or investigation reports are to be filed along with the grievance log both in hard and soft copies. A master database will be maintained by the CLO to record and track management of all comments and grievances and audited by the CLSO. This will serve to help monitor and improve performance of the Comment Response and, Grievance Mechanism.

12.5 COMMENT RESPONSE AND, GRIEVANCE MECHANISM LOG

A sample format for logging summary details of each comment response and, grievance must be provided. As noted above hard and soft copies should be kept on file.

Note:

- If it is a comment, the commented will receive a copy if he/she requests one
- If it is a Grievance, the aggrieved shall always receive a copy once complete for their own records.

12.6 INITIAL RESPONSE TEMPLATE

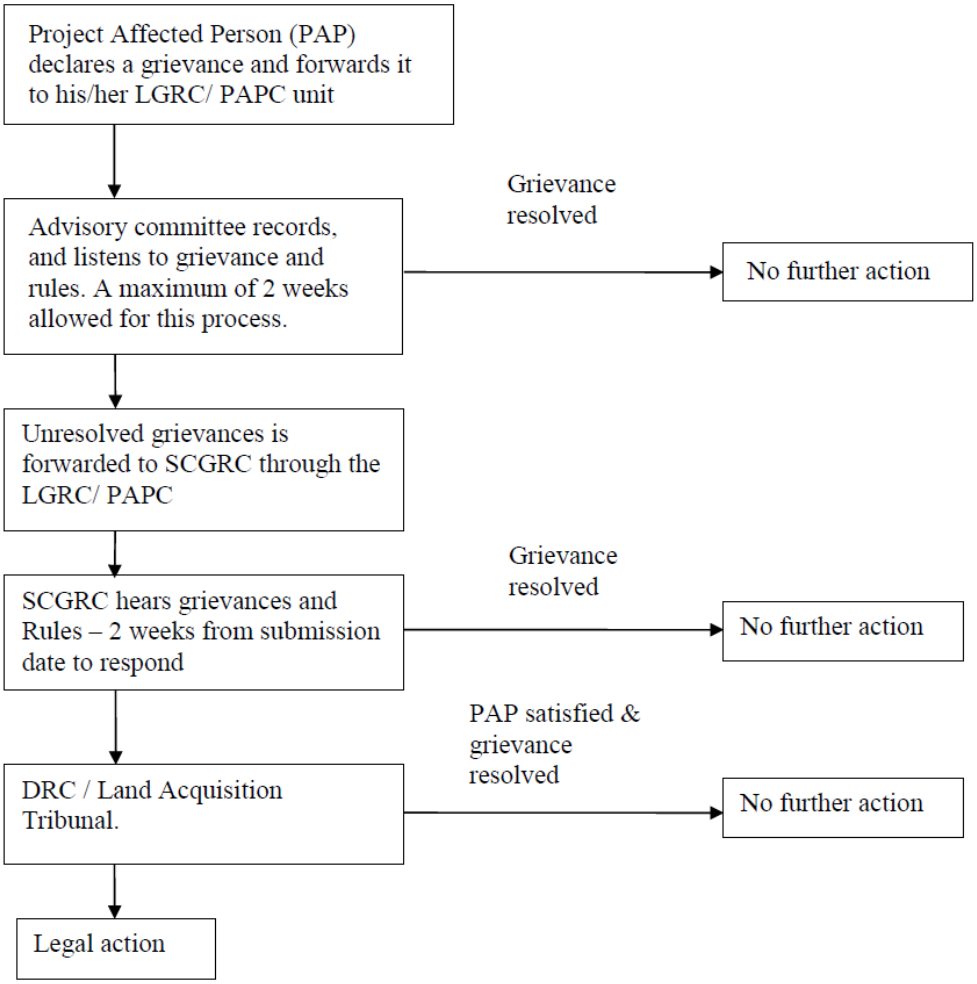
The template is necessary for providing the initial response to the aggrieved only in the case of Grievances. This should be written on headed paper. This response must be sent within 3 days of the grievance being entered into the logbook.

It is vitally important to monitor the effectiveness of the comment response and, grievance mechanism. Appropriate measures/KPIs for this include monthly reporting on the number of grievances received, resolved and outstanding. This will be undertaken by the sociologist and reported to the resident engineer. As part of the annual review/report, analysing the trends and time taken for grievance resolution will help to evaluate the efficacy of the comment response and, grievance mechanism.

12.7 MONITORING AND REVIEW

As part of stakeholder engagement and consultation, involving the views of the stakeholders for whom the Comment Response and, Grievance Mechanism is designed in this monitoring and review will help to improve effectiveness and stakeholder buy-in.

Figure 2 Grievance Redress Mechanism and Resolution Flow Chart



12.8 THE WORLD BANK GRIEVANCE REDRESS SERVICE

The World Bank's Grievance Redress Service (GRS) provides an additional, accessible way for individuals and communities to complain directly to the World Bank if they believe that a World Bank-financed project had or is likely to have adverse effects on them or their community. The GRS enhances the World Bank's responsiveness and accountability by ensuring that grievances are promptly reviewed and responded to, and problems and solutions are identified by working together.

The GRS accepts complaints in English or the official language of the country of the person submitting the complaint. Submissions to the GRS may be sent by:

Email: grievances@worldbank.org

Fax: +1-202-614-7313
Letter: The World Bank
Grievance Redress Service (GRS)
MSN MC 10-1018
1818 H St NW
Washington, DC 20433, USA

http://pubdocs.worldbank.org/en/440501429013195875/GRS-2015-BrochureDec.pdf

12.9 WORLD BANK INSPECTION PANEL

The Inspection Panel is an independent complaints mechanism for people and communities who believe that they have been, or are likely to be, adversely affected by a World Bank-funded project. The Board of Executive Directors created the Inspection Panel in 1993 to ensure that people have access to an independent body to express their concerns and seek recourse. The Panel assesses allegations of harm to people or the environment and reviews whether the Bank followed its operational policies and procedures

The Panel has authority to receive Requests for Inspection, which raise issues of harm as a result of a violation of the Bank's policies and procedures from any group of two or more people in the country where the Bank financed project is located who believe that, as a result of the Bank's violation of its policies and procedures, their rights or interests have been, or are likely to be adversely affected in a direct and material way. They may be:

- an organization, association, society, or other group of individuals;
- A duly appointed local representative acting on explicit instructions as the agent of adversely affected people;
- In exceptional cases, a foreign representative acting as the agent of adversely affected people;
- An Executive Director of the Bank in special cases of serious alleged violations of the Bank's policies and procedures.

The Panel may be contacted by:

email at ipanel@worldbank.org
phone at +1-202-458-5200
fax at +1 202-522-0916 (Washington, D.C.)
mail at: Inspection Panel, Mail Stop MC 10-1007, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A.

http://ewebapps.worldbank.org/apps/ip/Documents/Guidelines_How%20to%20File_for_web.pdf

13 CAPACITY BUILDING

KETRACO will carry out "Environmental and Social Screening" and "Analysis of Alternatives" of proposed subprojects, following the guidelines contained in the Environmental and Social Management Framework (ESMF).

Further onwards environmental and social Impact assessment (ESIA) of the subproject, as required, will be carried out by consultant hired KETRACO. KETRACO will review these documents and be responsible for implementation of ESMP (as well as RAP) and preparation of quarterly reports, with support from supervision consultant. KETRACO will hire consultant with requisite experience in implementing resettlement programs (if needed) for the field level implementation of the RAPs, under the direct supervision of the KETRACO and in close coordination with the contractor. The supervision consultant will have environmental as well as social specialists in its team. Table 11 shows activities and institutional responsibilities for overall implementation of the KESIP. All mitigation plans such as RAPs and ESMPs will have to be cleared by the Bank before they are disclosed locally as well as at the Bank's InfoShop.

Table 11 Activities and Institutional Responsibilities

Activity	Responsibility
Identification of subproject Prepare/ complete: • Subproject Description (Form-1) • Environmental/social Screening (Form-2) • Analysis of Alternatives (Form-3)	Individual Consultant with KETRACO field level staff
Review of project documents, including Forms-1, 2 and 3 and Screening / assessment	Individual Consultant of project and Environment and Social Unit, KETRACO
Additional Environmental/ Social Assessment (ESA)	
Carry out: (a) ESIA and ESMP or (b) full scale ESIA (including RAP, if needed); following the ESMF	Independent consultant
(7) Review of ESIA by KETRACO (8) Obtaining necessary environmental clearance from the NEMA and WB	Individual Consultant of project and Environment and Social Unit (ESU) of KETRACO
Implementation of ESMP/RAP/ESIA/ during "construction phase" of project components.	KETRACO's social unit or a hired consultant under the direct supervision of the ESU will implement the RAP. Contractor ESMP will be implemented by Contractor and Supervised by KETRACO field staff, with periodic monitoring by Individual Consultant and ESU of KETRACO
Preparation of quarterly progress and monitoring reports	Social safeguard report will be prepared by the ESU. The Contractor will prepare one monitoring report. Another report by Individual Consultant and ESU of KETRACO.
Implementation of ESMP/SMF during "operational phase" of project components, including monitoring and quarterly reporting	Consultant and KETRACO field staff with supports from ESU

KETRACO will employ individual/supervision/consultant, who would support them in overall environmental/social management. However, since the overall responsibility of environmental management lies with KETRACO, they need to ensure that the consultants are carrying out their responsibilities properly. For this purpose, it is important that the KETRACO staff receive advanced training on environmental management and monitoring. Such training will assist them in properly

overseeing the activities of the consultant engaged in environmental management of the proposed project following the ESMF.

KETRACO's environment section has eight (8) NEMA/EIK registered and licensed professionals with an active experience in the environment field both in public and private sector. The officers are all specially trained with an average of Masters' Degrees cutting across Environmental science; law and policy; planning and management and community development.

The level of expertise and knowledge in the WB OPs (4.01, 4.04 and 4.11) is good but there is need for training on specialized and tailor-made courses that meet KETRACO's core function and mandate as a section.

These experts will cover safeguards for the Project, including the preparation of environmental and social screening forms for all subprojects, and monitoring contractor compliance with subproject ESMP requirements and any RAPs or ARAPs.

Safety risks will have handled by the Safety Unit. The Safety is currently with only 2 officers. There is need for recruitment of at least 5 more safety officers with background in electrical safety and engineering. This can be on project basis or permanent. The unit also requires training on technical review and audit of contractor's safety plans and lenders safety requirement and standards for high voltage power line projects

13.1 CURRENT CORPORATE PORTFOLIO HANDLED BY ENVIRONMENT STAFF (NUMBER OF PROJECTS)

The current high voltage transmission lines stand at 5000KM throughout the country. Of these, KETRACO has completed a total of 1,799KM (36%) in addition to 1,023 MVA of substation capacity since its establishment. A further 26 lines amounting to 2,298KM and associated substations are ongoing while 33 lines and associated substations have their feasibility studies completed.

Below is a breakdown of the projects:

Projects	Activities Involved	Number of projects
Completed Projects	Environmental Audits	24
Ongoing Project	ESMP Monitoring, Environmental issues' redress and Specialized environmental studies	23
Planned Projects	Feasibility projects, Environmental and Social Impact Assessment and Specialized environmental studies	33

13.2 REQUIRED LEVEL OF EFFORT TO ADDRESS THE PORTFOLIO

The section undertakes (but not limited to) the following activities: Feasibility studies; ESMPs; Environmental Audits; Environmental issues' redress and Specialized environmental studies as detailed in the table below.

Table A. Field Based Activities

FIELD BASED ACTIVITIES										
Projects	**No of proj-ects**	**Activity + Frequency per project per year**					**AVG. No. of staff involved per project**	**AVG. No. of projects per staff**	**Average Man-days per year per project**	**Average Man-days Per activity per staff**
		Feasibility	**ESIAs**	**ESMP monitoring**	**EAs**	**Issues Redress and Special**				

						i-zed Studies			**per staff**	**per year**
Completed Projects	24				**1**		2	**3**	12	36
Ongoing Projects	23			**4**			2	3	16	48
						4				
Planned Projects(Complete Feasibility studies)	33		**1**				2	4	20	80
Planned Projects (Ongoing studies)		**1**					1	1	15	15
Cumulative man days per staff per year (all activities)										**179**

Table B: Office Based Activities

OFFICE BASED ACTIVITIES			
Activity	No of Projects per staff	No of Staff involved	AVG. No. Man- days per year
ESMP reports drafting	3	1	3
Preparation of Tender Documents	N/A	3	5
Tender Evaluations	N/A	3	5
Preparation of ESIA reports done internally	N/A	3	10
Review of consultants' ESIA reports	N/A	3	2
Drafting of Feasibility reports	N/A	1	10
Other office duties	All	8	20
Total office based man days per staff			60

13.3 QUALIFICATIONS OF THE IMMEDIATE SUPERVISOR OF THE ENVIRONMENT STAFF

Capacity Gaps in application of the safeguards

As much as the staff have been involved in assignments, touching upon WB OPs (4.01, 4.04 and 4.11) a deliberate effort to build capacity of the environmental and social management specialists within the institution is proposed. Training and capacity building (short term) of KETRACO's staff is proposed including the development of a training program that is systematically thought through.

Suggested Training

- Specialized trainings on energy related environmental issues, standards, and best practices
- Exchange programs to similar /related utilities for benchmarking e.g. ESKOM, global WB projects,
- Dedicated/ ring-fenced budget allocation for the capacity building within the portfolio
- Embedding the capacity building with internal operating procedures and policies backed with Financier's policies.

14 ESMF IMPLEMENTATION BUDGET

The ESMF implementation budget refers to all costs that will be incurred to implement the requirements or recommendations of the ESMF. The ESMF requirements ensure that implementation of the projects integrates environmental and social issues for the sustainability of the project as well as the subprojects. Among other things the ESMF recommends the following key issues, namely; training, capacity building, screening, reviewing and monitoring mechanisms. Staff- who will be involved in the implementation of the project should be trained to enhance their skills on environmental and social issues.

Building the capacity of staff from implementing Division/departments/ sections such as projects, environment and social unit, Network Management, Chain Supply Management and Finance will enable them to screen, review and monitor environmental issues in the subprojects to ensure compliance with requirements of the national policies and Acts as well as World Bank safeguard policies. Based on experience from other related assignments the estimated cost for technical assistance for capacity building would be 220,000 USD.

Furthermore, screening and reviewing processes would also involve some cost implications. Every subproject would be screened and reviewed by the implementing unit while involving Environmental Experts. The estimated costs for such processes would be 80,000 USD.

Monitoring plan: there will be monitoring during the implementation of the subprojects in order to measure the effectiveness of the mitigation measures. The monitoring and reporting procedures will ensure early detection of conditions that necessitate specific mitigation measures and will furnish information on the progress and results of mitigation. The monitoring component will involve some cost implications. Based on previous experience from related projects, the estimated costs for monitoring would be 100,000 USD.

Table 12 Estimated level of costs for ESMF implementation

ESMF proposed actions)	**Concerned institutions**	**Level of cost (USD)**
Training and capacity Building	Ketraco E&S Unit and Project implementation team	220,000
Screening and reviewing	Project Implementation Team/Unit	80,000
ESIA and RAP development	Ketraco E&S Unit / Consultants	200,000
Monitoring activities	PIT, ManagementKetraco E&S Unit ,NEMA	100,000
Total Costs		**600,000**

The cost implications for implementing this ESMF are reflected in the table above. The estimates reflect the level of cost but the actual costs will be determined by KETRACO during implementation, when the individuals requiring training will be identified and the level of technical assistance required is determined. The estimated cost will be part of project budget and covered by IDA.

15 REFERENCES

- Building Code 1968
- County Government Acts, 2012
- Energy Act of 2006
- Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations 2006
- Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006
- Environmental Management and Coordination (Noise and Excessive Vibration pollution) (Control) Regulations, 2009: Legal Notice 61
- Government of Kenya Wayleave Act
- Government of Kenya Roads Board Act
- Government of Kenya State of Environment 2010
- Government of Kenya Public Procurement and Disposal Act
- Government of Kenya Roads Act
- Government of Kenya Fiscal Management Act (CAP 5) of 2009
- Government of Kenya Antiquities and Monuments Act, Cap 215 of 1983
- Government of Kenya Employment Act, 2007
- Government of Kenya Maritime Authority Act 2006
- Kenya Vision 2030: A Globally competitive and prosperous Kenya 2007
- Land Act, 2012
- Occupational Safety and Health Act, 2007
- Penal Code Act (Cap.63)
- Physical Planning Act, 1996
- Public Health Act (Cap. 242)
- The Civil Aviation Act No. 21 of 2013
- The Constitution of Kenya, 2010: Constitutional provisions
- The Environment Management and Co-ordination Act, 1999
- The Environmental Management Coordination (Water Quality) Regulations): Legal Notice 120
- The Environmental Management Coordination (Waste Management) Regulations): Legal Notice 121
- The Environmental (Impact Assessment and Audit) Regulations, 2003
- The Forestry Services Act, 2005
- The Land and Environment Court Act 2011
- The Traffic Act Cap 403 0f 2009
- Wildlife Conservation and Management Act, 2013
- Urban Areas and Cities Act No. 13 of 2011
- Water Act, 2002
- Work Injury and Benefits Act, (WIBA) 2007
- Kenya power Safety Rules Handbook 2014
- World Bank Project documentation for KESIP
- World Bank Safeguards Policies
- World Bank Group Environmental, Health, and Safety Guidelines
- IFC Performance Standards

16 ANNEXES

ANNEX A: SUBPROJECT DESCRIPTION

Form 1a: Subproject Description: Substation

(to be completed by KETRACO)

1	Name of Substation	**:**
2	Location of Substation	**:**
3	KETRACO project office	**:**
4	Location/layout of proposed Substation (attach location map/ layout map)	
5	Ownership of subproject land	
	(a) Government owned (acre)	
	(b) Private land (need acquisition) (acre)	
	(c)Community Owned Land	
6	Brief description of proposed Substation site:	
	(indicate the information on present land use, Highest Flood Level (HFL) for last 30 years and Important Environmental Features 6 (IEFs) adjacent to the site)	
7.	Brief information of environment within subproject influence area:	
	(human settlement, tribal people, water body, flora, fauna, historical or culturally important sites, traffic)	
8	Key activities of subproject	
9	Estimated cost of subproject	
10	Schedule of implementation	
	(a) Subproject duration (months) :	
	(b) Tentative start date	
	(c) Tentative completion date	
11	Potential benefit from subproject (including estimated number of people benefited)	
	Prepared by: (Name, designation, mobile number, signature, date)	
	Reviewed by: (Name, designation, mobile number, signature, date)	

6 1Such as educational institutions, health care, pond, canal, river, utility infrastructure, park, green area, etc.

Form 1b: Subproject Description: Power Line

(to be completed by KETRACO)

1	**Name of Power Line Subproject**	**:**
2	**(a) Total Length (km)**	**:**
	(b) Type of Line	**:**
	(c) Start/ End Point	**:**
3	**KETRACO project office**	**:**
4	**Layout of proposed Power Line**	**:**
	(attach layout map)	
5	**Ownership of subproject land**	**:**
	(a) Government owned	:
	(b) Private land (need acquisition) (acre)	
	(c) Community land	
6	Brief information of surrounding environment along power line influence area	
	(a) Characteristics of route of power line:	
	% paddy/crop field	
	% along road/highway	
	% village/human settlement;	
	% industrial area	
	% forest	
	% wetland/river	
	% other (specify)	
	(b) Information on Important Environmental Features , human settlement, industrial/commercial establishments, tribal people, water body, flora, fauna, historical or culturally important sites, ecologically sensitive areas, traffic	
7	**Key activities of subproject**	
8	**Estimated cost of subproject**	
9	**Schedule of implementation**	
	(a) Subproject duration (months) :	
	(b) Tentative start date	
	(c) Tentative completion date	

	(10) Potential benefit from subproject :(including estimated number of people benefited)	
	Prepared by: (Name, designation, mobile number, signature, date)	
	Reviewed by: (Name, designation, mobile number, signature, date)	

ANNEX B: ENVIRONMENTAL/SOCIAL SCREENING

FORM 2A: ENVIRONMENTAL/SOCIAL SCREENING: SUBSTATION (TO BE COMPLETED BY KETRACO)

Name of Substation:
Location of Substation:
KETRACO Project office:

1. Potential Environmental Impact during Construction Phase:

   a) Ecological impacts:

Felling of trees	Significant □	Moderate □	Minor □	Number of trees
Clearing of vegetation	Significant □	Moderate □	Minor □	
Presence of protected area, key biodiversity area	Yes □	No □		

Note: *If answer to the above question is "Yes", then a detail analysis of alternative location would be carried out to identify possible sites that would eliminate/reduce risk to biodiversity, vegetation, and habitat. If it is not possible to completely avoid such sensitive areas, then possible impact on biodiversity must be addressed as outlined in the ESMF.*

   b) Physicochemical impacts:

• Noise pollution	Significant □	Moderate □	Insignificant □
• Air pollution	Significant □	Moderate □	Insignificant □
• Drainage congestion/water logging	Very likely □	Likely □	Unlikely □
• Water pollution	Significant □	Moderate □	Insignificant □
• Pollution from solid/ construction waste	Significant □	Moderate □	Insignificant □

   c) General Socio-economic impacts:

Traffic congestion	Very likely □	Likely □	Unlikely □
Health and safety	Significant □	Moderate □	Insignificant □
Impact on archaeological and historical sites	Significant □	Moderate □	Insignificant □
Employment generation	Significant □	Moderate □	Insignificant □

d) **Social impacts related to acquisition of land, tribal people**

Acquisition of private land needed	Yes □	No □
Amount of private land to be acquired:		
Presence of tribal population in project surrounding areas	Yes □	No □

e) **Assessment of social impacts**

• Loss of land	Significant □	Moderate □	Insignificant □
• Loss of Income	Significant □	Moderate □	Insignificant □
• Impact on pastoral (if applicable)	Significant □	Moderate □	Insignificant □

2. **Potential Environmental Impact during Operational Phase**: No significant adverse impact anticipated that cannot be addressed by routine O&M activities, and no such impacts are expected that could potentially affect nature of subsequent ESIA.

3. **Subproject Exclusion Criteria: Does Not Apply □ Apply □**

   Summary of possible environmental/social impacts of the subproject: [mention overall nature of impacts, and mention if social safeguard issues (e.g., land acquisition, impact on tribal people) have been identified]

4. **Category of subproject:** (See section 8.5 of ESMF)

   (a) According to the new NEMA directive: High Risk/ Medium Risk/ Low Risk / Not Listed [if "social safeguard issues (e.g., land acquisition, impact on tribal people) identified, likely category "HIGH"]
   (b) According to WB classification: Category A

Proposed mitigation measure (follow Appendix …… or Tables **Error! Reference source not found.** of ESMF as appropriate)

Overall Comments:

Prepared by: (Name, designation, mobile number, signature, date) ----------
Reviewed by: (Name, designation, mobile number, signature, date) ----------

FORM 2B: ENVIRONMENTAL/SOCIAL SCREENING: POWER LINE
(TO BE COMPLETED BY KETRACO)

NAME OF POWER LINE SUBPROJECT:
TOTAL LENGTH (KM):
TYPE OF LINE: START/ END POINT:

1. POTENTIAL ENVIRONMENTAL IMPACT DURING CONSTRUCTION PHASE:

a) ECOLOGICAL IMPACTS:

FELLING OF TREES	**SIGNIFICANT** □	**MODERATE** □	**MINOR** □	**NUMBER OF TRESS**
CLEARING OF VEGETATION	**SIGNIFICANT** □	**MODERATE** □	**MINOR** □	
POTENTIAL IMPACT ON AQUATIC (I.E., WATER) HABITAT (ESP. IF POWER LINE IS TO BE CONSTRUCTED OVER RIVER/WETLAND)	**SIGNIFICANT** □	**MODERATE** □	**MINOR** □	
PRESENCE OF PROTECTED AREA, KEY BIODIVERSITY AREA ALONG THE ROUTE OF POWER LINE	**YES** □	**NO** □		

NOTE: IF ANSWER TO THE ABOVE QUESTION IS "YES", THEN A DETAIL ANALYSIS OF ALTERNATIVE ROUTES WOULD BE CARRIED OUT TO IDENTIFY POSSIBLE ROUTE(S) THAT WOULD ELIMINATE/REDUCE RISK TO BIODIVERSITY, VEGETATION, AND HABITAT. IF IT IS NOT POSSIBLE TO COMPLETELY AVOID SUCH SENSITIVE AREAS, THEN POSSIBLE IMPACT ON BIODIVERSITY MUST BE ADDRESSED AS OUTLINED IN THE ESMF.

b) PHYSICOCHEMICAL IMPACTS:

NOISE POLLUTION	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □
AIR POLLUTION	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □
WATER POLLUTION	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □
POLLUTION FROM SOLID/ CONSTRUCTION WASTE	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □

c) GENERAL SOCIO-ECONOMIC IMPACTS:

TRAFFIC CONGESTION	**VERY LIKELY** □	**LIKELY** □	**UNLIKELY** □
HEALTH AND SAFETY	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □
IMPACT ON ARCHAEOLOGICAL AND HISTORICAL SITES	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □
EMPLOYMENT GENERATION	**SIGNIFICANT** □	**MODERATE** □	**INSIGNIFICANT** □

d) SOCIAL IMPACTS RELATED TO ACQUISITION OF LAND, INDIGENOUS PEOPLE:

ACQUISITION OF PRIVATE LAND NEEDED	**YES □**	**NO □**
AMOUNT OF PRIVATE LAND TO BE ACQUIRED:		
PRESENCE OF TRIBAL POPULATION IN PROJECT SURROUNDING AREAS	**YES □**	**NO □**

ASSESSMENT OF SOCIAL IMPACTS

• LOSS OF LAND	**SIGNIFICANT □**	**MODERATE □**	**INSIGNIFICANT □**
• LOSS OF INCOME	**SIGNIFICANT □**	**MODERATE □**	**INSIGNIFICANT □**
• IMPACT ON INDIGENOUS PEOPLE (IF APPLICABLE)	**SIGNIFICANT □**	**MODERATE □**	**INSIGNIFICANT □**

2. POTENTIAL ENVIRONMENTAL IMPACT DURING OPERATIONAL PHASE: NO SIGNIFICANT ADVERSE IMPACT ANTICIPATED THAT CANNOT BE ADDRESSED BY ROUTINE O&M ACTIVITIES, AND NO SUCH IMPACTS ARE EXPECTED THAT COULD POTENTIALLY AFFECT NATURE OF SUBSEQUENT ESIA.

3. SUBPROJECT EXCLUSION CRITERIA: DOES NOT APPLY □ APPLY □

SUMMARY OF POSSIBLE ENVIRONMENTAL/SOCIAL IMPACTS OF THE SUBPROJECT: [MENTION OVERALL NATURE OF IMPACTS, AND MENTION IF SOCIAL SAFEGUARD ISSUES (E.G., LAND ACQUISITION, IMPACT ON TRIBAL PEOPLE) HAVE BEEN IDENTIFIED]

4. CATEGORY OF SUBPROJECT: (FOLLOW SECTION 8.5 OF ESMF)

(A) ACCORDING TO THE NEW NEMA DIRECTIVE: HIGH RISK/ MEDIUM RISK/ LOW RISK / NOT LISTED [IF "SOCIAL SAFEGUARD ISSUES (E.G., LAND ACQUISITION, IMPACT ON TRIBAL PEOPLE) IDENTIFIED, LIKELY CATEGORY "HIGH"]
(B) ACCORDING TO WB CLASSIFICATION: CATEGORY A

PROPOSED MITIGATION MEASURE (FOLLOW APPENDIX …… OR TABLES TABLE 9.1 OF ESMF AS APPROPRIATE)

OVERALL COMMENTS:

PREPARED BY: (NAME, DESIGNATION, MOBILE NUMBER, SIGNATURE, DATE) ----------

REVIEWED BY: (NAME, DESIGNATION, MOBILE NUMBER, SIGNATURE, DATE) ----------

ANNEX C: ANALYSIS OF ALTERNATIVES

FORM 3A: ANALYSIS OF ALTERNATIVES: SUBSTATION
(TO BE COMPLETED BY KETRACO)

NAME OF SUBSTATION:
BRIEF DESCRIPTION OF SUBPROJECT:

ANALYSIS OF ALTERNATIVE LOCATIONS:
NOTE: KETRACO WILL CARRY OUT SCREENING AT ALL PROPOSED ALTERNATIVE LOCATIONS OF SUBSTATION BASED ON THE SCREENING FORM 2A. THEN THE ENVIRONMENTAL AND SOCIAL DETAILS FOR THESE ALTERNATIVES WILL BE LISTED IN THE FOLLOWING TABLE. IMPORTANT CONSIDERATIONS INCLUDE OWNERSHIP OF LAND (GOVERNMENT-OWNED LAND ARE TO BE GIVEN PRIORITY), LOCATION OF ECOLOGICALLY SENSITIVE AREAS, HUMAN SETTLEMENT, PROXIMITY TO COMMUNICATION NETWORK, LOAD CENTRE. BASED ON THE ASSESSMENT OF RELATIVE ADVANTAGES AND DISADVANTAGES, A LOCATION FOR THE SUBPROJECT WILL BE PROPOSED.

KEY ENVIRONMENT AND SOCIAL ISSUES	ALT-1	ALT-2	ALT-3
Location			
Land (Government-owned land are to be given priority)			
Agricultural/cropping pattern			
No of villages affected			
No of families affected			
Loss of structures			
No of common properties affected			
No of trees cut (approx.)			
Ecological sensitivity			
Tribal population			
Waterway affected			

PROPOSED LOCATION (*WILL BE SELECTED FROM ABOVE COMPARISON*):
(B) ANALYSIS OF ALTERNATIVE TECHNOLOGIES/DESIGNS:

Design issues	Alt-1	Alt-2	Alt-3

SELECTED TECHNOLOGY/DESIGN:

(C) NO SUBPROJECT SCENARIO: BRIEFLY MENTION THE DIFFICULTIES THE KETRACO WILL FACE IF THE SUBPROJECT IS NOT IMPLEMENTED

(D) CONCLUSION: ON SELECTED METHOD/DESIGN/TECHNOLOGY AND ROUTE/LOCATION OF SUBPROJECT.

FORM 3B: ANALYSIS OF ALTERNATIVES: POWER LINE
(TO BE COMPLETED BY KETRACO)

Name of Power Line Subproject :
Approximate Total Length (km) : (could vary among alternative routes)
Type of Line :
Start/ End Point :

Analysis of alternative routes:

Note: KETRACO will carry out screening at all proposed alternative routes of the power line based on the screening form 2b. Then the environment and social details of these alternatives will be listed in the following table. Important considerations include avoiding homestead areas, as much as possible; avoiding crossing of rivers/hills/bamboo groves/cash-in trees, as much as possible. If the homestead areas (or other sensitive infrastructure) are not avoidable in any of the options, the KETRACO will consult with the owner/respective authority and collect their written consent for the construction of transmission and distribution lines. Based on the assessment of relative advantages and disadvantages, a location for the subproject will be proposed.

Key Environment and Social Issues	Alt-1	Alt-2	Alt-3
Important features along the route			
Land (Government-owned land are to be given priority)			
Agricultural/cropping pattern			
No of villages affected			
No of families affected			
Loss of structures			
No of common properties affected			
No of trees cut (approx.)			
Ecological sensitivity			
Tribal population			
Waterway affected			

PROPOSED ROUTE (*WILL BE SELECTED FROM ABOVE COMPARISON*):
(B) ANALYSIS OF ALTERNATIVE TECHNOLOGIES/DESIGNS:

DESIGN ISSUES	ALT-1	ALT-2	ALT-3

SELECTED TECHNOLOGY/DESIGN:
(C) NO SUBPROJECT SCENARIO: BRIEFLY MENTION THE DIFFICULTIES THE KETRACO WILL FACE IF THE SUBPROJECT IS NOT IMPLEMENTED

(D) CONCLUSION: ON SELECTED METHOD/DESIGN/TECHNOLOGY AND ROUTE/LOCATION OF SUBPROJECT.

ANNEX D LIST OF KETRACO IDENTIFIED SUBPROJECTS

NO	PROJECT NAME	DETAILED SCOPE	ESTIMATED COST (MUSD)	OBJECTIVE
1	132 kV Kabarnet-Rumuruti TL & Associated Substations works	Construction111 km Double Circuit 132 kV line, including bay extension in Kabarnet and Rumuriti S/S.	**20**	Improve system reliability by providing an alternative source of supply to Kabarnet (Baringo County) and vice versa by interconnecting Mt Kenya and North Rift regions.
2	132 kV Rumuruti-Maralal TL & Associated Substations works	Construction of approximately 148km, 132kV double circuit line between 132/33kV Rumuruti and proposed 132/33kV Maralal Substations, including bay extension to accommodate two 132kV line bays at Rumuruti substation	**32**	Improve efficiency of supply by reducing technical losses in areas currently served by long MV lines, and will enhance access/ connectivity increasing rural connections.
3	220 kV Malindi-Weru- Kilifi- TL & Associated Substations works	Construction of approximately 50km 220kV double circuit line between a proposed 220kV switchstation at Weru and	**49**	i) Improve efficiency of supply by reducing technical losses. ii) Improve power supply quality,Improve reliability and

		proposed 220/132kV New Kilifi Substations, including bay extension to accommodate two line bays at proposed Weru substation. The scope also includes construction of approximately 27km of single circuit line from Malindi to Weru to form a second circuit between the two stations		security of supply to Kilifi and Bamburi load centres. iii) Provide evacuation alternatives for renewable (wind and solar) power generation projects proposed around Malindi
4	132 kV Menengai-Olkalou-Rumuruti Tl & Associated Substations works	Construction of approximately 70 km of 132 kV double circuit line between existing 132 kV Menengai and Rumuruti Substations through a proposed 132/33 kV Substation at Olkalou.It includes 132 kV bay extension at Menengai and Rumuruti to accommodate two line bays each for the proposed Olkalou Substation.	**28**	i) Provide and alternative evacuation path for the geothermal power generated from the Menengai Geothermal Complex and link to the greater Mt Kenya Region that rely on hydro power from the Easten hydros. ii) Improve efficiency of supply by reducing technical losses in areas currently served by MV lines, and will enhance access/ connectivity increasing rural connections. iii) Improve reliabilty of supply to load centres in Nyandarua County by introduction of a new 132/33kV substation in Olkalou.

5	132 kV Machakos-Mwala-Sarara TL & Associated Substations works	Construction of approximately 80km of 132kV double circuit line between existing 132kV Machakos Substation and proposed Sarara (LiLo point on Kindaruma-Mangu 132kV line) through a proposed 132/33kV Substation at Mwala.It includes 132kV bay extension at Machakos to accommodate two line bays for the proposed Mwala Substation	**30**	i) Improve efficiency of supply by reducing technical losses in areas currently served by MV lines, and will enhance access/ connectivity increasing rural connections. ii) Provide and alternative source of supply for Machakos town hence improve reliabilty of supply to load centres in thegreater Machakos County.
6	132 kV Sotik-Kilgoris-Kehancha TL & Associated Substations works	Construction of approximately 90 km of 132 kV double circuit line between existing 132kV Sotik and proposed Kehancha/Isabania Substation through Kilgoris.It includes 132kV bay extension at Sotik to accommodate two line bays.	**22**	i) Improve efficiency of supply by reducing technical losses in areas currently served by MV lines and will enhance access/ connectivity increasing rural connections. ii) Improve reliability of supply to load centers in Narok county by introduction of a new 132/33kV substation at Kilgoris.
	Total		**181**	

	LONG LIST OF SUBSTATIONS EXTENSION			
1	Kimuka	New 400/220kV substation at Kimuka, approximately 4 km of 220 kV double circuit line (inter tie to Kimuka 220/66 kV substation) and re-orientation works at 220/66 kV Kimuka	**26**	i) Improve efficiency of supply by reducing transmission losses. ii) Improve reliabilty of supply to load centres in the Nairobi North sub region through Kimuka bulk supply point. This will improve on the utilization of power inpoprted from Ethiopia via the EEHP.
2	Gilgil	New 400/220 kV substation at Gilgil	**31**	i) Improve efficiency of supply by reducing transmission losses. ii) Improve reliabilty of supply.This will also improve on the utilization of power imported from Ethiopia via the EEHP.
3	Lessos	New 400kV switchyard and 220kV bay extensions at Lessos as detailed below	**25**	i) Improve efficiency of supply by reducing transmission losses. ii) Improve reliabilty of supply for load centres in West Kenya.This will also improve on the utilization of power imported from Ethiopia via the EEHP
	Total		**82**	
	General Total		**263**	

The component intends to finance the additional investment required to install and commission transmission equipment that was procured under the Kenya-Ethiopia interconnector (EEHP), which was also financed by the World Bank together with other IFIs. These installations will comprise US$35 million.

ANNEX E STAKEHOLDER COMMENTS MATRIX

ESMF WORKSHOP FEEDBACK

Issue	Feedback Provider	Specific Feedback	KETRACO's Response to feedback and how it will be reflected in the framework. If not, why not?
Wetlands	Kipruto Kimosop (MCA Baringo)	Compensation and ownership of swampy areas/lands if the proposed line transverses such areas	Wetlands are considered as fragile ecosystems; therefore, such areas are avoided during route selection. KETRACO has a route selection criterion that helps in determining the best alternative routes that minimizes impacts. Its KETRACO's policy not to traverse any wetland
Public Consultation and Stakeholder engagement	Geluata Irene Senei(CEC Land and Housing-Samburu County)	The need of intensive public consultation to the locals before implementation of project	Intensive consultations will be done during the preparation of (ESIA, RAP) and implementation phase of the specific projects. Further consultations are done as need arises
Community Social Responsibility (CSR)	Kipruto Kimosop (MCA Baringo)	CSR activities has not been captured in the ESMF	CSR activities largely depends on availability of funds and company policy that governs CSR Consultation with the local communities is also key for needs assessment during implementation of CSR
Strategic Environmental Assessment (SEA)	Marrian Kioko (NEMA)	Program like KESIP need to be subjected to SEA as per EMCA Cap 387, regulation No. 57A to address cumulative impacts that can be caused by such programs	KETRACO has not been undertaking Seas. However, this is noted for future consideration.
Environmental Monitoring and audit	Martha Nzisa KWS	Periodic Environmental monitoring and audit of transmission lines to ensure that proposed Environmental and Social Monitoring Plan is fully implemented. Sharing of monitoring and audit report.	Environmental monitoring is done quarterly in ongoing projects, while environmental audits is done annually on commissioned transmission line. ESMP monitoring reports are internal documents but Environmental Audit documents are public.
Avifauna	Martha Nzisa KWS	Keeping records of bird strikes as a results of transmission lines to help in evaluation of avifauna impacts	This will be considered during the undertaking of annual environmental audits for commissioned lines.
Biodiversity	Martha Nzisa KWS	Development of Biodiversity management framework	This has been incorporated in the ESMF A detail study on biodiversity will be captured during ESIA study

Climate change	Collin Nthuni KWS	Impacts of transmission lines with regards to climate change	Transmission lines evacuate clean energy to other areas which are dependent on diesel generators, therefore reducing on emission of greenhouse gases. Construction of transmission lines provide an alternative source of energy hence deducing dependence on wood fuel. KETRACO will also consider tree planting programs
Ramsar Sites and Important Bird Areas (IBAs)	Elly Ochere WRA	Inclusion of Ramsar Sites and IBAs in the report that may be impacted by the proposed projects	This will be included in the ESMF Where applicable, it will be included in the ToR for specific ESIA studies.

Kenya Electricity Transmission Company Limited

"Building a World Class National Grid"

RPF, ESMF & VMGF MEETING – REGISTERATION FORM

Venue: The Boma Hotel

Date: 22nd February, 2018

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ANNEX F: COMPARISON KENYAN LAWS AND WORLD BANK OPERATIONAL PROCEDURES

World Bank Requirements	*Kenyan Requirements*	*Gap*
OP 4.01, Environmental Assessment		
1. Use a screening process for each proposed project, as early as possible, to determine the appropriate extent and type of environmental assessment (EA) so that appropriate studies are undertaken proportional to potential risks and to direct, and, as relevant, indirect, cumulative, and associated impacts. Use sectoral or regional environmental assessment when appropriate.	Environmental Management and Coordination (Amendment) Act 2015 (legal Notice No 5 of 2015) and provides for a full ESIA study for high risk projects. Provides for screening of the proposed development activity and preparation of a Project Report Provides for carrying out of an EIA Study where a Project will have significant environmental impacts and the Project Report does not disclose adequate mitigation measures	No Gap OP 4.01 and Kenyan environmental laws and regulations complement each other.
2. Assess potential impacts of the proposed project on physical, biological, socio-economic and physical cultural resources, including transboundary and global concerns, and potential impacts on human health and safety.	**THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT) REGULATIONS, 2003 PART IV** – requires below for high risk projects 18. (1) A proponent shall submit to the Authority, an environmental contents of impact assessment study report incorporating but not limited to the environmental following information - (a) the proposed location of the project; (b) a concise description of the national environmental legislative and regulatory framework, baseline information, (c) and any other relevant information related to the project; the objectives of the project; (d) the technology, procedures and processes to be used, in the implementation of the project; (e) the materials to be used in the construction and implementation of the project; (f) the products, by-products and waste generated project; (g) a description of the potentially affected environment; (h) the environmental effects of the project including the social and cultural effects and the direct, indirect, cumulative, irreversible, short-term and long-term effects anticipated; (i) alternative technologies and processes available and reasons for preferring the chosen technology and processes; (j) analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site,	No Gap OP 4.01 and Kenyan environmental laws and regulations complement each other.

	design and technologies. (k) an environmental management plan proposing the measures for eliminating, minimizing or mitigating adverse impacts on the environment; including the cost, time frame and responsibility to implement the measures; (l) provision of an action plan for the prevention and management of foreseeable accidents and hazardous activities in the cause of carrying out activities or major industrial and other development projects; (m) the measures to prevent health hazards and to ensure security in the working environment for the employees and for the management of emergencies; (n) an identification of gaps in knowledge and uncertainties which were encountered in compiling the information; (o) an economic and social analysis of the project; (p) an indication of whether the environment of any other state is likely to be affected and the available alternatives and mitigating measures; and (q) such other matters as the Authority may require. **The Public Health Act (Cap 242)** • Provides for the prevention of the occurrence of nuisance or conditions dangerous/injurious to humans. • Provides that the relevant local authority shall take all lawful, necessary and reasonably practicable measures. **Environmental Management and Co-ordination (Water Quality) Regulations 2006** • Provides for the protection of ground and surface water resources. • Provides the water quality standards for sources of domestic water. • Provides that an EIA shall be carried out and license obtained to abstract water or carry out activities that may have adverse impacts on the quantity or quality of water in lakes, rivers, streams, springs and wells • Provides the water quality standards for effluent discharged into the aquatic environment. **Environmental Management and Co- ordination (Waste Management) Regulations 2006** • Provides for standards for handling, transportation and disposal of various types of wastes including hazardous wastes. • Requirements to ensure waste minimization or cleaner production, waste segregation, recycling or composting. • Provides for licensing of vehicle transporting waste. • Provides for the licensing of waste disposal facilities. Environmental Management and Coordination (Controlled Substances) Regulations 2007 (Legal Notice No 73 of 2007) • Provides for measures for storage, handling packaging and disposal of products with ozone-depleting substances including air conditioning and refrigeration equipment	

	Environmental Management and Coordination (Air Quality) Regulations, 2014 • Provides for ambient air quality tolerance limits. Prohibits air pollution in a manner that exceed specified levels. • Prohibits air pollution in controlled areas including residential areas, hospitals, National Parks, reserves and sanctuaries, conservation areas and central business districts • Provides for air pollution monitoring of quarries • Provides for measures to prevent air pollution from stockpiles or handling of construction materials • Provides for installation of air pollution control systems where pollutants emitted exceed specified limits. • Provides for the control of fugitive emissions within property boundary. • Provides for the control of vehicular emissions. • Provides for prevention of dispersion of visible particulate matter or dust from any material being transported. • Provides for acquisition of an emission license.	
3. Assess the adequacy of the applicable legal and institutional framework, including applicable international environmental agreements, and confirm that they provide that the cooperating government does not finance project activities that would contravene such international obligations.	Described above	No Gap OP 4.01 and Kenyan environmental laws and regulations complement each other.
4. Provide for assessment of feasible investment, technical, and siting alternatives, including the "no action" alternative, potential impacts, feasibility of mitigating these impacts, their capital and recurrent costs, their suitability under local conditions, and their institutional, training and monitoring requirements associated with them.	Described above	No Gap OP 4.01 and Kenyan environmental laws and regulations complement each other.
5. Where applicable to the type of project being supported, normally apply the EHS Guidelines. Justify deviations when alternatives to measures set forth in the EHS Guidelines are selected.	**Occupational Safety and Health Act (OSHA), 2007;** • Provides for the safety, health and welfare of workers and all persons lawfully present at work places. • Provides for the registration of workplaces. • provides for maintenance of cleanliness of workplaces, adequate lighting and ventilation, provision of sanitary conveniences, • Outlines safety requirements in use of machinery to prevent accidents and injuries.	There is a gap between the World Bank's EHS Guidelines, and Kenyan laws and regulations. Projects should apply whichever is more stringent.

	The Factories and Other Places of Work (Noise Prevention and Control) Rules, 2005 Rules provide for the maximum noise exposure levels for workers in places of work and for the provision of protective equipment for those exposed to high noise levels. Provide that an occupier shall also institute noise reduction measures at the source of noise in the workplace. Provides for development of a noise prevention program where noise in a workplace exceeds the continuous	
6. Prevent and, where not possible to prevent, at least minimize, or compensate for adverse project impacts and enhance positive impacts through environmental management and planning that includes the proposed mitigation measures, monitoring, institutional capacity development and training measures, an implementation schedule, and cost estimates.	Described above	No major gap
7. Involve stakeholders, including project-affected groups and local nongovernmental organizations, as early as possible, in the preparation process and ensure that their views and concerns are made known to decision makers and taken into account. Continue consultations throughout project implementation as necessary to address EA-related issues that affect them.	**THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT) REGULATIONS, 2003 PART IV** 21.(l) The Authority shall, within fourteen days of receiving the environmental impact assessment study report, invite the public to make oral or written comments on the report. (2) The Authority shall, at the expense of the proponent - (a) publish for two successive weeks in the Gazette and in a newspaper with a nation-wide circulation and in particular with a wide circulation in the area of the proposed project, a public notice once a week inviting the public to submit oral or written comments on the environmental impact assessment study report; and (b) make an announcement of the notice in both official and local languages at least once a week for two consecutive weeks in a radio with a nation-wide coverage. (3) The invitation for public comments under this regulation shall state - (a) the nature of the project; (b) the location of the project; (c) the anticipated impacts of the project and the proposed mitigation measures to respond to the impacts; (d) the times and place where the full report can be inspected; and (e) the period within which the Authority shall receive comments. (4) The notice to be published in the newspaper as specified under sub regulation (3) shall be in Form 8 set out in the First Schedule to these Regulations. 22. (l) Upon receipt of both oral and written comments as specified Public hearing. by section 59 and section 60 of the Act, the Authority may hold a public hearing.	No major gap

	(2) A public hearing under these Regulations shall be presided over by a suitably qualified person appointed by the Authority. (3) The date and venue of the public hearing shall be publicized at least one week prior to the meeting - (a) by notice in at least one daily newspaper of national circulation and one newspaper of local circulation; (b) by at least two announcements in the local language of the community and the national language through radio with a nationwide coverage. (4) The public hearing shall be conducted at a venue convenient and accessible to people who are likely to be affected by the project. (5) A proponent shall be given an opportunity to make a presentation and to respond to presentations made at the public hearing. (6) The presiding officer shall in consultation with the Authority determine the rules of procedure at the public hearing. (7) On the conclusion of the hearing, the presiding officer shall compile a report of the views presented at the public hearing and submit the report to the Director General within fourteen days from the date of the public hearing.	
8. Use independent expertise in the preparation of EA where appropriate. Use independent advisory panels during preparation and implementation of projects that are highly risky or contentious or that involve serious and multi-dimensional environmental and/or social concerns.	**EMCA CAP 387 outlines the following** (5) Environmental impact assessment studies and reports required under this Act shall be conducted or prepared respectively by individual experts or a firm of experts authorized in that behalf by the Authority. The Authority shall maintain a register of all individual experts or firms of all experts duly authorized by it to conduct or prepare environmental impact assessment studies and reports respectively. The register shall be a public document and may be inspected at reasonable hours by any person on the payment of a prescribed fee. **THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT)** **REGULATIONS, 2003 FOURTH SCHEDULE** sets out the Criteria for registration of Environmental Impact Assessment Experts	No major gap
9. Provide measures to link the environmental assessment process and findings with studies of economic, financial, institutional, social and technical analyses of a proposed project.	**THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT)** **REGULATIONS, 2003 PART VI - MISCELLANEOUS PROVISIONS (3)** states The Government, and all the lead agencies shall in the development of sector or national policy, incorporate principles of strategic environmental assessment.	No major gap
11. Disclose draft EA in a timely manner, before appraisal formally begins, in an accessible place and in a form and language understandable to key stakeholders.	Described above under public hearing Part II (I) of the Constitution of Kenya, 2010 commits the State to: • Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; • Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya; • Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources	No major gap

	of the communities; • Encourage public participation in the management, protection and conservation of the environment; • Protect genetic resources and biological diversity; • Establish systems of environmental impact assessment, environmental audit and monitoring of the environment; • Eliminate processes and activities that are likely to endanger the environment; and • Utilise the environment and natural resources for the benefit of the people of Kenya. Part II (II) states that "*Every person has a duty to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.*" Moreover, the Constitution includes aspects around land acquisition and compensation. It also mandates the development of a national land policy to implement the principles and establishes the National Land Commission **THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT)** **REGULATIONS, 2003 PART IV (2)** The environmental impact assessment study report shall be accompanied by a non-technical summary outlining the key findings, conclusions and recommendations of the study and shall be signed by the proponent and environmental impact assessment experts involved in its preparation.	
OP 4.11, Physical Cultural Resources		
1. Use an environmental assessment (EA) or equivalent process to identify PCR and prevent or minimize or compensate for adverse impacts and enhance positive impacts on PCR through site selection and design.	**Antiques and Monuments Act, Cap 215 and National Museums and Heritage Act, Cap 216,** These Acts been used for gazettement of areas of historical importance, museums and threatened heritage as they protect the archaeological, historical, and cultural sites such as monuments, elements or structures of an archaeological nature, inscriptions, and cave dwelling.	No major gap
2. As part of the EA, as appropriate, conduct field-based surveys, using qualified specialists.	Field-based surveys conducted by specialists and describe the proposed site for project including map, borders and neighborhoods with design of infrastructures, facilities and services and all inputs and outputs (THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT)REGULATIONS, 2003).	No major gap
3. Consult concerned government authorities, relevant non-governmental organizations, relevant experts and local people in documenting the presence and significance of PCR, assessing the nature and extent of potential	**Antiques and Monuments Act, Cap 215 and National Museums and Heritage Act, Cap 216,** 30. Where a person discovers a monument or object of archaeological or paleontological interest, the person shall, within seven days, give notice thereof, indicating the precise site and circumstances of the discovery, to the National Museums, and in the case of an object, shall deliver the object to the National Museums or to the District Commissioner to keep it for any particular purpose or for any particular purpose or for any particular period	To fill the gap any cultural heritage encountered during the work should be recorded as the procedure provided in the ESMF To fill the gap there should be a clause

impacts on these resources, and designing and implementing mitigation plans.		in all works contracts regarding chance finds .
4. For materials that may be discovered during project implementation, provide for the use of "chance find" procedures in the context of the PCR management plan or PCR component of the environmental management plan.		
O.P 4.04 Natural Habitats		
1. Use a precautionary approach to natural resources management to ensure opportunities for environmentally sustainable development. Determine if project benefits substantially outweigh potential environmental costs.	**The Wildlife Conservation and Management Act, 2013** • Prohibits pollution of wildlife habitats and ecosystems	No significant gaps. Apply either of the two due to insignificant differences
2. Avoid significant conversion or degradation of critical natural habitats, including those habitats that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value, or (d) recognized as protected by traditional local communities.	**The Forest Conservation and Management Act, 2016** • Prohibits the destruction of protected tree species or family of trees • Provides for the sustainable management of indigenous forests and woodlands The Environmental Management and Co-ordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulations, 2009 applies to all wetlands in Kenya whether occurring in private or public land. The objectives of the regulations is to provide for the conservation and sustainable use of wetlands and their resources in Kenya and promote the integration of sustainable use of resources in wetlands into the local and national management of natural resources for socio-economic development. The act also aims at ensuring the conservation of water catchments and the control of floods and the sustainable use of wetlands for ecological and aesthetic purposes for the common good of all citizens. The act also makes provision for the protection of wetlands as habitats for species of fauna and flora. It also provides a framework for public participation in the management of wetlands. The Act requires wetland resources to be utilized in a sustainable manner compatible with the continued presence of wetlands and their hydrological, ecological, social and economic functions and services. The Act requires special measures to be undertaken to preserve and maintain knowledge innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity in wetlands. The regulation also calls for sustainable use of wetlands through integration into the national and local land use plans to ensure sustainable use of wetlands in the country.	

3. Where projects adversely affect non-critical natural habitats, proceed only if viable alternatives are not available, and if appropriate conservation and mitigation measures, including those required to maintain ecological services they provide, are in place. Include also mitigation measures that minimize habitat loss and establish and maintain an ecologically similar protected area.	**WILDLIFE CONSERVATION AND MANAGEMENT ACT, 2013.PART VI – CONSERVATION, PROTECTION AND MANAGEMENT** No exemption from environment law to be granted (1) No user rights or other license or permit granted under this Act shall exempt a person from complying with any other written law concerning the conservation and protection of the environment. (2) A user or other related right shall not be granted under this Act where the requirement for a strategic environmental, cultural, economic and social impact assessment license under the Environmental Management and Co-ordination Act, 1999 (No. 8 of 1999) has not been complied with.	
4. Whenever feasible, give preference to siting projects on lands already converted.	**THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT) REGULATIONS, 2003 PART IV (2)** (j) analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site, design and technologies	
5. Consult key stakeholders, including local nongovernmental organizations and local communities, and involve such people in design, implementation, monitoring, and evaluation of projects, including mitigation planning.	Part II (I) of the Constitution of Kenya, 2010 commits the State to: • Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; • Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya; • Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities; • Encourage public participation in the management, protection and conservation of the environment; • Protect genetic resources and biological diversity; • Establish systems of environmental impact assessment, environmental audit and monitoring of the environment; • Eliminate processes and activities that are likely to endanger the environment; and • Utilise the environment and natural resources for the benefit of the people of Kenya. Part II (II) states that "*Every person has a duty to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.*" Moreover, the Constitution includes aspects around land acquisition and compensation. It also mandates the development of a national land policy to implement the principles and establishes the National Land Commission	

	WILDLIFE CONSERVATION AND MANAGEMENT ACT, 2013.PART VI – CONSERVATION, PROTECTION AND MANAGEMENT Variation of boundaries or revocation of a national park or a marine protected area A notice under this section which proposes to— (a) vary the boundaries of a national park; or (b) change the status from national park to wildlife conservancy or sanctuary, shall only be published by the Cabinet Secretary where a proposal is recommended by the Service after consultation with the National Land Commission in accordance with subsection (2) of this section and is subsequently approved by a resolution of Parliament: Provided that there shall be no recommendation unless— (a) they are satisfied that such variation of boundary or cessation of national park proposed by the notice— (i) shall not endanger any rare, threatened or endangered species; (ii) shall not interfere with the migration and critical habitat of the wildlife; (iii) does not adversely affect its value in provision of environmental goods and services; and (iv) does not prejudice biodiversity conservation, cultural site protection, or its use for educational, ecotourism, recreational, health and research purposes; (b) the proposal has been subjected to an environmental impact assessment in accordance with the provisions of the Environmental Management and Co-ordination Act, 1999; and (c) public consultation in accordance with the Fourth Schedule has been undertaken in relation to the proposal.	
6. Provide for the use of appropriate expertise for the design and implementation of mitigation and monitoring plans.	As above	
7. Disclose draft mitigation plan in a timely manner, before appraisal formally begins, in an accessible place and in a form and language understandable to key stakeholders.	As above	
OP 4.12 Involuntary Resettlement		

Avoid or minimize involuntary resettlement and, where this is not feasible, to assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	**The National Land Commission Act 2012** • Provides for the management and administration of land in accordance with the principles of the land policy set out in Article 60 of the Constitution and the national land policy • Gives power to the National Land Commission (NLC) to manage public land on behalf of the national and county governments, and to monitor and have oversight responsibilities over land use planning throughout the country • Mandates the NLC to investigate and provide recommendations on historical land injustices including development-induced displacement for which no adequate compensation or other form of remedy was provided, including conversion of non-public land into public land **The Land Act 2012** • Mandates the National Land Commission and other public officers to use the following guiding principles and values: equitable access to land; security of land rights; sustainable and productive management of land resources; conservation and protection of ecologically sensitive areas • Provides for methods of acquisition of title to land including compulsory acquisition where land is required for public purposes or in the public interest as related to and necessary for fulfilment of the stated public purpose • Provides for the conversion of private land to public land through compulsory acquisition, transfer, surrender or reversion of leasehold interest to Government; • Provides that just compensation shall be paid promptly in full to all persons whose interests in the land have been determined; and • Provides for the creation of a public rights of way (ROW) or wayleave by the National Land Commission.	
OP 4.10 Indigenous Peoples		
Design and implement projects in a way that fosters full respect for Indigenous Peoples' dignity, human rights, and cultural uniqueness and so that they: (a) receive culturally compatible social and economic benefits; and (b) do not suffer adverse effects during the development process	While the term "Indigenous Peoples" is not used in Kenya, the legal framework recognizes particular concerns and rights of minorities and marginalized groups. The Constitution defines a marginalized community as: "A community that, because of its relatively small population or for any other reason, has been unable to fully participate in the integrated social and economic life of Kenya as a whole; A traditional community that, out of a need or desire to preserve its unique culture and identity from assimilation,	No significant gaps Apply either of the two due to insignificant differences
OP 4.36 Forests		
Realize the potential of forests to reduce poverty in a sustainable	**Forest Conservation and Management Act, 2016.**	No significant gaps Apply either of the two due to

manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests.	**Where viable alternatives are not available for project that affect non critical habitat the forest act provides;** **Concession on public forests** (1) Where the Service is satisfied that utilization of a public forest can be done through the granting of a concession, the Service shall grant the concession subject to the provisions of the Constitution, this Act and any other relevant written law. (2) The Service shall not recommend any such proposal unless— (a) the proposal has been subjected to an independent environmental impact assessment; and (b) public consultation in accordance with the Second Schedule has been undertaken and completed. (3) The grantee of a concession shall— (a) comply with the guidelines or management plans prescribed by the Service; (b) prepare environmental and social impact assessments as may be required under any other written law; (c) prepare a concession area forest management plan that shall include inventories, reforestation or replanting programmes, annual operation plans and community user rights and benefits; (d) protect the concession area from destruction and encroachment by any other person; (e) ensure that the forest areas under his management are maintained for the conservation of biodiversity, cultural or recreational use; (f) maintain the physical boundaries of the concession; (g) take precautions to prevent the occurrence or spread of forest fires in connection with any or all operations within or outside the concession area; (h) ensure that all structures and facilities constructed or operated by and in connection with any activities are maintained according to the conditions of the license; and (i) pay applicable land rent, fees and other charges for utilizing forest resources within the concession area; (4) The concession shall indicate the nature of the concession, including its physical location and boundaries, and the purpose for which it is granted. (5) A grantee of a concession shall be personally responsible for any loss or damage, including the negligence of the grantee's employees, arising from the grantee's operations on the land for which the concession has been obtained. (6) The Service may, by notice in the Gazette, withdraw a concession granted under this section where a grantee breaches any of the conditions prescribed by this section or prescribed in the concession agreement. (7) A grantee of a concession shall provide a bond or some other form of financial security in this section referred to as "an Environmental Protection Bond". (8) An Environmental Protection Bond shall be of an amount sufficient to cover the costs associated with the implementation of the environmental obligations of the holder under this Act. (9) An Environmental Protection Bond shall be in a form and for an amount as may be determined by the Cabinet Secretary having regard to the particular characteristics of the concession.	insignificant differences

ANNEX G SAMPLE ESIA AND ESMP TABLE OF CONTENT

Environmental and Social Impact Assessment

The consultant will prepare the ESIA according to the following table of content:

a) *Executive summary*. Concisely discusses key findings and recommended actions.
b) *Project description*. Concisely describes the proposed facility and its associated facilities, its geographic location, including detailed maps, and its layout.
   Indicates for reference the need for any resettlement plan or indigenous peoples' development plan.
c) *Policy, legal, and administrative framework*
   i) Discusses the policy, legal, and administrative frameworks within which the EA is carried out.
   ii) Describes ROY requirements and procedures, including reporting requirements of the National Environmental Authority
   iii) Describes the relevant World Bank Safeguards Policies triggered under this Project, including the World Bank Group General Environmental, Health and Safety (EHS) Guidelines and the appropriate Industry Sector Guidelines
   iv) Explains the environmental requirements of any cofinanciers.
   v) Identifies relevant international environmental agreements to which the country is a party.
d) *Baseline data*
   i) Presents data directly relevant to decisions about project location, design, operation, or mitigatory measures, including physical aspects (such as topography, landforms, geology, soils, climate, air quality, and hydrology), and socioeconomic conditions (such as demography, settlements, community structures, vulnerable and marginal groups, sources and distribution of income, employment and labour markets, land use, and cultural heritage).
   ii) Identifies any changes anticipated before the project commences.
   iii) Takes into account current and proposed development activities within the project area but not directly connected to the project.
   iv) Collates data from existing sources, and if necessary collects original data
   v) Identifies and estimates the extent, quality, accuracy and reliability of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention.
   vi) Organizes and presents data according to three levels of detail: (a) footprint, (b) a buffer area of 1 km around the facility and its associated facilities, and (c) area of influence.
   vii) Presents summary data in geographic format.
e) *Environmental impacts*
   i) Predicts and assesses the project's potential positive and negative environmental and social impacts that might change the baseline conditions, in quantitative terms to the extent possible, during the construction, operation and decommissioning phases.
   ii) Differentiates between short, medium and long-term impacts, and estimates the magnitude of impacts, and identifies generic both generic environmental and social impacts and site-specific impacts.
   iii) Identifies mitigation measures and any residual negative impacts that cannot be mitigated.
   iv) Explores opportunities for environmental enhancement.
f) *Analysis of alternatives*
   i) Systematically compares feasible alternatives to the proposed facility associated ancillary facilities, such as technology, design, and operation--including the "without project"

situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements.

ii) For each of the alternatives, quantifies the environmental impacts to the extent possible, and attaches economic values where feasible.

iii) States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

g) *Public consultations and disclosures*

i) The consultant is expected undertake minimum of two public consultations for each transmission line, during the preparation and finalization of the ToRs and when the draft ESIA reports is ready

ii) The public consultations should be documented, including both the positive and negative concerns of the Project Affected Persons (PAPs) and how their views are incorporated into the design of the project

iii) Disclosure of the report shall be done in a manner, form and language that are understandable, accessible which enable the public full participation.

h) *Appendixes*

i) List of EA report preparers--individuals and organizations.

ii) References. Documents all sources of written information, both published and unpublished, used in the ESIA.

iii) Records of stae and consultations for obtaining the informed views of the affected and interested parties, as well as local nongovernmental organizations (NGOs), on the positive and negative impacts of the proposed project. The records will summarize concerns and opinions presented during the consultations. The record will also specify any means other than consultations (e.g., surveys) used to obtain the views of affected groups and local NGOs.

iv) Records of consultation meetings with institutional stakeholders

v) Tables presenting the relevant data referred to or summarized in the main text.

vi) List of associated reports (e.g., resettlement plan).

Environmental and Social Management Plan

The ESMP will specifically describe individual mitigation and monitoring measures during both construction, operation and decommissioning, assign institutional responsibilities, and estimate the resources required for its implementation. The ESMP will include:

a) *Mitigation Plan.* Identifies feasible and cost-effective measures that may avoid potentially significant adverse environmental impacts or reduce them to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient. The plan distinguishes between the construction and operations phases. The plan is organized specifically, the plan:

i) identifies and summarizes all anticipated significant adverse environmental impacts (including those involving indigenous people or involuntary resettlement), and identifies both generic and site specific environmental and social mitigation measures during construction and maintenance phases;

ii) describes with technical details--each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;

iii) includes measures to minimize migratory bird collisions with transmission lines;

iv) include emergency/disaster preparedness plans;

v) describes with details other plans that will be required during the construction and operation phases (e.g. Contractor ESMP, Occupational Health and Safety plans and labour influx plan).
vi) estimates any potential environmental impacts of these measures;
vii) provides linkage with any other mitigation plans (e.g., for involuntary resettlement, indigenous peoples, or cultural property) required for the project.
viii) includes additional data collection to fill identified data gaps

b) *Contractor clauses*
i) Defines environmental and social clauses that KETRACO will include in supply and installation bidding documents and contracts for the construction and supervision consultants, to ensure satisfactory environmental, social, health and safety performance of contractors
ii) The clauses will cover occupational health and safety in communities affected by the rehabilitation activities and its associated ancillary facilities, worksite health and safety; environmental management of construction sites; labor camps/labor influx; labor rights and the employment of community members; and land, property and livelihood compensation

c) *Monitoring Plan*
i) Defines monitoring objectives and indicators, and specifies the type of monitoring, with linkages to the impacts assessed in the EA report and the mitigation measures described in the ESMP.
ii) Provides: (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

d) *Institutional Arrangements*
i) Describes institutional arrangements, responsibilities and procedures within KETRACO, and the asset owner and its contractors to carry out each of the mitigatory and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).
ii) Includes training of contractors regarding the environmental and social clauses that apply to them.
iii) Estimates the resources required by the asset owner to implement and monitor the ESMP, such as level of effort (LOE), and equipment.
iv) As necessary, proposes capacity building, additional technical support or organizational changes, to ensure the timely and effective implementation of the ESMP.

e) *Grievance Redress Mechanism*
i) Describes the GRM procedures for receiving, handling and resolving complaints for each transmission line

f) *Implementation Schedule and Cost Estimates:*
i) implementation schedule for mitigation measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans;
ii) the capital and recurrent cost estimates and sources of funds for implementing the EMP.

g) *Chance Find Procedures*
i) Describe the 'Chance Find' procedures to ensure preventive and mitigation measures are formulated and implemented in the event physical cultural resources are encountered during project implementation

h) *Implementation Schedule and Cost Estimates:*
   i) implementation schedule for mitigation measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans;
   ii) the capital and recurrent cost estimates and sources of funds for implementing the EMP.

ANNEX H: SAMPLE GRIEVANCE REDRESS FORM

Name (Filer of Complaint): _____
ID Number: _____ (PAPs ID number)
Contact Information: _____District/Community mobile phone)

Nature of Grievance or Complaint:
_____
_____

Date Individuals Contacted Summary of Discussion
_____ _____ _____

Signature_____ Date: _____

Signed (Filer of Complaint): _____
Name of Person Filing Complaint: _____ (if different from Filer)
Position or Relationship to Filer: _____

Review/Resolution
Date of Conciliation Session: _____
Was Filer Present? Yes No
Was field verification of complaint conducted? Yes No
Findings of field investigation:
_____
_____

Summary of Conciliation Session Discussion:
_____
_____

Issues:
_____

Was agreement reached on the issues? Yes No
If agreement was reached, detail the agreement below:
If agreement was not reached, specify the points of disagreement below:

Signed (Conciliator): _____ Signed (Filer): _____

Signed: _____
Independent Observer

Date: _____

ANNEX I: CHANCE FIND PROCEDURE (CHP)

Regulatory and Other Requirements

The primary legislation on cultural heritage issues is the National Museums Heritage Act, 2006 (which updated and replaced the National Museums Act, 1983), the Antiquities Monuments Act 1983 and is enshrined in the requirements the provisions of the Environmental Management and Coordination Act (EMCA) which defines the Environmental and Social Impact Assessment (ESIA) process.

The National Museums Heritage Act sets out the overarching administrative processes for protecting and preserving cultural heritage and management by the NMK. As there are no designated monuments or sites within the immediate Project's area of influence, the heritage legislation only has a limited bearing on the Project's activities, however the project will take precautionary measures for handling any potentially significant chance finds through its implementation of the chance find procedure and requirement presented in subsequent sections of this procedure.

Physical cultural resources (PCR) within Environmental Assessment

The Client addresses impacts on PCR as an integral part of the EA process by undertaking an initial screening, developing terms of reference, collecting baseline data, conducting the impact assessment, and formulating mitigating measures and a management plan for PCR. As part of the public consultations required in the EA process, the consultative process for the PCR component of the project will includes relevant project-affected groups, concerned government authorities, and relevant nongovernmental organizations in documenting the presence and significance of PCRs, assessing potential impacts, and exploring avoidance and mitigation options. Normally, the findings of the physical cultural resources component of the EA are disclosed as part of, and in the same manner as, the EA report. However, exceptions to such disclosure would be considered when the Client, in consultation with the Bank and persons with relevant expertise, determines that disclosure would compromise or jeopardize the safety and integrity of the physical cultural resources involved or would endanger the source of information about the PCRs. In such cases, sensitive information relating to these particular aspects may be omitted from the EA report.

The national agency responsible for cultural matters in Kenya is the National Museums of Kenya (NMK).

Prior to commencement of projects in culturally sensitive areas the proponent would contact NMK who would send representatives to review the site and prepare a report. The report would entail advice on professional approach to the proposed works to ensure minimal damage to the encountered items. In the event that chance finds are encountered the following procedure shall apply:

Role of the contractor and Client

- Reporting of chance finds: The contractor or officer supervising the project would report the finds to the local administration such as the local chief or the Assistant County Commissioner;
- The local administration would then report the find to NMK.
- The contractor would report back to client who would notify NMK in the event that further artifacts are encountered

- The client will make budget available for training the contractor and his/her staff and workers on how to go about reporting PCRs and safeguarding these properties until NMK is alerted and further processing of the announcement is made viz-a-viz the formulation and implementation of appropriate avoidance and/or mitigating measures.

Role of NMK

- NMK would temporarily stop the works to conduct an assessment and prepare a report. The period of stoppage is from 10 days to 21 days depending on the complexity of the project; Retrieve movable artifacts and preserve immovable ones;
- NMK would also map out the area to be preserved during the investigation period and arbitrate between the community and developers in the event of dispute;
- NMK to Circulate the cultural impact assessment report to the developer, NEMA, relevant lead agencies and the community.

Measures for Care of Chance Finds

Upon retrieval of movable artifacts and conservation of immovable ones, NMK would proceed with segregation and dating of the artifacts and determination of their significance; Segregated artifacts would be stored in the NMK archeological stores according to their size and dates, and labeled with the geographical area where found; The artifacts may be displayed in an exhibition when required or published to enrich the cultural heritage.

Chance Find Report

Chance Find Report				
Date (DD/MM/YYYY)	**Time (xx:xx)**	**Site Name**	**GPS Coordinates (Northing)**	**GPS Coordinates (Easting)**
Description of Find				
Proximity to Contractor Activity				
Sensitivity				
Vulnerability				
Recommended Action Description				
Site Checklist		**Yes / No**	**Comment**	
Responsible persons notified				
Coordinates verified				
Site Marked				
Site Secured				
Photograph(s)				
Impacts Assessed				
Actions Agreed				
Authorised Instruction				
National Museums Kenya Representative		**Position**	**Signed (Name)**	

Ketraco Representative	**Position**	**Signed (Name)**

ANNEX J: TERMS OF REFERENCE (TOR)

Transmission lines and substations, environmental and social studies

Scope of Work

The proposed consultancy services include the preparation of the following three standalone documents, for each transmission line and its associated ancillary facilities described above:

1. Environmental Assessment consisting of two volumes: (i) Environmental and Social Impact Assessment (ESIA), and (ii) Environmental and Social Management Plan (ESMP)
2. Social Assessment
3. Resettlement Action Plan (RAP)
4. Vulnerable and Marginalised Groups Plan (VMGP)

For each power line, the consultant will ensure that these three documents complement each other and cover environmental and social issues in a comprehensive and coherent manner.

16.1 Environmental Assessment (EA)

16.1.1 Volume I. Environmental and Social Impact Assessment

The consultant will prepare the ESIA portion of each Environmental Assessment (Volume I) according to the following table of content (Adapted from World Bank OP 4.01, Annex B, *Content of an Environmental Assessment Report for a Category A Project*)

a. *Executive summary*. Concisely discusses key findings and recommended actions.
b. *Policy, legal, and administrative framework*
   (i) Discusses the policy, legal, and administrative frameworks within which the EA is carried out.
   (ii) Describes Government of Kenya requirements and procedures, including reporting requirements of the National Environmental Management Agency
   (iii) Explains the environmental requirements of any cofinanciers.
   (iv) Identifies relevant international environmental agreements to which the country is a party.
c. *Project description*. Concisely describes the proposed transmission line and its associated facilities, its geographic location, including large scale alignment sheets (provided by Ketraco) and the layout of substations, ecological, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities).
   Indicates for reference the need for any resettlement plan or indigenous peoples development plan.
d. *Baseline data*
   (i) Presents data directly relevant to decisions about project location, design, operation, or mitigatory measures, including physical aspects (such as topography, landforms, geology, soils, climate, air quality, and hydrology), biological aspects (including biodiversity, fauna, flora, animal migration, migratory flyways, endangered species, critical natural habitats, protected and sensitive areas), and socioeconomic conditions (such as demography, community structure, vulnerable and marginal groups, sources

and distribution of income, employment and labour markets, land use, and cultural heritage).

(ii) Identifies any changes anticipated before the project commences.

(iii) Takes into account current and proposed development activities within the project area but not directly connected to the project.

(iv) Collates data from existing sources, and if necessary collects original data

(v) Includes data directly provided and confirmed by relevant data sources, such a KWS, NMK, KFS, utilities (oil, gas, ICT), and county authorities.

(vi) Identifies and estimates the extent, quality, accuracy and reliability of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention.

(vii) Organizes and presents data according to three levels of detail: (a) footprint/wayleave, (b) a buffer area of 1 km around the line and associated facilities, and (c) area of influence.

(viii) Presents summary data in geographic format using the transmission line alignment sheets.

(ix) Confirms the accuracy of available data by "walking the line".

e. *Environmental impacts*

(i) Predicts and assesses the project's potential positive and negative environmental and social impacts that might change the baseline conditions, in quantitative terms to the extent possible, during the construction, operation and decommissioning phases.

(ii) Differentiates between short, medium and long-term impacts, and estimates the magnitude of impacts.

(iii) Identifies mitigation measures and any residual negative impacts that cannot be mitigated.

(iv) Explores opportunities for environmental enhancement.

f. *Analysis of alternatives*.

(i) Systematically compares feasible alternatives to the proposed transmission lines and associated ancillary facilities, such as alignment, technology, design, and operation--including the "without project" situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements.

(ii) For each of the alternatives, quantifies the environmental impacts to the extent possible, and attaches economic values where feasible.

(iii) States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

g. *Appendixes*

(i) List of EA report preparers--individuals and organizations.

(ii) References. Documents all sources of written information, both published and unpublished, used in the ESIA.

(iii) Records of public participation and consultations for obtaining the informed views of the affected and interested parties, as well as local nongovernmental organizations (NGOs), on the positive and negative impacts of the proposed project. The records will summarize concerns and opinions presented during the consultations. The record will also specify any means other than consultations (e.g., surveys) used to obtain the views of affected groups and local NGOs.

(iv) Records of interagency consultation meetings with institutional stakeholders such as: Kenya Wildlife Service (KWS), National Museums of Kenya (NMK), Kenya Forestry Service (KFS), Kenya Civil Aviation Authority (KCAA; for civil aviation security),

Department of Physical Planning, and local/impacted communities.
(v) Tables presenting the relevant data referred to or summarized in the main text.
(vi) List of associated reports (e.g., resettlement plan or indigenous peoples development plan).

16.1.2 Volume II. Environmental and Social Management Plan

The consultant will prepare the ESMP portion of each Environmental Assessment (Volume II) according to the following table of content (adapted from World Bank OP 4.01, Annex C, *Environmental management plan (EMP)*.

The ESMP will specifically describe individual mitigation and monitoring measures during both construction, operation and decommissioning, assign institutional responsibilities, and estimate the resources required for its implementation. The ESMP will include:

a. *Mitigation Plan.* Identifies feasible and cost-effective measures that may avoid potentially significant adverse environmental impacts or reduce them to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient. The plan distinguishes between the construction and operations phases. The plan is organized and is organized according Specifically, the plan:
   (i) identifies and summarizes all anticipated significant adverse environmental impacts (including those involving indigenous people or involuntary resettlement);
   (ii) describes--with technical details--each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;
   (iii) includes measures to minimize migratory bird collisions with transmission lines;
   (iv) include emergency/disaster preparedness plans;
   (v) estimates any potential environmental impacts of these measures;
   (vi) provides linkage with any other mitigation plans (e.g., for involuntary resettlement, indigenous peoples, or cultural property) required for the project.
   (vii) includes additional data collection to fill identified data gaps
b. *Contractor clauses*
   (i) Defines environmental and social clauses that KETRACO will include in bidding documents and contracts, to ensure satisfactory environmental and social performance of contractors
   (ii) The clauses will cover occupational health and safety in communities affected by the construction and operation of the transmission line and associated ancillary facilities, worksite health and safety; environmental management of construction sites; labor camps/out of area workers; HIV/AIDS & other STIs; child protection; gender equity and sexual harassment; labor rights and the employment of community members; and land, property and livelihood compensation
c. *Monitoring Plan*
   (i) Defines monitoring objectives and indicators, and specifies the type of monitoring, with linkages to the impacts assessed in the EA report and the mitigation measures described in the ESMP.
   (ii) Provides: (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and

reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

d. *Institutional Arrangements*
   (i) Describes institutional arrangements, responsibilities and procedures within KETRACO and its contractors to carry out each of the mitigatory and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).
   (ii) Describes the role of NEMA in monitoring implementation of the ESMP and in certifying compliance.
   (iii) Includes training of contractors regarding the environmental and social clauses that apply to them.
   (iv) Estimates the resources required by KETRACO to implement and monitor the ESMP, such as level of effort (LOE), and equipment.
   (v) As necessary, proposes capacity building, additional technical support or organizational changes, to ensure the timely and effective implementation of the ESMP.

e. *Implementation Schedule and Cost Estimates*:
   (i) implementation schedule for mitigation measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans;
   (ii) the capital and recurrent cost estimates and sources of funds for implementing the EMP.