REPUBLIC OF KENYA

MINISTRY OF ENERGY AND PETROLEUM (MOEP)

KENYA POWER AND LIGHTING COMPANY (KPLC)
&
RURAL ELECTRIFICATION AND RENEWABLE ENERGY CORPORATION (REREC)

ENVIRONMENTAL & SOCIAL MANAGEMENT FRAMEWORK (ESMF)

FOR

Accelerating Sustainable and Clean Energy Transformation (ASCENT) Regional Program-Multiphase Programmatic Approach (MPA)

JULY 2026

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LIST OF ABBREVITIONS AND CRONYMS

AFE	Eastern and Southern Africa
ASCENT	Accelerating Sustainable and Clean Energy Access Transformation
AIIB	Asian Infrastructure Investment Bank
BESS	Battery Energy Storage Systems
C-ESMP	Contractor Environmental and Social Management Plan
CFL	Compact Fluorescent Lamp
CHS	Community Health and Safety
COC	Code of Conduct
COMESA	Common Market for Eastern and Southern Africa
DP	Development Partner
DRE	Distributed Renewable Energy
EA	Environmental Assessment
E&S	Environmental and Social
EHSGs	Environmental, Health and Safety Guidelines
EMF	Electric and Magnetic Fields
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESIRT	Environmental and Social Incident Reporting Toolkit
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESSs	Environmental and Social Standards
FI	Financial Intermediary
GBV	Gender-based Violence
GBVAP	Gender-based Violence Action Plan
GIIP	Good International Industry Practice
GoK	Government of Kenya
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
HV	High Voltage
HWMP	Hazardous Waste Management Plan
IDA	International Development Association
IFC	International Finance Corporation
IP/SSAHULTC	Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
KOSAP	Kenya Off-grid Solar Access Project
LCPDP	Least Cost Power Development Program
LMP	Labour Management Procedures
LPG	Liquefied Petroleum Gas
LV	Low Voltage
MoEP	Ministry of Energy and Petroleum
MPA	Multiphase Programmatic Approach
MV	Medium Voltage

OHS	Occupational Health and Safety
OHSMP	Occupational Health and Safety Management Plan
PAD	Project Appraisal Document
PAP	Project Affected Person
PCB	Polychlorinated Biphenyls
PCR	Physical Cultural Resources
PDO	Project Development Objective
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PUE	Productive Use of Energy
RAP	Resettlement Action Plan
RoW	Right of Way
RPF	Resettlement Policy Framework
SEA/SH	Sexual Exploitation and Abuse/ Sexual Harassment
SEP	Stakeholder Engagement Plan
SHS	Solar Home Systems
SMP	Security Management Plan
SPD	Standard Procurement Document
SPV	Solar Photovoltaic
TMP	Traffic Management Plan
ToR	Terms of Reference
VAC	Violence Against Children
VRE	Variable Renewable Energy
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization

EXECUTIVE SUMMARY

This Environmental and Social Management Framework (ESMF) has been prepared for Accelerating Sustainable and Clean Energy Transformation (ASCENT) project, which is a World Bank financed project implemented by Ministry of Energy and Petroleum (MoEP), Kenya Power and Lighting Company (KPLC) and Rural Electrification and Renewable Energy Corporation (REREC).

Project Overview and Activities to be supported

The objective of the project is to increase access to modern energy services in Kenya. The Project aims to increase access to modern energy services through distributed renewable energy solutions, productive uses of energy, clean cooking technologies, and solar-based electrification of public infrastructure. Activities are expected to be implemented nationwide and will primarily support low- and moderate-risk subprojects whose exact locations will be identified during implementation through a screening process. Representative subprojects expected to be supported include:

- Solarization of existing diesel-powered mini-grids.
- Construction of new solar-powered mini-grids in underserved areas.
- Installation of solar photovoltaic (PV) systems and battery energy storage systems (BESS) in public education and health facilities.
- Low-voltage distribution lines and customer connections associated with mini-grids.
- Distributed renewable energy solutions, including solar home systems.
- Productive Use of Energy (PUE) equipment for agriculture, irrigation, refrigeration, agro-processing, and small enterprises.
- Clean cooking technologies and associated distribution systems.
- Capacity building, technical assistance, market development, and institutional strengthening activities.

ESMF Purpose, Scope and Objectives

Given that specific sites are not known at appraisal, an Environmental and Social Management Framework (ESMF) has been prepared to guide environmental and social screening, assessment, mitigation, monitoring, and management of subprojects. This ESMF maps out the Kenyan laws and regulations and the World Bank policies applicable to the Project, and describes the principles, approaches, implementation arrangements, and environmental and social mitigation measures to be followed.

Project Scope

The project will be implemented in all the 47 Counties in Kenya.

Key Environmental and Social Risks and Impacts

Environmental Risks and Impacts

- Vegetation clearing, habitat disturbance, and localized biodiversity impacts.
- Disturbance to wildlife and potential wildlife-vehicle collisions.
- Dust emissions from site preparation, excavation, and transportation activities.

- Noise and vibration from construction equipment and vehicles.
- Generation of solid waste and construction debris.
- Generation of hazardous waste, including batteries, solar panels, transformer oils, and other e-waste.
- Soil erosion and sedimentation caused by earthworks and vegetation removal.
- Soil and water contamination due to fuel, lubricant, or oil spills.
- Storm water management and wastewater disposal challenges.
- Increased demand for natural resources, including construction materials and water.
- Visual and landscape impacts associated with mini-grids, PV systems, and related infrastructure.

Social Risks and Impacts

- Temporary land acquisition, land-use restrictions, and economic displacement.
- Occupational health and safety risks, including working at heights, excavations, electrocution, and vehicle accidents.
- Community health and safety risks from traffic, construction activities, and electrical hazards.
- Labor influx impacts, including communicable disease transmission and social conflict.
- SEA/SH and gender-based violence risks.
- Child labor and forced labor risks in supply chains.
- Exclusion of vulnerable and marginalized groups from project benefits.
- Impacts on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities where present.
- Chance finds and impacts on physical cultural heritage resources.
- Community grievances and stakeholder dissatisfaction if engagement processes are inadequate.

Measures to Avoid and Minimize Risks during Early Subproject Planning and Design

Consistent with ESS1, the Project will apply the mitigation hierarchy—avoid, minimize, mitigate, and compensate/offset where necessary—during screening, siting, design, construction, and operation.

Site Selection and Design Measures

- Exclude High-Risk activities and subprojects with significant irreversible impacts from financing.
- Avoid critical habitats, protected areas, wetlands, wildlife corridors, forests, and culturally sensitive areas.
- Avoid locations requiring significant involuntary resettlement wherever feasible.
- Select alignments and sites that minimize vegetation clearing and biodiversity disturbance.
- Co-locate infrastructure along existing roads, right-of-way, and disturbed corridors.

- Avoid ridgelines, tourism landscapes, and visually sensitive locations where practical.
- Prioritize willing-buyer/willing-seller land transactions and government-owned land, where feasible.
- Integrate climate resilience, water conservation, and resource efficiency measures into subproject design.
- Incorporate universal access and inclusion considerations for vulnerable groups and persons with disabilities.

Planning and Screening Measures

- Conduct environmental and social screening prior to detailed design.
- Categorize subprojects according to risk level and determine the required instruments.
- Complete stakeholder consultations and disclosure before approving subprojects.
- Ensure all required permits, approvals, and licenses are obtained before procurement or commencement of work.
- Incorporate E&S requirements into technical specifications, bidding documents, contracts, and supervision arrangements.

Environmental and Social Instruments and Management Plans

Apart from this ESMF that includes general community health and safety plan, Stakeholder Engagement Plan (SEP), Environmental and Social Commitment Plan (ESCP) and Resettlement Policy Framework (RPF) have been prepared for project-level risk management. In addition, Labor Management Procedures (LMP) and SEA/SH Prevention and Response Action Plan will also be prepared to guide management of labor related risks. For each sub-project, the following environmental and social instruments will be prepared depending on screening outcomes and risk levels:

- ESIA/ESMP.
- Resettlement Action Plan (RAP)/Abbreviated RAP and Livelihood Restoration Plan.
- Vulnerable and Marginalized Groups Framework/Plans (VMGPs) as applicable
- Security Management Plan (SMP)

Implementation Arrangements, Roles and Monitoring Responsibilities

MoEP will have Overall project coordination through the Project Coordination Unit (PCU), providing Oversight of environmental and social compliance across implementing agencies and consolidation of monitoring and reporting to the World Bank. KPLC and REREC will Implement subprojects through dedicated PIUs; Conduct environmental and social screening; Prepare, disclose, and implement required E&S instruments; Obtain permits and approvals prior to work and ensure E&S commitments are cascaded into work and technical assistance contracts; Supervise contractors and monitor compliance; and Submit quarterly E&S reports. Contractors and Service Providers will prepare and implement Contractor ESMPs (C-ESMPs informed by the sit-specific assessments; Implement occupational health and safety measures; Manage waste, community health and safety, labor, and environmental impacts; and Report incidents and E&S performance

Environmental and Social Specialists at KPLC, REREC and MoEP will support screening, monitoring, capacity building, supervision, and reporting; Verify implementation of ESMPs, RAPs, LMPs, and other instruments; and conduct field inspections and compliance reviews.

Monitoring Responsibilities

Environmental and social monitoring will be undertaken by:

- MoEP PCU (overall oversight)
- KPLC and REREC PIUs (day-to-day monitoring), reporting to the World Bank quarterly.
- Contractor EHS personnel.
- Supervising engineers and consultants, reporting monthly to the Implementing Agencies.

Key monitoring indicators will include:

- Compliance with permits and approved E&S instruments.
- Occupational and community health and safety performance.
- Land acquisition and livelihood restoration outcomes.
- Stakeholder engagement and grievance resolution.
- Biodiversity and vegetation restoration.
- Waste and e-waste management.
- Gender and SEA/SH prevention measures.
- Incident reporting and corrective actions.

Cost for the Implementation of ESMF

The estimated cost for implementation of this ESMF is Kshs. 189 million. The corresponding estimated costs for the implementation of the specific ESMF activities is outlined in Table 9 of this framework.

Structure of the ESMF Report

The ESMF report is organized as follows: Executive Summary; Introduction; Project description; Environmental and social policies; environmental and social policies, regulations and laws; Identification, mitigation and management of environmental and social risks and impacts; procedures to address environmental and social risks; stakeholder engagement, disclosure and consultation; Mitigation measures; Institutional capacity for environmental management; ESMF Implementation budget; conclusions and recommendations; and annexes.

1. INTRODUCTION

1.1 Background

The Government of Kenya has pledged to stimulate economic growth and accelerate job creation to improve the economic wellbeing of Kenyans. Among the many interventions to achieve this is expansion of the new sources of energy to enable more Kenyans to connect to the grid at affordable cost and hence initiate economic activities at the micro-economic level.

The Government of Kenya (GoK)'s strategy for expanding electricity infrastructure to support the achievement addresses among others, issues including the equity of access to quality energy services at least cost manner. The Ministry of Energy and Petroleum (MoEP) Strategic Plan (2022) indicates the percentage of households with access to electricity is currently at 75%. Furthermore, to implement the strategy, the government has prepared an updated Least Cost Power Development Program (LCPDP) 2025-2030; the Rural Electrification Master Plan and Kenya Investment and Policy Prospectus. The investments included in the program cover all three elements of strategy for electricity development simultaneously capacity expansion, enhanced security and increased connections.

Kenya has made notable progress in expanding electricity access over the past decade, reaching approximately 75 percent national access and 55 percent in rural areas, driven by strong government leadership, development partner support, and private sector participation; however, more than 13 million people, mainly in remote and arid regions where grid extension is uneconomic, remain without electricity, and recent electrification gains have slowed to a decade-low. With the government targeting universal access by 2030, closing the remaining gap will increasingly depend on distributed renewable energy (DRE) solutions, as demonstrated by programs such as the US$150 million Kenya Off-grid Solar Access Project (KOSAP).

The Kenya National Energy Compact reaffirms this approach, positioning DRE as a core pathway to universal access and local economic transformation, with a strong emphasis on productive uses of energy to support enterprise development and job creation. Between 2025 and 2030, the Compact targets 400,000 off-grid connections annually through mini-grids and stand-alone systems, alongside large-scale electrification of public facilities and accelerated progress on clean cooking. Addressing electricity and clean-cooking deficits in an integrated manner is central to achieving the Compact's objectives, improving health and gender outcomes, reducing environmental degradation, and supporting climate-resilient, inclusive growth.

1.2 ESMF Requirement

This Environmental and Social Management Framework (ESMF) is an environmental assessment and management tool for the various project components under the World Bank-financed ASCENT project. The project will contribute to improving the access and reliability of electricity. The World Bank Environmental and Social Standard (ESS1)-Assessment and Management of Environmental and Social Risks and Impacts set out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs) which includes: the environment and social assessment, environment and social commitment plan and management of contractors. The main objective of this standard is to identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESF and to adopt a

mitigation hierarchy approach to avoid, minimize, mitigate and compensate the environmental and social risks.

Since the specific sub- project sites are unknown at the time of preparing the Project, the borrower is required to prepare an Environmental and Social Management Framework (ESMF) that will enable MoEP, KPLC and REREC to assess the environmental and social impacts of its proposed activities before undertaking them, and to delineate the mitigation, monitoring and institutional measures to be undertaken during preparation, implementation and operation of the Project to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable minimal levels.

1.3 Purpose and Rationale of ESMF

The purpose of this ESMF is to provide a procedure for environmental and social impact assessment of the proposed subprojects. This framework approach was selected because even though the footprint of the project is known, the exact locations or subproject implementation sites are not yet identified. Selection of sites for the project is yet to commence; specific designs and the precise location of the investments are not yet definitively identified. The ESMF will guide MoEP, KPLC, REREC in determining the appropriate level of environmental and social impact assessment required for the sub-projects and in preparing the necessary environmental and social mitigation measures for these sub-projects, using a standardized ESMP and /or E &S Checklists during the preconstruction, construction and operational phases of the project.

1.4 Objectives of the ESMF

The objective of this ESMF is to ensure that the implementation of the ASCENT Project will be carried out in an environmentally sustainable and socially sound manner. The ESMF will provide the project implementers with an environmental and social screening process and procedure that will enable them to identify, assess and propose mitigation measures for the identified environmental and social impacts and risks of project activities, including through the preparation of site-specific Environmental and Social Impact Assessment (ESIA)/ESMPs where applicable.

This ESMF follows the World Bank Environmental and Social Framework (ESF) as well as the Kenyan national laws and regulations. The objective of the ESMF is to assess and mitigate potential negative environmental and social risks and impacts of the Project consistent with the Environmental and Social Standards (ESSs) of the World Bank ESF and national requirements. More specifically, the ESMF aims to:

- Provide methodology of assessing the potential environmental and social risks and impacts of the proposed Project and proposing mitigation measures;
- Establish procedures for the environmental and social screening, review, approval, and implementation of sub project activities;
- specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social issues related to project activities;
- identify the staffing requirements, as well as the training and capacity building activities needed to successfully implement the provisions of the ESMF;
- Address mechanisms for public consultation and disclosure of project documents as well as redress of possible grievances; and
- Establish the budget requirements for implementation of the ESMF. This ESMF will allow the Borrower to clarify, to the extent possible and based on existing information, the

approach that should be taken at the sub project level, in accordance with the World Bank ESF.

This ESMF will be read together with other plans prepared for the ASCENT project, including the Stakeholder Engagement Plan (SEP), the Environmental and Social Commitment Plan (ESCP), Labour Management Procedures (LMP) including description of the workers' GRM, non-disclosable section containing the Project's security protocol, SEA/SH Prevention and Response Action Plan, Community Health and Safety plan and Vulnerable and Marginalized Groups Plans (VMGP).

This ESMF has the following Chapters: 1-Introduction; 2-Project Description; 3-Environmental and Social Policies, Laws and Regulations; 4-Identification, Mitigation and Management of Identified E&S Risks and Impacts in the future ESIAs; 5-Procedures for Environmental and Social Risk/Impact Assessment, and 6-Stakeholder Engagement, Disclosure and consultations, 7-Mitigation measures, 8- Institutional capacity for environmental management, and 9-ESMF implementation budget.

2. PROJECT DESCRIPTION

2.1 Introduction

The energy sector plays a critical role in the socio-economic development of any country. Kenya is committed to universal access to modern forms of energy by year 2030, as articulated in the national economic development blueprint, the Vision 2030 (the Vision). The goal of the Vision is to make Kenya a middle-income country enjoying a high quality of life by the year 2030. The objectives of the Vision have been adopted as GoK's national development objectives. Under this Vision, Kenya expects to achieve an economic growth rate of 10% and above.

Kenya has made notable progress in expanding electricity access over the past decade, reaching approximately 75 percent national access and 55 percent in rural areas, driven by strong government leadership, development partner support, and private sector participation; however, more than 13 million people, mainly in remote and arid regions where grid extension is uneconomic, remain without electricity, and recent electrification gains have slowed to a decade-low. With the government targeting universal access by 2030, closing the remaining gap will increasingly depend on DRE solutions, as demonstrated by programs such as the US$150 million KOSAP.

The Kenya National Energy Compact reaffirms this approach, positioning DRE as a core pathway to universal access and local economic transformation, with a strong emphasis on productive uses of energy to support enterprise development and job creation. Between 2025 and 2030, the Compact targets 400,000 off-grid connections annually through mini-grids and stand-alone systems, alongside large-scale electrification of public facilities and accelerated progress on clean cooking. Addressing electricity and clean-cooking deficits in an integrated manner is central to achieving the Compact's objectives, improving health and gender outcomes, reducing environmental degradation, and supporting climate-resilient, inclusive growth.

2.1.1 ASCENT Project Objectives

The Project Development Objective is to increase access to modern energy services in Kenya.

2.1.2 Summary of Subprojects and Activities

The ASCENT Kenya Project will mobilize $880 million to scale off-grid energy access, support productive use of energy, and attract private capital. Anchored by $450 million from IDA and complemented by up to $430 million in co-financing. The Project will deploy targeted instruments to expand access to electricity, increase adoption of productive uses of energy, and improve access to clean cooking solutions through private sector delivery. It is designed to address affordability while maximizing developmental impact, with a focus on expanding energy access and creating jobs, particularly in underserved regions. The project is structured into three components:

Component 1: Results-Based Financing for Distributed Renewable Energy, Productive Uses of Energy, Cooling, and Clean Cooking: This component will provide results-based financing (RBF) to improve affordability and drive adoption of DRE systems, PUE appliances, cooling solutions, and clean cooking technologies. An end-user subsidy program will lower the cost of these solutions, with subsidy levels reviewed periodically to ensure sustainability and minimize market distortion. Eligible beneficiaries under the RBF window will be pre-qualified companies and distributors of DRE, PUE, cooling, and clean cooking appliances, including irrigation and agro-processing applications, targeting households, farmers, and micro and small enterprises to accelerate energy access, enhance productivity, and create local employment. Detailed criteria for setting RBF

subsidy levels for different technologies and appliances will be defined in the Project Implementation Manual (PIM).

Component 2: Solar Based Electrification of Public Infrastructure: This component will provide solar energy access through two subcomponents:

Subcomponent 2A: Energy Access through Solarized and New Mini Grid

This subcomponent will expand off-grid energy access through two complementary approaches:

i. Solarization of existing diesel-powered mini-grids, and
ii. Development of new solar-powered mini-grids in underserved areas.

In addition, the subcomponent will conduct a comprehensive assessment of all public solar-powered mini-grids to identify opportunities to increase connection density to households, businesses, and community facilities, including hospitals and schools. It will also support the provision of community energy services, such as street and market lighting, enhancing safety and stimulating local economic activity. The design and implementation of this subcomponent will build on the experience and lessons from KOSAP, which is currently developing over 100 solar-powered mini-grids in underserved regions, providing a strong foundation for efficient deployment, technology optimization, and sustainable operations.

Subcomponent 2B: Electrification of public institutions

This component will provide solar energy to more than 7,500 public educational institutions and 2,500 public health institutions in underserved areas of the country that were identified and prioritized under the Kenya Energy Compact. The project will deploy climate resilient technological solutions including, inter alia:

i. Institutional solar photovoltaic systems designed for climate resilience and
ii. Battery energy storage systems (BESS).

To accelerate implementation and drawing on lessons learned from KOSAP, the subcomponent will partner with the private sector to deliver electricity as a service through the installation and long-term maintenance of solar PV systems in public education and health institutions. The electrification of these institutions will be financed through RBF that covers a portion of the capital costs, complemented by guaranteed energy as a service agreement, ensuring reliable and sustainable electricity supply.

The subcomponent design will include:

i. The RBF manager, with the Ministries of Energy and Petroleum, Education and Health, and County governments, will publish a list of institutions to be electrified.
ii. RBF manager will launch a competitive call for private companies to select specific institutions from this list for electrification. Companies' selections will be guided by defined criteria to ensure broad participation and fair allocation.
iii. RBF funds will be allocated to selected firms, with payments partially covering capex.
iv. The Ministries of Education and Health will sign ~10-year energy-as-a-service agreements with selected firms to ensure ongoing supply.

Component 3: Program Management,Capacity Building and Market Development: This component supports implementation, administration, management and monitoring and evaluation of the project, including operating costs and management fees. It has three subcomponents.

Subcomponent 3A: Market Development and Technical Assistance. This subcomponent will support market development for PUE and DRE through a combination of demand stimulation, enterprise support, and institutional strengthening. It will finance a national consumer awareness campaign on commercial PUE, complemented by targeted upskilling and mentorship for enterprises adopting PUE technologies.

Subcomponent 3B: Program Management, Capacity Building and Policy Support: This subcomponent will finance project management, policy and regulatory support, and capacity building for key stakeholders, including national and county government to operational County Energy Plans and private sector entities pipeline development through targeted project preparation and structuring assistance. It will support the design and deployment of appropriate financing instruments, promote gender-inclusive approaches, and integrate climate resilience across all project activities.

Subcomponent 3C: Energy Skills and Workforce Development: This subcomponent will institutionalize solar PUE skills development by supporting the review, updating, and accreditation of curricula, and by integrating PUE modules into existing courses offered by technical and vocational training institutions and universities, in line with national curriculum development processes. This will increase the availability, affordability, and relevance of training for technical sales personnel and installers, and expand access nationwide.

2.2 Sub-Projects Baseline, Locations and Designs

This section describes the overall baseline condition of Kenya in terms of bio-physical environment, as well as the socio-economic and cultural. The proposed project will rolled out in all the 47 Counties hence the baseline information presented below covers the national scope and will be complemented by County specific information depending on countries where ASCENT will be implemented.

2.2.1 Sub-Projects Baseline and Locations

2.2.1.1 Overview

This subsection provides a description of the existing physical, biological, and socio-economic conditions, which are directly or indirectly affected by Project activities. It is essential that the baseline environment and social conditions are characterized to accurately predict the potential effects the proposed project will have on the environment and society. The collection of baseline data therefore focused on providing information to support the assessment of any potential impact of the project at the national level.

2.2.1.2 Size, location and Geography

Covering approximately 582,646 square kilometers (225,000 square miles), Kenya is in East Africa and is bordered by Tanzania, Uganda, South Sudan, Ethiopia, Somalia, and the Indian Ocean. Nairobi is the capital and largest city, while Mombasa is the main seaport. Kenya is known for its diverse geography ranging from coastal plains to the Great Rift Valley and Mount Kenya a population exceeding 53 million, and a diverse, multi-ethnic society. Nairobi, Mombasa, Kisumu and Eldoret are the four main cities in Kenya. Nairobi lies in central Kenya, Mombasa on the Indian Ocean, and Kisumu on the Lake Victoria shores. Nakuru, Kitale and Lamu are among the major towns. The capital city of Kenya, Nairobi, is considered the main tourist hub.

2.2.1.3 Geology

The geology of Kenya is diverse and complex, spanning over 3 billion years of Earth's history, characterized by ancient basement rocks, extensive volcanic activity, and active rifting. The country's geological structure is generally divided into five main successions: the Archean craton in the west, the Proterozoic Mozambique Belt, Paleozoic-Mesozoic sediments, Tertiary/Quaternary volcanics, and recent sediments as described below:

1. The Archean Basement (Nyanzian and Kavirondian Shields) is located Primarily in Western Kenya, bordering Lake Victoria. It is the oldest rocks in Kenya (over 2.5–3 billion years), forming part of the Tanzania Craton. These consist of greenstone belts (Nyanzian system) containing volcanic and sedimentary rocks like banded iron formations, lavas, and pyroclastics.
2. The Proterozoic Mozambique Belt extends north-south across the middle of the country, covering a large area east and west of the Rift Valley. It is Composed of intensely deformed, high-grade metamorphic rocks; gneisses, schists, and marble, formed during the assembly of Gondwana (approx. 845–715 Ma). It is known for hosting a variety of gemstones (ruby, garnets, kyanite, and graphite) and basic igneous complexes.
3. Paleozoic and Mesozoic Sediments covers the Coastal region and Northeast Kenya. The sediments formed during the break-up of Gondwanaland. These include the Permo-Triassic Duruma Sandstone Series (Karoo system equivalents) in the southeast and Jurassic-age limestones and shales containing marine fossils. It has potential for hydrocarbons and hosts major titanium mineral sands along the coast.
4. Tertiary and Quaternary Volcanics (The Rift System) located in Central Kenya, floor, and flanks of the Great Rift Valley.The Extensive volcanic activity associated with the East African Rift System (EARS) began in the Miocene. This covers central Kenya with volcanic rock, including Kenya's largest mountains (Mt. Kenya, Mt. Elgon). It features numerous craters, cinder cones (e.g., Longonot, Suswa), and plateau phonolites, with rift-related faulting creating deep basins
5. Tertiary to Recent Sediments covers Rift Valley lakes, coastal areas, and eastern Kenya. It consists of the Lacustrine, fluvial, and Aeolian deposits accumulated in tectonic troughs and drainage basins. These include Pleistocene lake beds that are rich in fossils and stone tools (e.g., **Olorgesailie)**
6. Kenya faces a low to medium seismic risk profile, defined primarily by its location along the tectonically active East African Rift System. While the risk of catastrophic, large-scale earthquakes remains relatively low, moderate tremors (magnitudes 6.0–7.2) occur occasionally, with vulnerability driven by building structures integrity and rapid urbanization.

2.2.1.4 General Climatic Conditions

The climate ranges from hot and humid along the coastal region and Lake Victoria basin to temperate in the central highlands and arid/semi-arid in the northern and eastern parts of the country. The main rainy season ("long rains") occurs from March to May, while a secondary season ("short rains") happens from October to December. The dry seasons are typically December to March and July to October. Average daytime temperatures range between 20°C and 30°C, with higher areas being cooler and the low-lying northern and coastal areas significantly hotter. The country experiences strong southeasterly winds, particularly in the east and north during May-August

The Coastal Region Consistently hot and humid with temperatures ranging from 22°C to 30°C and high humidity year-round. In the Central Highlands & Rift Valley the temperate and pleasant, with temperatures ranging from 10°C to 28°C. This area includes Nairobi, which has a moderate climate, and areas around Mt. Kenya, which can experience very low temperatures, sometimes reaching near-freezing at night. Northern & Eastern Kenya (Arid/Semi-Arid experience Hot and dry with limited rainfall, often less than 250mm–500mm annually, and high daytime temperatures that can exceed 40°C, while nights can drop below 20°C. Western Kenya & Lake Basin is generally hot and humid throughout the year, with high rainfall, often receiving over 1,750 mm annually

2.2.1.5 Hydro Geology

Kenya's hydrogeology is complex and highly heterogeneous, dominated by volcanic rocks in the Rift Valley, sedimentary aquifers in the coast and north, and metamorphic basement rocks elsewhere. Groundwater is vital, especially for rural and coastal water supply, but faces challenges from over-exploitation, high fluoride levels, and saline intrusion in coastal aquifers. **The Key Hydrogeological Units include:**

- **Volcanic Aquifers (Rift Valley):** Dominated by fractured, weathered, and porous volcanic rocks, holding significant water within sediments interbedded between lava flows. High-yield wells often exploit fractures in the Rift Valley's fault zones.
- **Sedimentary Aquifers (Coast and North):** Extensive sedimentary formations, including the high-capacity Merti aquifer in the north and the Kilindini sands/coral limestone along the coast, serve as major freshwater sources.
- **Basement Rock Aquifers:** Dominated by low-permeability metamorphic rocks (gneisses, schists) where groundwater is restricted to shallow, localized fractured weathered zones. **Major Groundwater Systems**
- Nairobi Aquiver system is a complex of volcanic layers with high reliance, suffering from declining water levels due to over-abstraction.
- **Merti Aquiver is a** large, vital aquifer in the arid north (Marsabit/Garissa/Lamu) used by the Daadab refugee camp. Lastly, Coastal Aquivers **(e.g., Baricho, Tiwi):** High-yielding sands and limestone, often impacted by saline intrusion and requiring careful management

2.2.1.6 Biological Environment

Kenya's biological environment is exceptionally diverse, classifying it as one of the world's mega-biodiverse nations with over 35,000 species of flora and fauna. Situated on the Equator and bordered by the Indian Ocean, the country features dramatic altitudinal gradients—from sea-level coastlines to the 5,199-meter snow-capped Mount Kenya—that support a wide array of ecosystems, including savannas, arid and semi-arid lands (ASALs), tropical forests, mountains, and marine. The **Key Ecosystems and Biodiversity include:**

- **Savanna and Grasslands:** Covering a large portion of the country, these areas are famous for supporting large mammal populations, including the "Big Five" (African elephant, rhino, leopard, buffalo, and lion).
- **Arid and Semi-Arid Lands (ASALs):** Covering roughly 80% of Kenya's land area, these regions (such as the Chalbi and Nyiri deserts) are in the north and east, yet they support unique, specialized wildlife.
- **Forests:** High-altitude forests are found on Mount Kenya, the Aberdare Range, and Mau Escarpment (the largest forest complex in East Africa), while the Kakamega Forest represents a relic of a true rainforest.

- **Marine and Coastal:** The 640 km coastline includes coral reefs, seagrass beds, and over 53,000 hectares of mangrove forests, which serve as crucial breeding sites for fish.
- **Inland Waters:** Kenya features 467 freshwater and saline lake/wetland habitats (about 2.5% of the total area), including the Great Rift Valley lakes (Bogoria, Turkana, Naivasha) and Lake Victoria, which is critical for fishing.

Key Biological Features:

1. **Wildlife Migration:** The Maasai Mara Reserve plays host to the annual migration of over 1.5 million wildebeest, zebra, and antelope from the Serengeti.
2. **Avifauna:** Kenya is a top bird-watching destination with over 1,100 species recorded, featuring high diversity, especially around the Rift Valley lakes.
3. **Endemism:** Coastal forests and the Taita Hills act as critical "centers of endemism," home to species found nowhere else in the world.

Annex 6 presents Map of Kenya showing protected sites.

2.2.1.7 Administrative Framework

Kenya's administrative framework is a devolved system established by the Constitution of 2010, which transitioned the country from a highly centralized government to a two-tier structure: National Government and 47 County Governments. These levels are distinct and interdependent, operating based on consultation and cooperation. The national government is based in Nairobi and is responsible for national policies, security, foreign affairs, and services that cut across counties.

The national government is highly relevant and remains the primary driver of energy provision, policy formulation, and infrastructure development in Kenya. Through the Ministry of Energy and Petroleum and various state-owned corporations, the government controls the policy framework, major generation, transmission, and rural electrification initiatives aimed at achieving universal access by 2030. The Government maintains significant control through state owned corporations including: KenGen, KETRACO, GDC and KPLC. The government has established the "Kenya National Energy Compact 2025-2030," which aims to connect an additional 5.1 million households by 2030 through a mix of on-grid and off-grid solutions.

On the other hand, County governments in Kenya are essential partners in energy provision, a role significantly empowered by the Energy Act (2019) and the Constitution (2010), which devolved key energy planning and regulation functions. They serve as the link between national energy policies and local needs, particularly in developing decentralized, renewable, and sustainable energy solutions, such as rural electrification, street lighting, and the regulation of biomass and biogas.

2.2.1.8 Demography

Kenya has a young, fast-growing population of over 58 million as of 2026, with a median age of around 20 years. While the country is urbanizing, it retains a high fertility rate (3.4 children per woman), with a significantly youthful structure and a rapidly increasing but small elderly population.

Key demographic features include:

1. **Population Structure:** Over 40% of the population is under 15 years old, creating a high dependency ratio. In general, of the estimated population of 58.5 Million, approximately 75 % are under the age of 35.

2. Growth and Fertility: The population is growing at a moderate rate (approx. 2.2% intercensal growth). Fertility rates are declining but remain higher in rural areas (3.9) compared to urban areas (2.8).
3. **Age and Health:** Life expectancy is approximately 60.6 years for males and 65.5 years for females.
4. **Ethnic Diversity:** Kenya is ethnically diverse, with the Kikuyu (approx. 17%) being the largest group, followed by the Luhya, Kalenjin, Luo, and Kamba.
5. **Urbanization:** Around 32.6% of the population lives in urban areas, with Nairobi and surrounding counties experiencing the highest growth.

2.2.1.9 Livelihoods

Livelihoods in Kenya are diverse and heavily reliant on natural resources, with agriculture serving as the mainstay for the majority of the population. While about 75-80% of the population is under 35, unemployment remains high, forcing many into the informal sector. Key aspects of Kenyan livelihoods include:

1. **Agriculture and Livestock (Mainstay)**
    - **Small-scale Farming:** Agriculture accounts for over 21% of Kenya's GDP directly, with smallholder farmers producing about 75% of the total agricultural produce. Key activities include crop production (tea, coffee, horticulture) and livestock.
    - **Pastoralism:** In Arid and Semi-Arid Lands (ASALs), which cover about 80% of the country, pastoralism is the primary livelihood. This involves keeping cattle, camels, sheep, and goats.
    - **Dairy:** Over 1.3 million households are estimated to keep dairy cattle, with smallholders contributing 90% of the national milk supply.
    - **Fisheries:** In coastal regions, artisanal fishing provides a livelihood for over 10,000 households, with 60,000 residents depending on it directly or indirectly.
2. **Informal Sector and Entrepreneurship**
    - Small Business & Trade: Due to limited formal jobs, many Kenyans are "entrepreneurs by force," operating small businesses such as vending, retail, and agro-based services.
    - Side-Hustling: Many Kenyans, particularly the youth, engage in multiple income-earning activities simultaneously to navigate the high costs of living and formal employment uncertainties.
    - Casual Labor: Rural areas rely on farming labour, while urban areas have high numbers of people working in casual positions, such as motorcycle taxis (boda boda).

2.2.1.10 Water Supply

Kenya is a water-stressed country with about 59% of its population having access to safe drinking water, relying on a mix of surface water (rivers/lakes) and groundwater (boreholes). Agriculture dominates water usage (70%), while chronic challenges include inadequate infrastructure, water contamination, seasonal scarcity, and low sanitation access in rural areas

Key aspects of Kenya's water supply include:

- Sources & Distribution: Surface water (75% from five major water towers: Mt. Kenya, Mau Forest, etc.) and groundwater are the primary sources. Groundwater is crucial for rural areas and the coast.
- Water Scarcity: With low per capita water availability is low, hence Kenya is water-scarce. High dependence on rainfall makes areas vulnerable to drought, with 8.9 million people relying on unsafe water.

Some of the Key challenges include bacteriological contamination of shallow wells, heavy metals, inadequate infrastructure, and water pollution. In terms of governance, the national government handles water resource management, while the 47 county governments are responsible for service delivery.

The Major urban areas like Nairobi rely on dams (e.g., Ndakaini), while many rural areas lack piped access, relying on, for example, protected springs and boreholes.

2.2.1.11 Waste Management

Kenya's waste management is transitioning from open dumping toward a circular economy model, driven by the Sustainable waste management Act, 2021. Daily, 3,000–4,000 tons of waste is generated, mostly organic, with major challenges including inadequate infrastructure, reliance on the informal sector, and open burning. Key initiatives involve mandatory Extended Producer Responsibility (EPR) and sourcing segregation

The Sustainable Waste Management Act (2022) mandates waste segregation at the source and enforces Extended Producer Responsibility (EPR), requiring producers to manage the lifecycle of their products. Over 70% of the population lacks formal waste services, leading to rampant open dumping and burning, particularly in rural areas and urban informal settlements. Major urban centers rely on overloaded dumpsites, such as Nairobi's Dandora site. Informal waste pickers are crucial to the recycling ecosystem, with ongoing efforts to integrate them formally into the waste management value chain. About 80% of waste is organic, presenting a significant opportunity for composting and waste-to-energy projects. The National Environment Management Authority (NEMA) oversees regulations, promoting material recovery facilities (MRFs) and improved landfill management to reduce pollution. New guidelines focus on establishing specialized collection centers for electronic waste. The sector is undergoing a transformation to address the negative health and environmental impacts of improper disposal, aiming for a cleaner, more sustainable environment.

2.2.1.12 Land Ownership

Land ownership in Kenya is governed by the 2010 Constitution and categorized into Public, Private, and Community land. It is primarily held under Freehold (perpetual) or Leasehold (limited to 99 years) tenures, managed through the National Land Commission. While citizens can own freehold, foreign investors are restricted to leasehold tenure.

Categories of Land:

- Public Land: Held by the government for public use (schools, parks, forests, game reserves) and managed by the National Land Commission.
- Private Land: Owned by individuals, companies, or entities. It is categorized by Freehold (absolute ownership) or Leasehold (fixed term, usually 99 years).

- Community Land: Held by communities based on culture, ethnicity, or shared interests, including formerly trust lands.

Types of Tenure:

- Freehold: Gives the holder absolute ownership of the land for life with no specific time restriction.
- Leasehold: Gives the holder ownership for a specific period (usually 99 years), subject to payment of land rates to the county government.

Land Ownership Distribution and Challenges:

Ownership is heavily concentrated, with only 0.1% of the population owning large-scale farms that account for a significant portion of land, while 98% of farmers hold less than two hectares. Land inequality and disputes are common, often causing conflict. Gender disparities exist, with women having lower ownership rates, often relying on joint ownership.

2.2.1.13Cultural Heritage

Kenya's cultural heritage is a diverse tapestry formed by over 40 distinct ethnic groups (Bantu, Nilotic, and Cushitic) alongside Arab and Asian influences, reflected in its languages, traditional practices, and arts. Key features include UNESCO sites like Lamu Old Town and Fort Jesus, the Maasai beadwork, Isukuti dance, and the sacred Mijikenda Kaya forests cultural heritage in Kenya, comprising rich tangible sites and intangible traditions, faces significant challenges ranging from environmental threats to management gaps. The primary issues identified in 2024–2025 include the degradation of sites due to climate change, lack of funding for preservation, poor documentation, and the need for repatriation of stolen artifacts.

3. ENVIRONMENTAL AND SOCIAL POLICIES, REGULATIONS, AND LAWS

3.0 Introduction

There is a growing concern in Kenya and at global level that many forms of development activities cause damage to the environment. Development activities have the potential to damage the natural resources upon which the economies are based. Environmental Impact Assessment is a useful tool for protection of the environment from the negative effects of developmental activities. It is now accepted that development projects must be economically viable, socially acceptable and environmentally sound.

A detailed review of relevant institutional and legal as well as policy framework that bears significance or implication to the ASCENT project is presented in this chapter. The World Bank E&S standards applicable to the project as well as the international laws and conventions that bear relevance to the implementation of this project have also been highlighted in this chapter.

3.1 Administrative / Institutional Framework

3.1.1 Institutions and Departments which deal with Environmental Issues in Kenya

At present, there are over twenty (20) institutions and departments which deal with environmental issues in Kenya. Some of the key institutions include:

National Environment Management Authority (NEMA): The objective and purpose for which NEMA is established is to exercise general supervision and coordinate over all matters relating to the environment and to be the principal instrument of the government in the implementation of all policies relating to the environment. However, NEMA's mandate is designated to the following committees.

The County Environment Committees. According to EMCA (Amendment) Act 2015, The Governor shall, by notice in the Gazette, constitute a County Environment Committee of the County of the Authority in respect of every County respectively. The County Environment Committees are responsible for the proper management of the Environment within the County in respect of which they are appointed. They are also to perform such additional functions as are prescribed by the Act or as may, from time to time be assigned by the Minister by notice in the gazette. The decisions of these committees are legal and it is an offence not to implement them.

National Environmental Complaints Committee (NECC): The Committee performs the following functions, to investigate:

a. Any allegations or complaints against any person or against the Authority in relation to the condition of the environment in Kenya, on its own motion, any suspected case of environmental degradation, and to make a report of its findings together with its recommendation thereon to the Council;
b. To prepare and submit to the Council, periodic reports of its activities which report shall form part of the annual report on the state of the environment under section 9 (3); and
c. To perform such other functions and exercise such powers as may be assigned to it by the Council

National Environment Tribunal (NET): Its mandate generally is to hear any disputes regarding the exercise of power by NEMA. By adjudicating disputes and reviewing environmental decisions, NET ensures that environmental laws are enforced and upheld and provides a mechanism for

resolving environmental disputes, ensuring that affected parties have access to justice and remedies.

3.1.2 The Legal, Regulatory and Policy Framework

This sub section highlights the national laws and presents a description of each and the relevance to project activities. The required permits to be obtained or approved are also presented.

Table 1: Legal, regulatory and policy framework and the required permits.

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	National E&S Policies, Laws and Regulations	
The Constitution of Kenya, 2010: Constitutional provisions	Kenya now has a new Supreme law in form of the New Constitution which was promulgated on the 27th of August 2010 and which takes supremacy over all aspects of life and activity in the New Republic. The Constitution is the supreme law of the Republic and binds all persons and all State organs at all levels of government. The Constitution of Kenya, 2010 provides the broad framework regulating all existence and development aspects of interest to the people of Kenya, and along which all national and sectoral legislative documents are drawn. In relation to the environment, article 42 of chapter four, *The Bill Of Rights*, confers to every person the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative measures, particularly those contemplated in Article 69, and to have obligations relating to the environment fulfilled under Article 70. Chapter 5 of the document provides the main pillars on which the 77 environmental statutes are hinged. Part 1 of the chapter dwells on land, outlining the principles informing land policy, land classification as well as land use and property. Of core importance is the definition of private land as land within the project area is largely privately owned, and would be acquired for irrigation purposes. The second part of this chapter directs focus on the environment and natural resources. It provides a clear outline of the state's obligation with respect to the environment, thus; *"The state shall:*	*None*

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	1. *Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;* 2. *Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;* 3. *Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;* 4. *Encourage public participation in the management, protection and conservation of the environment;* 5. *Protect genetic resources and biological diversity;* 6. *Establish systems of environmental impact assessment, environmental audit and monitoring of the environment;* 7. *Eliminate processes and activities that are likely to endanger the environment; and* 8. *Utilize the environment and natural resources for the benefit of the people of Kenya."* There are further provisions on enforcement of environmental rights as well as establishment of legislation relating to the environment in accordance with the guidelines provided in this chapter. In conformity with the Constitution of Kenya, 2010, every activity or project undertaken within the republic must be in tandem with the state's vision for the national environment as well as adherence to the right of every individual to a clean and healthy environment. Section 69 (2) 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. Every person has the right to a clean and healthy environment which includes the right –	

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	a. *To have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article69; and* b. *To have obligations relating to the environment fulfilled under Article 70* Section 69 (2) 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 Section 70 provides for enforcement of environmental rights thus: If a person alleges that a right to a clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter. *On application under clause (1), the court may make any order, or give any directions, it considers appropriate:* • *To prevent, stop or discontinue any act or omission that is harmful to the environment;* • *To compel any public officer to take measures to prevent or discontinue any act or omission that is harmful to the environment; or* • *To provide compensation for any victim of a violation of the right to a clean and healthy environment.* For the purposes of this Article, an applicant does not have to demonstrate that any person has incurred loss or suffered injury. Essentially, the new Constitution has embraced and provided further anchorage to the spirit and letter of EMCA 1999 whose requirements for environmental protection and management have largely informed Sections 69 through to 71	

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)

	of this document. In Section 72 however, the new constitution allows for enactment of laws towards enforcement of any new provisions of the Supreme Law.
	
	The Constitution of Kenya, 2010, is robust on social issues also, with Public participation and consultations being enshrined in the national values and principles of governance in Article 9. A number of provisions in the Constitution has set out the principles for public participation and consultation including articles
	
	• **Sovereignty of the people.**
	• **The people may exercise their sovereign power either directly or through their democratically elected representatives.** Article 10a, b and c; **The national values and principles of governance** include:
	  • Patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people;
	  • Human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalized;
	  • Good governance, integrity, transparency and accountability.
	
	Article 27; **Equality and freedom from discrimination** Article 33; **Freedom of expression.** (1) Every person has the right to freedom of expression, which includes— (*a*) freedom to seek, receive or impart information or ideas; (*b*) freedom of artistic creativity; and (*c*) academic freedom and freedom of scientific research. Article 35; **Access to information** article 69 (1) (d) **Obligations in respect of the environment. 68.** (1) The State shall (*d*) encourage public participation in the management, protection and conservation of the environment; and article 174(d) **Objects of devolution.** The objects of the devolution of government are; (*d*) to recognise the right of communities to manage their own affairs and to further their development. These should be	

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	highlighted and made use of by the project as part of the free, prior and informed consultations process that has been alluded to in this ESMF	
Vision 2030	The economic, social and political pillars of Kenya Vision 2030 are anchored on macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology and innovation (STI); land reform; human resources development; security as well as public sector reforms. The 2030 Vision aspires for a country firmly interconnected through a network of roads, Electricity railways, ports, airports, water and sanitation facilities, and telecommunications.	*None*
The Environment Management and Co-ordination Act, 1999, (Amendment) 2015	This is an Act of Parliament providing for the establishment of an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. This Act is divided into 13 Parts, covering main areas of environmental concern as follows: Preliminary: (I); General principles (II); Administration (III); Environmental planning (IV); Protection and Conservation of the Environment (V), Environmental impact assessments (EIA), audits and monitoring (VI); Environmental audit and monitoring (VII); Environmental quality standards (VIII); Environmental Restoration orders, Environmental Easements (IX); Inspection, analysis and records (IX); Inspection Analysis and Records (X); International Treaties, Conventions and Agreements (XI) National Environment Tribunal (XII); Environmental Offences (XIII). Part II of the Environment Management & Coordination Act, 2015 states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. In order to partly ensure this is achieved, Part VI of the Act directs that any new programme, activity or operation should undergo environmental impact assessment and a report prepared for submission to the National Environmental Management Authority (NEMA), who in turn may issue a license as appropriate.	ESIA Certificate of Approval

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	MoEP, REA and KPLC are committed to ensuring that all their activities are carried out in an environmentally friendly manner throughout the three major project phases of design, construction and operation of the proposed project. The Act provides for the setting up of the various ESIA Regulations and Guidelines which are discussed in the rows below.	
The Environmental (Impact Assessment and Audit) Regulations, 2003	This regulation provides guidelines for conducting Environmental Impact Assessments and Audits. It offers guidance on the fundamental aspects on which emphasis must be laid during field study and outlines the nature and structure of Environmental Impact Assessments and Audit reports. The legislation further explains the legal consequences of partial or non-compliance to the provisions of the Act. Electrical infrastructure as an activity is listed on section 9 in the second schedule of EMCA as among projects that require full Environmental Impact Assessments before commencement. The project cannot start before the license is granted, upon conducting the EIA. For this reason, KPLC, MoEP and REA have to undertake ESIA studies for their projects.	EIA Licence
The Environmental Management Coordination (Waste Management) Regulations): Legal Notice 121	The regulation provides that a waste generator shall use cleaner production methods, segregate waste generated and the waste transporter should be licensed. The notice further states no person shall engage in any activity likely to generate any hazardous waste without a valid Environmental Impact Assessment license issued by the National Environment Management Authority. Hazardous waste will not be generated from this development. The project proponent will ensure that waste is segregated and a licensed waste transporter is contracted to disposed solid waste. KPLC and REA will manage all the construction waste as per the provision of this regulation.	Effluent discharge Permit
The Environmental Management Coordination (Water Quality) Regulations): Legal Notice 120	This Legal Notice on Water Quality provides that anyone who discharges effluent into the environment or public sewer shall be required to apply for Effluent Discharge License. The license for discharge is Kshs. 5,000 while annual license fee for discharge into the environment will be Kshs. 20,000 or Kshs	Effluent discharge Permit

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	100,000 depending on the facility. Non-compliance with the regulations attracts a fine not exceeding Kshs. 500,000 and the polluter pay principle may apply depending on the court ruling.	
Environmental Management and Coordination (Noise and Excessive Vibration pollution) (Control) Regulations, 2009: Legal Notice 61	This regulation prohibits any person to cause unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Part 11 section 6(1) provides that no person is shall cause noise from any source which exceeds any sound level as set out in the First Schedule of the regulations.	Noise permit for activities generating excessive noise beyond defined thresholds for different zones.
Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006	This legislation aims at enhancing preservation of biodiversity and safeguarding of endangered and rare plant and animal species within any human activity area. Section 4 of the legislation expressly prohibits any activity which may have adverse effects on any ecosystem, lead to introduction of alien species in a given area or result in unsustainable utilization of available ecosystem resources	None
Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations 2006	These regulations are described Legal Notice No. 131 of the Kenya Gazette Supplement no. 74, October 2006 and will apply to all internal combustion engine emission standards, emission inspections, the power of emission inspectors, fuel catalysts, licensing to treat fuel, cost of clearing pollution and partnerships to control fossil fuel emissions. The fossil fuels considered are petrol, diesel, fuel oils and kerosene.	Air Emissions permit
Public Health Act (Cap. 242)	Part IX, section 115, of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires that Local Authorities take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to be injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 and include nuisances caused by accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbour rats or	None

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	other vermin. The environmental and social management plan (ESMP) advices the Proponent on safety and health aspects, potential impacts, personnel responsible for implementation and monitoring, frequency of monitoring, and estimated cost. MoEP, KPLC and REA shall observe policy and regulatory requirements and implement measures to safeguard public health and safety.	
County Government Act, 2012	This Act makes provisions for county governments' powers, functions and responsibilities to deliver services and for connected purposes. Part VIII of the act on Citizen Participation (87) (b) emphasizes on the right of citizens to participate to any development projects prior to their implementation. section 135 (1) states that the Cabinet Secretary may make regulations for the better carrying out of the purposes and provisions of this Act and such Regulations may be made in respect of all county governments and further units of decentralization generally or for any class of county governments and further units of decentralization comply to the set regulations and by laws. This is the primary law governing the development of counties and thereby will be key during implementation of the Kenya Power projects. All organs established under this law should be consulted and approvals sought from the relevant authorities in relation to the relevant County Government where the project will be located.	County approvals for construction
Physical Planning Act, 1996	The Local Authorities are empowered under section 29 of the Act to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. The same section, therefore allows for the prohibition or control of the use and development of land and buildings in the interest of proper and orderly development of an area. Section 24 of the Physical Planning Act gives provision for the development of local physical development plan for guiding and coordinating development of infrastructure facilities and services within the area of authority of County,	Design approvals NCA Permits

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	municipal and town council and for specific control of the use and development of land. The plan shows the manner in which the land in the area may be used. Section 36 states that if in connection with development application a local authority is of the opinion that, the proposed activity will have injurious impact on the environment, the applicant shall be required to submit together with the application an Environmental Impact Assessment report. The environmental impact assessment report must be approved by the National Environmental Management Authority (NEMA) and followed by annual environmental audits as spelled out by EMCA 1998. Section 38 states that if the local authority finds out that the development activity is not complying to all laid down regulations, the local authority may serve an enforcement notice specifying the conditions of the development permissions alleged to have been contravened and compel the developer to restore the land to its original conditions.	
Urban Areas and Cities Act No. 13 of 2011	This is an act of Parliament to give effect to Article 184 of the Constitution; to provide for the, classification, governance and management of urban areas and cities; to provide for the criteria of establishing urban areas, to provide for the principle of governance and participation of residents and for connected purposes. This act will apply where MoEP, KPLC and REREC sub projects will be located within urban areas and cities.	None
Land Act, 2012	This Act gives effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land based resources, and for connected purposes. Section 110(1) of the Act provides that land may be acquired compulsorily under this if the Commission certifies, in writing, that the land is required for public purposes or in the public interest as related to and necessary for fulfillment of the stated public purpose. In such an acquisition, this Act, in section 111(1) provides that just compensation shall be paid promptly in full to all persons whose interests	Land ownership documentation

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	in the land have been determined. The procedure for land acquisition is laid out in Part VIII of the Act.	
The Land and Environment Court Act, 2011	This is an Act of Parliament to give effect to Article 162(2) (b) of the Constitution; to establish a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and for connected purposes. The principal objective of this Act is to enable the Court to facilitate the just, expeditious, proportionate and accessible resolution of disputes governed by this Act. Section 13 (2) (b) of the Act outlines that in exercise of its jurisdiction under Article 162 (2) (b) of the Constitution, the Court shall have power to hear and determine disputes relating to environment and land, including disputes: • Relating to environmental planning and protection, trade, climate issues, land use planning, title, tenure, boundaries, rates, rents, valuations, mining, minerals and other natural resources; • Relating to compulsory acquisition of land; • Relating to land administration and management; • Relating to public, private and community land and contracts, chooses in action or other instruments granting any enforceable interests in land; and • Any other dispute relating to environment and land.	None
Water Act, 2016	Part II, section 18, of the Water Act, 2016 provides for national monitoring and information system on water resources. Following on this, sub-section 3 allows the Water Resources Authority (WRA) to demand from any person or institution, specified information, documents, samples or materials on water resources. Under these rules, specific records may require to be kept by a facility operator and the information thereof furnished to the authority. The Water Act Cap 372 vests the rights of all water to the state, and the power for the control of all body of water with the Cabinet Secretary, the powers is	Abstraction permits

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	exercised through the Cabinet Secretary and the Director of water resources in consultation with the water catchments boards, it aims at provision of conservation of water and appointment and use of water resources. Part II Section 18 provides for national monitoring and information systems on water resources. Following on this, Sub-section 3 allows the Water Resources Authority to demand from any person, specified information, documents, samples or materials on water resources. Under these rules, specific records may be required to be kept and the information thereof furnished to the authority on demand. Section 76 states that no person shall discharge any trade effluent from any trade premises into sewers of a licensee without the consent of the licensee upon application indicating the nature and composition of the effluent, maximum quantity anticipated, flow rate of the effluent and any other information deemed necessary. The consent shall be issued on conditions including the payment rates for the discharge as may be provided under section 77 of the same Act	
Energy Act of 2006	The Energy Act of 2006 replaced the Electric Power Act of 1997 and The Petroleum Act, Cap The Energy Act, among other issues, deals with all matters relating to all forms of energy including the generation, transmission, distribution and transmission, supply and use of electrical energy as well as the legal basis for establishing the systems associated with these purposes. The Energy Act, 2006, also established the Energy Regulatory Commission (ERC) whose mandate is to regulate all functions and players in the Energy sector. One of the duties of the ERC is to ensure compliance with Environmental, Health and Safety Standards in the Energy Sector, as empowered by Section 98 of the Energy Act, 2005. In this respect, the following environmental issues will be considered before approval is granted: • The need to protect and manage the environment, and conserve natural resources;	EPRA permits

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	• The ability to operate in a manner designated to protect the health and safety of the project employees; the local and other potentially affected communities. Licensing and authorization to generate and transmit electrical power must be supported by an Environmental Impact Assessment Report (EIA) approved by NEMA. Part IV Section 80(1) provides that a person shall not conduct a business of importation, refining, exportation, whole sale, retail, storage or transportation of petroleum, except under and in accordance with the terms and conditions of a valid license. Part IV Section 90 (1) stipulates that a person intending to construct a pipeline, refinery, bulk storage facility or retail dispensing site, shall, before commencing such construction, apply in writing to the Energy Regulatory commission for a permit to do so. The application shall: specify the name and address of the proposed owner; be accompanied by three (3) copies of plans and specifications and be accompanied by an Environmental Impact Assessment (EIA) Report. Part IV section 91(1) stipulates that the Energy Regulatory Commission shall, before issuing a permit under section 90, take into account all relevant factors including the relevant government policies and compliance with Environment Management and Coordination Act, 1999 and in particular EIA report as per Impact Assessment and Audit Regulations 2003, the Physical Planning Act, 1996 and the Local Government Act. Part iv section 100 (1) provides that it is an offence if a person being the owner or operator of a refinery, pipeline, bulk liquefied Petroleum gas or natural gas facility, service station, filling station or storage depot, fails to institute appropriate environmental, health or safety control measures. The offence if convicted, he/she shall be liable to a fine not exceeding two million shillings or to a maximum term of imprisonment of two years, or to both.	

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
Building Code 1968	Section 194 requires that where sewer exists, the occupants of the nearby premises shall apply to the local authority for a permit to connect to the sewer line and all the wastewater must be discharged into sewers.	County Approvals
Physical land use Policy (Building regulations)	The regulations dictate the spatial and zoning standards, requiring that housing developments provide adequate open spaces such as front and side spaces.	
Penal Code Act (Cap.63)	Section 191 of the penal code states that if any person or institution that voluntarily corrupts or foils water for public springs or reservoirs, rendering it less fit for its ordinary use is guilty of an offence. Section 192 of the same Act says a person who makes or vitiates the atmosphere in any place to make it noxious to health of persons /institution, dwelling or business premises in the neighborhood or those passing along public way, commit an offence. KPLC shall observe the guidelines as set out in the environmental management and monitoring plan laid out in this report as well as the recommendation provided for mitigation/minimization/avoidance of adverse impacts arising from the project activities.	
Wildlife Conservation and Management Act, 2013	This Act provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes. The law has as one of its guiding principles the devolution of conservation and management of wildlife to landowners and managers in areas where wildlife occurs, through in particular the recognition of wildlife conservation as a form of land-use, better access to benefits from wildlife conservation, and adherence to the principles of sustainable utilization.	Wayleaves approvals
The 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 utilization activities.	Wayleaves approvals

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	To ensure community participation in forest management, the service collaborates with other organizations and communities in the management and conservation of forests and for the utilization of the biodiversity. Section 43 subsection 1 provides that if mining, quarrying or any other activity carried out in the forest, shall, where activity concerned is likely to result in forest cover depletion, the person responsible shall undertake compulsory re-vegetation immediately upon the completion of the activity.	
Occupational Safety and Health Act, 2007	The Act provides for the safety, health and welfare of workers and all persons lawfully present at work place, as well as the establishment of the National Council for Occupational Safety and Health and for connected purposes. Section 3(1) and (2) of the Act explains that it applies in all workplaces where any person is at work, either temporarily or permanently. It expounds on the purpose, which is to secure the safety, health and welfare of persons at work as well as protecting persons other than persons at work against risks resulting from, or connected to, activities at workplace. Further, sections 43 and 44 of part V give regulations on registration of work places. This shall be considered at the construction, implementation and decommissioning phases of the project. **Health:** The premise must be kept clean; a premise must not be overcrowded. The circulation of fresh air must secure adequate ventilation of workrooms. There must be sufficient and suitable lighting in every part of the premise in which persons are working or passing. There should also be sufficient and suitable sanitary conveniences separate for each sex, must be provided subject to conformity with any standards prescribed by rules. Food and drinks should not be partaken in dangerous places or workrooms. Provision of suitable protective clothing and appliances including where necessary, suitable gloves, footwear, goggles, gas masks, and head covering, and maintained for the use of workers in any process involving exposure to wet or to any injurious or offensive substances.	Worksite/ Campsite Occupational Permit Fire compliance certificates Plant inspection certificate Plant operators permits

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	Safety: Fencing of premises and dangerous parts of other machinery is mandatory. Training and supervision of inexperienced workers, protection of eyes with goggles or effective screens must be provided in certain specified processes. Floors, passages, gangways, stairs, and ladders must be soundly constructed and properly maintained and handrails must be provided for stairs. Special precaution against gassing is laid down for work in confined spaces where persons are liable to overcome by dangerous fumes. Air receivers and fittings must be of sound construction and properly maintained. Adequate and suitable means for extinguishing fire must be provided in addition to adequate means of escape in case of fire must be provided. **Welfare:** An adequate supply of both quantity and quality of wholesome drinking water must be provided. Maintenance of suitable washing facilities, accommodation for clothing not worn during working hours must be provided. Sitting facilities for all female workers whose work is done while standing should be provided to enable them take advantage of any opportunity for resting. Every premise shall be provided with readily accessible means for extinguishing fire and persons trained in the correct use of such means shall be present during all working periods. Regular individual examination or surveys of health conditions of industrial medicine and hygiene must be performed and the cost will be met by the employer. This will ensure that the examination can take place without any loss of earning for the employees and if possible within normal working hours. The (OSH) Act provides for development and maintenance of an effective program of collection, compilation and analysis of occupational safety. This will ensure that health statistics, which shall cover injuries and illness including disabling during working hours, are adhered. The environmental & Social management plan (ESMP) advices the Proponent on safety and health aspects, potential impacts, personnel responsible for implementation and monitoring, frequency of monitoring, and estimated cost.	

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
Work Injury and Benefits Act, (WIBA) 2007	This Act provides for compensation to employees for work related injuries and disease contracted in the course of their employment and for connected purposes. Key sections of the Act include the obligations of employers; right to compensation; reporting of accidents; compensation; occupational diseases; medical aid etc. In case of any accidents or incidents during the project cycle, this Act will guide the course of action to be taken.	Valid Insurance policy
The Traffic Act Cap 403 Of 2009	This Act consolidates the law relating to traffic on all public roads. Key sections include registration and licensing of vehicles; driving licenses; driving and other offences relating to the use of vehicles on roads; regulation of traffic; accidents; offences by drivers other than motor vehicles and other road users. Many types of equipment and fuel shall be transported through the roads to the proposed site. Their registration and licensing will be required to follow the stipulated road regulations. The Act also prohibits encroachment on and damage to roads including land reserved for roads. KPLC will observe the provisions of the Act.	Licences & Insurance
The Civil Aviation Act No. 21 of 2013	The provisions of this Act or any regulations made there under shall, except where expressly or by implication excluded, apply to: 1. All aircraft whilst in or over any part of Kenya; 2. All Kenya aircraft and the crew and other persons on board wherever they may be; and 3. All aerodromes and service providers within aerodromes. The provisions of this Act shall not, except where expressly included or if the Cabinet Secretary so directs by order published in the Gazette, apply to state aircraft or to any class or classes of state aircraft. All aircraft shall be subject to the requirements of this Act in respect of rules of the air. Where a proposed energy infrastructure is likely to penetrate the atmosphere beyond 15 meters or located in proximity to any airstrip, this act will be triggered.	Wayleaves approval

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
National Land Policy 2009	The National Land Policy (NLP) has a vision to guide the country towards a sustainable and equitable use of land. The land policy calls for immediate actions to addressing environmental problems that affect land such as degradation, soil erosion and pollution. For instance, the policy stipulates the principle of conservation and management of land based natural resources, the principle of protection and management of fragile and critical ecosystems including wetlands and arid lands. The policy further calls for extensive overhauls to current policies and institutions in an attempt to address chronic land tenure insecurity and inequity. The National Land Policy designates all land in Kenya as public, private (freehold or leasehold tenure), or community/trust land, which is held, managed and used by a specific community. This land policy has thus been formulated to address the critical issues of land administration, access to land, land use planning, restitution of historical injustices, environmental degradation, conflicts, unplanned proliferation of informal urban settlements, outdated legal framework, institutional framework and information management.	None
Electronic Waste Management Regulations	Kenya has prepared draft guidelines for E-waste management (2013), which are yet to come into force. Further, the Environmental Management and Coordination (Waste Management Regulations) regulations 2006, may apply to electronic waste where they can be classified as hazardous waste. In 2013, Kenya completed the development of E-waste regulations, which are still considered draft pending official gazette before enactment into law. Key highlights of the regulations include among others; Registration of Producer*s* where the draft regulations require producers intending to introduce new or used electrical and electronic equipment into Kenya apply for registration from NEMA and further states that already existing producers operating in Kenya must register with the Authority within sixty (60) days of the coming into force of this regulation as per sub-regulation (2); Producers Register Database where the regulations require that NEMA maintain an Electrical and Electronic Equipment producer's register as specified in schedule 3 which shall be opened to the public for inspection. Annual compliance certificate of Producers, the	None

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	draft regulations, every producer shall obtain an annual compliance certificate upon- Declaring the previous year's weight of electrical and electronic equipment introduced in the market by product type; a. Production of an evidence note with a licensed treatment facility; b. Production of a valid contractual agreement with a licensed treatment facility. **Producer Responsibility** The regulations in regard to producer responsibility require that producer declare to the Authority previous year's electrical and electronic equipment products introduced into the market; and provide to NEMA subsequent year's projected imports of any electrical and electronic equipment products. Further the regulations demand that every producer provide information to recyclers on how to dismantle their product at the end of life and the location of any hazardous substances or items within the product; and that every producer shall, within their relevant product category and on the basis of their market share, support the financing of collection and treatment for problematic fractions by the licensed treatment facility to ensure effective take back and treatment of E-waste. The draft regulations in terms of electrical and electronic equipment Registry state that a registry shall be established with the aim of keeping a register on the following; tonnage and categories of E-waste collected and processed by licensed treatment facilities; the total tonnage and categories of electrical and electronic equipment placed on the market by all producers; and status of compliance based on percentage of obligations fulfilled. **Responsibilities of Recyclers** The regulations impose responsibilities to recyclers including the requirement to receive and dismantle E-waste electrical and electronic equipment into hazardous and non-hazardous components in an environmentally sound manner and ensuring	

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	that the components, which cannot be recycled locally, are exported as specified in this regulation. **Responsibilities of Generators** The generator shall ensure E-waste is segregated from other forms of waste and is taken to licensed refurbishes' collection centers or recyclers. **Importation of Electrical and Electronic Equipment** The regulations require that electrical and electronic equipment imported into the country shall bear a label indicating the year and country of manufacture and restricts the importation of electrical and electronic equipment containing Cathode Ray Tubes into the country except for essential services such as medical equipment. **Prohibitions** The regulations have several prohibitions, which include prohibition against disposal of E-waste through burning; in non-designated waste receptacles or by burial or at a dumpsite. The regulations further prohibit treatment of Cathode Ray Tubes in an unsound environmental manner; cause leaching of precious metals with acids and other hazardous waste from printed wire boards or Printed Circuit Board in an uncontrolled manner; carry out open burning of electrical and electronic equipment/E-waste at the recycling facilities; or abandon E-waste anywhere other than in the collection centres and/or in the licensed recycling facilities. **Penalties** Any person who contravenes this regulation commits an offence and liable on conviction to a fine not exceeding one hundred thousand shillings or to imprisonment for a term not exceeding six months or to both.	
Labour Relations Act of 2012	General provisions on Labor, against child labor, forced labor, trafficking, workers' associations and unions, and labor disputes.	Work Permits (Foreigners)
The National Museums and Heritage Act (Cap 216)	Establishment of national museums of Kenya and provides for preservation of cultural heritage. The law provides NMK to enforce laws on conservation and	Guidance in case of chance finds during construction.

Law/policy	Description and Relevance to Project Activities	Required Permit/ License/ Approval (as / if Applicable)
	manage World Heritage Sites. NMK serves as a research institution focusing on biodiversity, ecosystems, and cultural preservation.	

3.2 International Conventions and Treaties Ratified by Kenya

Kenya has ratified several international conventions pertinent to land administration, environmental protection and human rights. Some of these conventions are outlined in *Table 2* below:

Table 2: International Conventions and Treaties Ratified by Kenya and relevance to ASCENT

Convention	Description and Relevance to Project Activities
Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention) 2001;	Protection and 'wise use' principle of wetlands that may be affected by project activities.
United Nations (UN) Convention on Biological Diversity 1994	Promotes conservation of biodiversity, sustainable use of natural resources, and equitable sharing of benefits.
UN Framework Convention on Climate Change, 1992;	Guides integration of climate mitigation and adaptation considerations into project design.
Kyoto Protocol to the United Nations Framework Convention on Climate Change	Encourages reduction of greenhouse gas emissions and promotion of clean technologies. Supports adoption of low-carbon technologies and energy-efficient interventions within project activities.
Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel Convention) 1989;	Guides proper handling, transportation, and disposal of hazardous materials/waste. Establishes procedures for safe waste management, including e-waste, medical waste, chemicals, and residues.
Montreal Protocol on Substances that Deplete the Ozone Layer Vienna Convention on the Ozone Layer 1985;	Ensure project activities avoid use of ODS, promote clean refrigeration/air-conditioning alternatives, and comply with national ODS regulations.
UN Convention on the Law of the Sea (UNCLOS), Montego Bay, 1982;	Protects marine ecosystems and regulates activities affecting coastal and marine resources. Ensure pollution prevention, sustainable use of marine resources, and safeguards for coastal communities.
Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) 1981;	Protection of the marine and coastal environment Consider pollution control, ecosystem protection, and sustainable resource use.
Convention Concerning the Protection of the World Cultural and National Heritage (World Heritage Convention), Paris, 1975;	Protection of cultural and natural heritage sites

Convention on the Conservation of Migratory Species of Wildlife Animals, 1979	Protects migratory species and their habitats along established routes. Integrates wildlife movement considerations, avoiding barriers, habitat destruction, or disturbance.
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (amended 1992);	Prohibits dumping of harmful wastes into marine waters. Incorporates strict waste management measures for projects near coastal/marine environments.
African Convention on Conservation of Nature and Natural Resources, 1968	Promotes conservation, sustainable use, and management of African natural resources. Aligns project activities with sustainable land use, forest conservation, and wildlife protection
Convention on International Trade in Endangered Species of Wild Fauna and Flora	Regulates trade in endangered species to prevent exploitation

3.3 World Bank Environmental and Social Standards (ESS)

This ESMF has been designed so that all sub-projects that will be implemented under ASCENT comply with the World Bank Environmental and Social Standards (ESS), the World Bank Group Environmental, Health and Safety Guidelines (WBG EHSGs) and all the applicable environmental policies, laws and regulations of the Government of Kenya (GoK).

In this sub section, the World Bank's ESS and their applicability are presented. The World Bank's 10 No. ESS are outlined below:

- Environmental and Social Standard (ESS) 1: Assessment and Management of Environmental and Social Risks and Impacts
- Environmental and Social Standard (ESS) 2: Labor and Working Conditions
- Environmental and Social Standard (ESS) 3: Resource Efficiency and Pollution Prevention and Management
- Environmental and Social Standard (ESS) 4: Community Health and Safety
- Environmental and Social Standard (ESS) 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- Environmental and Social Standard (ESS) 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Environmental and Social Standard (ESS) 7: Indigenous Peoples/ Historically Underserved Traditional Local Communities:
- Environmental and Social Standard (ESS) 8: Cultural Heritage:
- Environmental and Social Standard (ESS) 9: Financial Intermediaries
- Environmental and Social Standard (ESS10): Stakeholder Engagement and Information Disclosure

3.3.1 Applicable World Bank Environmental and Social Standards

The ASCENT is a Program targeting all 47 Counties in Kenya and is expected to have sub projects` investment in the sites to be selected as long as the selected sites are feasible.

However, the likely or potential locations of the proposed investments are unknown at this point in time. In order to reduce , minimize and mitigate adverse risks and impacts and undue harm of its development projects to the environment, all World Bank funded projects are guided by applicable Environmental Social Standards under Environmental and Social Framework. Given the specific environmental and social risks and impacts of project activities under ASCENT, the following ESS are relevant:

- ESS 1: Assessment and Management of Environmental and Social Risks and Impacts
- ESS 2: Labor and Working Conditions
- ESS 3: Resource Efficiency and Pollution Prevention and Management
- ESS 4: Community Health and Safety
- ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS 7: Indigenous Peoples/ Historically Underserved Traditional Local Communities:
- ESS 8: Cultural Heritage
- ESS10: Stakeholder
- Engagement and Information Disclosure

Table 3: Relevant World Bank ESS and Key Gaps with the National Framework

E&S Standard	Relevant/ Not Relevant	Gap between ESSs and National Framework and Measures to address identified gaps
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	ESS1 is relevant for the project because project activities are expected to pose moderate environmental and social risks such as i) solid waste pollution, ii) Land acquisition, iii) Land-use restriction and involuntary resettlement	ESS and the National Environmental Policy align in terms of Environmental and Social Screening process through which the project is assigned a Category based upon its potential environmental and social risks and impacts in its area of influence. This provides sufficient basis for classifying project risk and level of Environmental Assessment required.
ESS2: Labor and Working Conditions	ESS2 is relevant for the project because there are certain labor risks for project workers. Labor-related risks include (i) security risks to project workers, (ii) traffic and road safety issues, (iii) inadequate terms and conditions of employment, and (iv) occupational health and safety risks.	Labor legislation is consistent with ESS2 in most key aspects. However, legislation does not specify requirements for workers' grievance mechanism, does not require due diligence on primary suppliers for potential risks of child labor, forced labor and serious safety issues of primary suppliers and classification of workers into different categories in accordance with employers level of ability to influence. Labour requirements provided under ESS-2 shall be adopted and implemented, through project labor management procedures (LMP).
ESS3: Resource Efficiency and Pollution Prevention Management	ESS3 is relevant for the project because of likely use of creosote treated electric poles, use of transformers with oil, e-waste from especially panels & batteries, construction induced pollution such as air, noise, fugitive dust & waste and energy efficiency related issues	Pollution related legislation i.e Waste Management, Environmental Management and Coordination Act is consistent with ESS3 in most key aspects. Requirements for handling and management of creosote, E-waste, construction induced pollution under ASCENT will be undertaken as per the National laws.
ESS4. Community Health and Safety	ESS4 is relevant for the project because the subproject activities carry potential Community Health and Safety (H&S) risks, including equipment	Community Health and Safety related legislation includes Public Health Act (Cap 242) and Occupational Safety and Health Act 2007 and covers the following CHS aspects-

	design, hazardous materials, traffic safety, and disease transmission by project workers	a) Secure the safety, health and welfare of persons at work; and (b) protect persons other than persons at work against risks to safety and health. However, legislation does not specify requirements for managing Security services. Security services shall therefore be managed in line with the requirements of ESS4
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	ESS5 is relevant for the project because some subprojects such as installation of solar home systems (SHS) in public facilities, solar-based mini-grids, BESS and Distribution Lines potentially necessitate land acquisition or economic displacement and resulting in displacement risks	Legislation on land acquisition includes the Land Act 2012 and the Community Land Act 2016 that provides guidance in acquisition of the various land tenure and enumerates the process of compulsory land acquisition for unregistered community land. Just compensation for land acquired for project development is consistent with ESS5. However, legislation does not provide for full replacement cost as envisioned in ESS5 and allows for advance possession before compensation under undefined emergency situations. The Project will adopt the ESS5 principles in the resettlement policy framework (RPF).
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS 6 This standard will be relevant and its aim will be to support the protection and conservation of biodiversity and habitats. In this regard, mitigation hierarchy and precautionary approach will be applied in the design and implementation of the project that would have risks and impacts on biodiversity. The project will comply with this Environmental and Social Standard requirement by avoiding construction of power distribution lines passing through critical habitats such as national parks or wetlands of international importance. The activity of bush clearing will respect the Right of Way (RoW).	The Forests Conservation and Management Act,2016; and Wildlife Conservation and Management Act 2013, are consistent with ESS6 in most key aspects.

	Consistent with the project`s ESMF, ESS 6 and site specific ESSs instruments (ESMPs / ESIA), MoEP / REREC / KPLC will require civil works contractors to prepare C-ESMPs satisfactory to GoK and WB and implement it accordingly during construction, rehabilitation and TA consultants to comply with ESMF and other instruments.	
ESS7: Indigenous Peoples / Traditional Local Communities Historically Disadvantaged in Sub-Saharan Africa	ESS 7: This standard is relevant as the subprojects may impact indigenous communities. Where applicable, these activities will be guided by an IPP to be developed during implementation following the guidance of the IPPF being prepared. The IPP will include measures to mitigate any potential project impacts on IPs. The project SEP ensures that Indigenous communities are appropriately informed in an inclusive and culturally appropriate manner.	The Constitution of Kenya and other policies make reference to the Marginalized and Vulnerable groups, a definition consistent with the Traditional Local Communities Historically Disadvantaged in Sub-Saharan Africa. There are no particular laws recognizing IP and providing guidelines for free, prior and informed consent. As such the requirements of ESS7 shall be adopted and followed during project implementation
ESS8: Cultural Heritage	ESS 8: This standard is considered relevant because of construction and excavation related activities which may encounter chance finds. A Chance Finds Procedure prepared as part of the Project ESMF will be used. Sub-project screening excluded activities that could directly impact cultural heritage.	The Cultural/ Monuments Act and the National Museums and Heritage Act 2006 legislation is consistent with ESS8 in most key aspects. Chance find procedures aligned with the Act will be adopted.
ESS10: Stakeholder Engagement and Information Disclosure	ESS10 is relevant for all projects given the need to engage with beneficiaries and stakeholders on development activities that affect their lives.	The Environment Management and Coordination Act is consistent with ESS10 requirements in most key aspects relating to Stakeholder Engagement and Information Disclosure. However, there are no specific requirements for the identification of disadvantaged and vulnerable groups; Stakeholder engagement is limited to the

		assessment and planning stages of development projects; and there is no requirement to establish a grievance mechanism at a site or project level. The proposed SEP is fully aligned with the principles in ESS10.
NOTE: In principle and where there are gaps between the National and WB requirements. The more stringent and complete provisions shall be followed.		

3.4 World Bank Group Environmental, Health and Safety Guidelines

World Bank Group (WBG) Environmental, Health and Safety Guidelines (EHSGs), are considered relevant and shall be used as part of Good International Industry Practice. The EHSGs are technical reference documents that address the Bank's expectations regarding the EHS performance of projects it supports. They are designed to assist managers and decision makers with relevant industry background and technical information. This information supports actions aimed at avoiding, minimizing, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility. The EHS Guidelines serve as a technical reference source to support the implementation of the ESSs.

General EHSGs contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors. The **WBG General EHS Guidelines** can be found in the following link: **http://documents.worldbank.org/curated/en/157871484635724258**

EHSGs for Electric Power Transmission and Distribution. The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas. The guidelines will be relevant in undertaking detailed environmental assessments for subprojects under ASCENT Kenya and can be found in the following link: https://www.ifc.org/content/dam/ifc/doc/2000/2007-electric-transmission-distribution-ehs-guidelines-en.pdf

3.5 World Bank's Assessment and Management of Environmental and Social Risks and Impacts

The World Bank will classify all projects (including projects involving Financial Intermediaries (FIs) into one of four classifications: High Risk, Substantial Risk, Moderate Risk or Low Risk. In determining the appropriate risk classification, the World Bank will consider relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the borrower (including any other entity responsible for the implementation of the project) to manage the environmental and social risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of environmental and social mitigation measures and outcomes, depending on the specific project and the context in which it is being developed.

The Project activities are expected to trigger 9 out of the 10 World Bank ESF. Table 3 presents a gap analysis of the World Bank ESF and the Kenyan National Laws including suggestions to address identified gaps.

3.5.1 Project's Environmental and Social Risks Classification

3.5.1.1 Environmental Risk Classification: Moderate

ASCENT Kenya will deliver positive environmental and social impacts since solarization of existing diesel-powered mini grids will reduce reliance on fossil fuel and emissions from the diesel generators, reduce mass use of wood as cooking fuel in public health and education institutions, and at household level, replace kerosene lamps or woody biomass with distributable clean energy. These will significantly reduce the detrimental effects associated not only with the biophysical environment degradation from sourcing wood fuels and emission from its use, but also poor

community health, especially at affected households. Conversely, there will be minor to moderate negative environmental, health and safety risks and impacts associated with project, especially the construction of solar mini-grids (number yet to be defined) and solarization of about 10,000 public infrastructure/institutions under Component 2 and mass availability of DRE appliances for cooking, cooling and drying under Component 1. The key environmental risks and impacts include:

- Land/vegetation clearance and associated faunal disturbance leading to loss of habitats, and wildlife/livestock killing from project vehicle accidents. Loss of vegetation, though minimal, may have localized impact on bird and bats habitats;
- Dust and noise;
- Generation and disposal of both liquid and solid wastes, such as spoils, onsite sanitation waste, cables, wood, glass, and packaging materials from construction and operational activities, generation and disposal of hazardous wastes such as polychlorinated biphenyls (PCBs) from transformer components and oils, certain amounts of heavy metals, used and damaged solar panels, and batteries;
- Soil erosion, contamination and degradation of soil and water;
- Health and safety of both workers and community members including those associated with operation of vehicles, mobile plants and equipment, traffic safety, working at height, contamination associated with improper handling of e-wastes, electrocution, visual impact and light reflection from solar panel arrays; and
- Resource use, mainly water in ASAL areas where there is scarcity.

During operation, the main risks and impacts are associated with electrical hazards and managing hazardous, including e-waste generation from recycling and disposal of disused/spent PV panel components, solar energy storage batteries, and electrical components of DRE at the end of their useful lives, which is usually 3-5 years after deployment. Community awareness and capacity building on safety precautions for using electricity, resource efficiency and safe handling of disused DRE components will be included in subproject activities. These risks and impacts are expected to be temporary, low to moderate in magnitude and localized to subprojects' footprints and readily mitigatable with low probability of serious adverse effects to human health the biophysical environment through standard E&S risk mitigation measures.

Technical Assistance (TA) including development of the productive uses of energy policy (Type-2 TAs) under component 3B may have downstream environmental and social risks, emanating from implementation of TA outputs. The TORs for the TA activities will need to be consistent with ESF requirements to address potential significant downstream environmental and social risks and impacts. Given the spatial spread of project activities, low to moderate impacts on natural and biophysical environment and the existing capacity and commitment of the implementing agencies in applying ESF, the overall environmental risk is considered moderate.

3.5.1.2 Social Risk Classification: Substantial

The project activities in Components 1 and 2, as well as 3A, will involve nation-wide distribution, construction, and consumer focused outreach and targeted stakeholder engagement. These activities are likely to generate potentially adverse social risks and impacts such as:

- Attracting an influx of job seekers into project areas, which could pose risks to community health and safety, including SEA/SH risks, the transmission of communicable diseases, and increased traffic and vehicle-related accidents;

- Potential for cases of involuntary resettlement, depending on site-specific requirements where land acquisition may be necessary for constructing new mini-grids, potentially resulting in physical and/or economic displacement;
- Health and safety risks to workers engaged in construction activities, particularly for workers in areas affected by active armed conflict and banditry;
- Stakeholder risks, mostly associated with potential complaints related to the distribution of solar energy systems, limited consumer outreach and potential for disinformation, potential intensification of intercommunal and intra-clan conflicts and tensions, and potential pushback to some of the regulatory reforms to be supported;
- Risk of potential exclusion of vulnerable groups in stakeholder engagement activities, along with the potential elite capture of project benefits; and
- Risks to physical cultural heritage resources, depending on the specific locations of subproject sites.

The expansion of solar-based electrification of public infrastructure in underserved areas will also affect Indigenous Peoples and sub-Saharan Africa's historically underserved traditional local communities, which are constitutionally recognized in Kenya as vulnerable and marginalized groups. Other contextual risks include potential ethnic discrimination in underserved communities, prevalence of child labour particularly in marginalized counties, and risks associated with challenges in the stakeholder engagement track record and the use of armed security personnel.

3.5.1.3 (SEA/SH) Risk Rating: Substantial

There is risk of SEAH on the project. In Kenya, between 39% and 47% of women experience sexual and gender based violence in their lifetime (Gender Violence Recovery Centre 2024). This makes Kenya one of the countries with the highest rates of SGBV globally. The policy, legal and institutional framework on GBV and SEAH is strong, however, most of the cases go unreported especially in underserved areas. Additionally the underserved areas are prone to intercommunal conflicts, banditry attacks, poor access to water, poor access to energy and seasonal migration which execabates the risks of SEA/SH risks. Project component 1,2 and 3A activities involving distribution, construction, and consumer focused outreach and targeted stakeholder engagement will attract labour influx thus leading to potential SEA/SH risks to general workers and community especially to women and school going girls, hence, considering the widespread and rural nature of the program, the vulnerability of women due to limited access to land, unfavorable cultural norms, and the introduction of outsiders to remote locations will serve to exacerbate the incidences. The client has developed a SEA/SH plan as part of the ESMF and will ensure that workers are trained and sign a code of conduct to prevent SEA/SH. Workers' GRM will establish a separate mechanism for reporting and managing SEA/SH related grievances that respect confidentiality and privacy of those that report cases.

3.5.2 Environmental and Social Risk Management Instruments

In line with the project's environmental and social commitment plan (ESCP), there are other environmental and social risk instruments that will complement this ESMF and they include Stakeholder Engagement Plan (SEP), Resettlement Policy Framework (RPF), SEA/SH Prevention and Response Plan, Labor Management Procedures (LMP) and Security Management Plan (SMP) which have been prepared.

3.6 Roles in e - Waste handling

As presented in sub section 3.1.2 (Table 1), the draft guidelines for e-waste management and draft e-waste regulations that are yet to be enacted into law provides details on producer responsibility, responsibilities for recyclers, generators and requirements for importation of electrical and electronic equipment. The regulations have several prohibitions and penalties. Handling electronic waste (e-waste) within the ASCENT program in Kenya involves strict management of off - grid solar equipment, batteries, and appliances. Stakeholders are assigned specific roles to manage waste across the project life cycle. This sub section therefore, clarifies roles in e waste handling chain as follows:

a. **Project Developers and Energy companies:** Responsible for implementing take - back schemes for end of life solar panels and lithium-ion batteries. They must establish collection mechanisms and avoid conventional County or municipality disposal.

b. **National Environment Management Authority (NEMA):** The regulatory body tasked with ensuring environmental compliance and enforcing extended producer responsibility (EPR) regulations. They oversee the implementation of environmental and social risk management actions.

c. **Recyclers and refurbishers:** Specialized and NEMA - certified recyclers and refurbishers whose role as collection and depollution hubs specializing in secure data wiping, refurbishing usable IT equipment and dismantle unrecyclable components of raw materials. They recover valuable metals, manage hazardous fractions (like acid or mercury), and securely destroy data.

Ministry of Information, Communication and the Digital Economy & Ministry of Energy and petroleum: Provide national policies and guidelines, aligning e-waste management with Kenya`s overarching digital transformation agenda.

4. IDENTIFICATION, MITIGATION AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS & IMPACTS

4.1 Introduction

ASCENT Kenya supports the scale-up of distributed renewable energy, productive uses of energy, clean cooking, sustainable cooling, and results-based financing to mobilize private capital and reduce affordability constraints, while contributing to emissions reductions and energy efficiency objectives.

At the subnational level, ASCENT aligns with County Integrated Development Plans by using energy access as a catalyst for agricultural productivity, enterprise development, resilience, and reduced regional disparities, reinforcing inclusive and climate-resilient economic transformation.

Cumulative environmental impacts are not expected to be significant, as the project -although nationwide - is relatively limited in geographic scope and environmental impact. Induced impacts will be largely positive - for example, decreased use of fuel wood and kerosene, improved economic welfare as a result of electricity provision allowing for job creation and opportunities to study after nightfall. The electrification works will not be supported by the construction of large civil works (such as access roads or forest clearing) that may result in loss of biodiversity or impact natural habitat or forested areas.

4.2 Positive Environmental and Social Impacts

4.2.1 Project beneficiaries

The project will directly benefit approximately 5 million people through access to electricity for household and productive use and 5 million people through access to clean cooking technologies, while improving energy access for 7,500 public education institutions; 2,500 public health facilities, and 1500 agricultural producer organizations that currently lack reliable and affordable electricity. An estimated 1 million people are expected to benefit from job creation. Indirect benefits will include improved economic opportunities and enhanced delivery of education and health services, particularly in underserved and lagging regions.

4.2.2 Impact on poverty alleviation

With the implementation of ASCENT Project in the off-grid areas, the beneficiaries will be engaging in income generating activities, hence improving their economic status.

4.2.3 Employment and wealth creation opportunities

The Kenya off-grid solar access project will have a positive impact on both direct and indirect employment levels in the country although the bulk of them will be on temporary basis during construction of the infrastructure. These job opportunities will be made available to the locals, thereby easing unemployment in the beneficiary locations. In addition, this will translate into incomes at the household levels which will trigger other spending and demand in the local economy.

4.2.4 Local material supplies

Another positive impact of the project involves local material sourcing, mainly sale of materials for use in the project. Some of these can be expected to be sourced locally and the rest through importation. Therefore, the project will generate new income revenues for the local population across all the 47 counties in harvesting and transportation of sand, ballast and gravel. The new income revenues received will create demand for other goods and services causing a trickledown effect to the entire economy.

4.2.5 Up Scaling electricity access to the poor

According to the MoEP Strategic Plan 2022, access to electricity is defined as the percentage of households with access to electricity which stands at 75%. Nationally, KPLC data as of August 1, 2024, shows a total number of 9,695,252 metered customers across the different customer categories. This translates to about 75% of the total population accessing electricity. The uptake has been slow due to several factors such as; hefty initial cost of connection. However, KOSAP and last mile projects have accelerated connection and ASCENT will build momentum from the previous initiatives to push access even further.

4.2.6 Social inclusion

ASCENT aims at increasing access to electricity to off grid communities and counties. This is in line with the tenets of social inclusion which the World Bank defines as the process of improving the terms for individuals and groups to take part in society. Further, Social inclusion aims to empower poor and marginalized people to take advantage of burgeoning global opportunities. It ensures that people have a voice in decisions which affect their lives and that they enjoy equal access to markets, services and political, social and physical spaces.

4.2.7 HIV/AIDS

REREC and Kenya Power's HIV/AIDS policy underscores the fact that HIV/AIDS has no cure and the only way to stop its spread is through attitudinal and behavioral changes as well as management that can be secured effectively through education (awareness and information campaigns). One of the positive impacts of this project will be disseminating HIV and AIDS information to communities and workers who otherwise would not have had the correct information on three levels:

First, direct beneficiaries of the project, i.e. those who will be connected will have the benefit of health education messages through use of radios and TV as using electricity to power these gadgets is more reliable. Benefits are higher because the beneficiaries will be able to access HIV/AIDS information that is reliable and which comes from time to time as they can use the T.V and radios at will. The beneficiaries will also benefit from experts' opinions on the pandemic such as listening to doctors and nutritionists regarding HIV/AIDS.

Secondly, the other method of disseminating HIV/AIDS information during project implementation will be through the contractors. The contactors will be required to disseminate information to the workers as part of their daily toolbox talks. The IAs will liaise with NACC to get materials (if they are available at the time) on HIV/AIDS that can be distributed by the contractors during the toolbox talk. This will reach more people as the project is being implemented in the targeted counties. Thirdly, during the Environment Social Impact Assessment for other projects the Safety Health and Environment department disseminates HIV/AIDS to the public during public consultations meetings.

4.2.8 Health benefits of the project

According to the 2019 population census, slightly over half (50.4 per cent) of households reported using electricity mains as a source of lighting fuel followed by solar (18.3 per cent). Firewood was the most commonly used type of cooking fuel reported by 55.1 per cent of the households followed by Liquefied Petroleum Gas (LPG) at 23.9 per cent.

This indicates that half of the population are using electricity as the main source of lighting. Although access to electricity has improved, a majority of Kenyans are still using firewood as a

type of cooking fuel. This poses health problems due to indoor air pollution that results from use of firewood. The health risks posed by this indoor air pollution mainly include acute lower respiratory infections, but also low birth weight, infant mortality, and pulmonary tuberculosis. Additionally, available data suggest that insufficient illumination (low light) conditions can cause some degree of eye strain, and reading in these conditions over long periods of time may have the potential to increase the development of nearsightedness (myopia) in children and adults. The ASCENT programme will result in many families replacing kerosene lamps for lighting with SH systems there-by reducing disease burden at the family level and on the government.

4.2.9 Benefits to education

Access to electricity at the household level and schools will create opportunities for children to study. For example, children from households with electricity have an advantage because they have more time for study and doing homework in the evening as opposed to children from households without electricity. This benefit will in the end translate to better results. Additionally, children in households with electricity can also access T.V. which gives them an advantage of benefiting from education programs being aired through such communication channels. Appropriate lighting through electricity will provide school-going children in homes an opportunity to study after household chores especially girls who have to assist their mothers in preparing dinner.

4.2.10 Improved standard of living

The implementation of this project will directly benefit approximately 5 million people through access to electricity for household and productive use and 5 million people through access to clean cooking technologies. Access to electricity will change the standard of living of the people as they can use domestic appliances like iron boxes, fridges, television sets, washing machines to mention but a few. Use of electricity for lighting implies that the people will not be exposed to smoke arising from use of kerosene lamps which predispose people to respiratory diseases.

4.2.11 Security

There will be enhanced security in the targeted counties arising from well-lit social, commercial and individual premises. With the implementation of the project, the level of security will improve across the country. This is because of more security flood lights which helps keep off opportunistic crimes and gender-based violence.

4.2.12 Communications

Access to electricity will lead to improved communication for the beneficiaries. This will be enabled by the fact that charging mobile phones will be easier and cheaper. Access also to mass media like radio and T.V will provide opportunity for the households to access a wide range of information which is useful for decision making. Some of information beneficiaries receive include information on markets, farm inputs, livestock & crop management and local affairs, nutrition, diseases, investments and entertainment among others.

4.2.13 Gender considerations

The vision of National Gender and Equality Commission is "A society that upholds gender equality, dignity and fairness for all". The Commission is guided by a mission "To effectively and efficiently promote gender equality and freedom from discrimination of all persons in Kenya". MoEP, KPLC and REREC Gender mainstreaming policies are line with the NGEG Vision and Mission. The company's gender vision is a world class power provider that is free from inequality

and discrimination. The gender mission is promoting gender equality in powering people for better lives. The gender policy of MoEP, REREC and Kenya Power is to mainstream gender within the company's procedures, management and monitoring and evaluation processes for the equal benefit of men and women.

Electricity is a basic service especially for lighting but is still a luxury for many rural women and men. Access to modern electricity will go a long way towards alleviating the daily household burdens of women, giving them more time, improving their health and enhancing their livelihoods. ASCENT will increase access to electricity in the country. Available literature on gender and energy suggests that providing electricity to communities and homes will promote gender equality, women's empowerment, and women 's and girls' access to education, health care, and employment.

Indeed, most gender benefits of the project will occur because women tend to spend more time at home, are responsible for household chores that can be carried out more productively with electricity, and because certain tasks are culturally defined as women 's work. The majority of the beneficiaries will use electricity mainly for lighting and powering low energy gadget such as TV, radio, phone charging, refrigeration and to some extent ironing and cooking. In general, lighting and TV are the first common uses of electricity, accounting for at least 80% of rural electricity consumption according to a working paper on Energy Gender and Development of the World Bank, 2012. The first and strongest impacts of the project shall occur via lighting and TV. Electricity will displace more expensive candles and kerosene lamps, thereby reducing indoor air pollution, fire, burn risk and providing higher quality light. Women and girls will benefit more from air pollution of kerosene lamps because they spend more time in the kitchen.

Lighting and television will improve access to information, the ability to study, and extend the effective working day. This is more so because children can have extended study time. The women will also benefit more due to access of information especially on health and nutrition since they also spend more time at home. The project will also enhance security in the rural areas as most homes will be lit up, a benefit that is more appreciated by women.

4.3 Negative Environmental and Social Impacts

Despite the various socio economic and environmental benefits outlined, the project will also have some negative impacts and risks. As regards the proposed REREC and KPLC sub projects, potential adverse environmental and social impacts on the natural and human environment are likely to arise from inputs as well as project processes at the construction and operation and maintenance phases. The following are the negative impacts and suggested mitigation measures.

4.3.1 Impact on Natural Vegetation and Biodiversity

Flora: Some vegetation will be cleared during construction and installation of the mini grids in the remote areas, installation of PV plants and construction of the low voltage distribution lines to connect electricity to new customers. Similarly, movement of construction, especially fill materials, can contribute to spread of invasive species. However, this impact is not significant because the spatial extent is envisaged to be minimal, no more than five acres in most cases. Further, the road reserves can be re-vegetated with the same species after construction of lines. Direct impacts, such as habitat destruction and modifications, are regarded immediate, short term and of low significance.

Fauna: The most significant effect of solar power mini grids on the environment is impact on the habitat during site clearing. This may interfere with breeding and displace the animals to increase

animal-human conflict. It should be noted that animals generally avoid contact with human structures but do grow accustomed to structures after a period. While the structures are usually visible, injuries and death of animals do occur sporadically because of accidental contact. An aspect that is of concern is the presence of vehicles on access and infrastructure roads, leading to road kills, particularly amongst nocturnal animals. While most of the larger animal species are likely to move away from human contact, dangerous encounters with snakes, scorpions and possibly scavengers always remain likely. Similarly, the presence of humans within areas of natural habitat could potentially result in killing of animals by means of snaring, poaching, poisoning, trapping, etc. The likelihood that this impact will occur is low and will be of low –medium significance. If animals graze at the contaminated sites, the chemical might accumulate in the animal body and cause side effect such mineral imbalances leading to anemia. The effluent dumping sites should be fenced off.

4.3.2 Impacts on air quality from vehicle exhaust emissions

The solar power generation will not generate any poisonous or harmful waste gas pollutants. The living facilities such as heating devices and cooking range in the project will use electricity as the source of energy, without increasing any air pollution source. The main source of exhaust emissions are likely to be generated during excavation for construction of mini grids and during use of fuel-run equipment including vehicles, generators, and compressors. Oxides of nitrogen, carbon monoxide and oxides of Sulphur emitted from internal combustion engines will be released during construction. Motor vehicles that will be used to ferry construction materials would cause air quality impact by emitting pollutants through exhaust emissions.

4.3.3 Dust emissions

Dust emissions are likely to occur during the site clearance, excavation and spreading of the topsoil during construction. They are also likely to occur during materials transportation by motor vehicles accessing the site.

4.3.4 Solid waste

During construction, solid waste will be generated. The solid wastes in construction period mainly include the construction waste, soil and rock and the domestic waste from construction staff. It is estimated that a single site can produce approximately 0.02t of domestic waste comprising of waste plastic bag, leftovers, waste packaging materials, rotten fruits, peel among other, per day, for approximately 20 workers based on subproject sites. Inappropriate handling within the site will interfere with the aesthetic status of the area. This has a direct effect on the surrounding community. Disposal of the same solid waste off-site could also be a social inconvenience if done in the wrong places. The off-site effects could be aesthetic, pest breeding, pollution of physical environment, invasion of scavengers and informal recycling communities.

4.3.5 Land take-loss of use

The subprojects will require for the construction and installation of the mini-grids and may involve compulsory acquisition. The IAs will avoid land that is already settled while siting the mini grids. However, on the location where the mini grids will be sited, local communities may lose agricultural and grazing land respectively. All crops and trees affected will be compensated in compliance with ESS 5 and the Kenyan National law. The project RPF provides for the preparation of a Resettlement Action Plan to be utilized in acquisition of the land and outlines how the assets will be compensated. Screening will be conducted to evaluate triggering

conditions. Similarly, during initial environmental and social screening of sub projects, an evaluation will be made to determine the magnitude of the displacement impacts. If impacts are significant, a full RAP is required. If impacts are minor or limited, an Abbreviated RAP will be used instead. The Project will aim to assist displaced people in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. Livelihoods restoration indicators to measure the recovery, improvement and resilience of PAPs who experience physical or economic displacement will be established within the Livelihoods restoration plans (LRPs). The indicators to be used to evaluate whether displaced persons` livelihoods have been restored successfully to at least pre - project levels include improved food security; percentage increase in annual household income compared to pre-project baseline, and number of households successfully adopting alternative non- land-based income generation activities.

There is risk that most communal lands are not registered, and this could lead to conflicts/tensions/ complexities in land acquisition processes in the concerned regions in the country. But the Community Land Act of 2016 allows a registered group to request some land for public use from the National Land Commission (NLC) which in effect is allocated and used under the use-ownership of such a group.

4.3.6 Occupation safety and health hazards

As with any construction project, there is potential for impacts on human health and safety to occur because of accidents and unplanned events that may occur during the construction of the solar mini-grids connections of customers and regular maintenance works during operation phase. Both the construction and operation phases of the new generation plants, substation, distribution lines including connection of new customers will expose workers to OHS hazards such as electrocution, falls from height, open and deep excavations, land and water transport hazards, hot works, confined space entry, manual handling, attack by armed bandits among others. In extreme cases, loss of life or impairment can occur because of accidents from machine operations. Obsolete batteries will be collected, transported and recycled by NEMA approved e-waste disposal.

Community health and safety hazards include traffic accidents, exposure to pollution from project activities, spread of STIs between workers and community members during construction. At operation, there will be risks of electrocution when electricity lines collapse due to poor workmanship or vandalism, poor electrical wiring or overloading at customer level, and traffic hazards from the trucks and other vehicles delivering materials and transporting workers to and from sites. Inappropriate solid and liquid disposal has the potential to injure the health and safety of the communities through pollution of surface and shallow ground water resources.

4.3.7 Social risks related to labor influx

At project implementation, many new workers will be involved and new interactions between local communities and workers undertaking the construction and installation of mini-grids, solar standalone systems and solar for water pumping will take place. These interactions are likely to pose risks to the social fabric of society. Such risks include public health related issues such as (HIV/AIDS, communicable and sexually transmitted diseases (STDs). Other social risks include risks of social conflict between communities/clans within the workforce; increased illicit behavior and crime such as substance abuse and theft; prostitution; gender-based violence; underage pregnancies; child labor and school dropouts.

4.3.8 Increased demand for material consumption

During the construction phase of the project, water, energy and construction materials will be used. This will have an impact on the availability of these materials. Water is a challenge in ASAL areas and can create/escalate conflict between communities and the assigned contractors or among different clans within the communities.

4.3.9 Oil spill hazards

The machines are mobilized on sites, and subproject vehicles require oil during maintenance. The oils will be transported and may be stored at subproject sites. Any major accidental oil spill would impact negatively on the environment. Cumulatively, small releases of oil would also impact negatively on the environment. Such impacts include creation of new sceneries due to destruction of biological diversity and pollution of water and soil. But these dangers are contained by maintaining the machinery in specific areas designed for this purpose.

4.3.10 Storm water and wastewater

Compaction of surface on the proposed subproject site, access roads and campsite construction will create impervious surfaces (slab environment). There is a likelihood of increased storm water runoff from these sites, which results in gully erosion with time. In addition to creating unattractive terrain, this may cause flood incidences along streams downhill during high rainfall times. The construction and production wastewater in the subproject that will come from concrete mixing and curing processes. The domestic wastewater from construction staff further forms wastewater if discharged directly to the environment.

4.3.11 Noise during construction

Noise and vibrations will occur during transportation and installation of equipment. During the construction phase construction vehicles including excavation equipment and trucks may produce a noticeable increase in noise disturbance. Construction vehicles may create some noise and vibration along access routes. With best practices, noise levels can be kept to below 65 dB, and construction noise should be practically indistinguishable from other background noises at distances of one kilometer.

4.3.12 Visual and aesthetic landscape impacts

Visual impacts would result from the construction of the proposed and installation of mini grids, solar standalone systems and solar water pumping. Visual impacts will occur when changes in the landscape are noticeable to viewers observing the landscape from their homes or from tourism / conservation areas, travel routes, and important cultural features.

4.3.13 Soil erosion

The proposed project involves activities that will require clearance vegetation for subproject infrastructure such as access roads, construction and installation of solar mini-grids and therefore excavation to construct access roads, levelling the site, vegetation clearance, and ground vibration are expected. Such activities may loosen the soil hence making it vulnerable to erosion due to wind and surface water run-off. The fact that there is minimum vegetation cover on low-slope terrain makes it obvious that without soil erosion prevention measures in place, erosion will take place. The creation of impervious surfaces during site preparation for the subprojects infrastructure could also cause increased soil erosion rates.

4.3.14 Borrow pits and quarry sites

Borrow pits and quarries are sites where stone, sand, gravel, till, clay, or other granular soils are extracted for construction of various sub projects. The term 'pit' is used when granular material is extracted. The term 'quarry' is used where consolidated rock is removed. Environmental impacts of pit and quarry development can include loss, reduction or disturbance to wildlife and habitat, erosion, dust, soil/groundwater contamination, damage to historic resources, waste disposal, noise, and aesthetics.

4.3.15 Workers' accommodation management

The sub project construction activities are likely to attract workers from within the project area and outside of the project areas. The construction activities will also entail engagement of contractors, sub-contractors and third-party entities which will form part of the supply chain. Workers' rights including occupational health and safety may be abused hence adverse impact and may include exposure to accidents and injuries, loss of man-hours, labor abuses and to ensure fair treatment, remuneration and working conditions. The projects could potentially lead to workforce-related social and health issues throughout the life cycle of the project if worker management and rights do not meet Kenyan law or international best practice. The potential for occupational health and safety incidents throughout the life cycle of the project is higher during the construction phase. Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labor abuses and to ensure fair treatment, remuneration and working conditions.

4.3.16 Archeology and cultural heritage impacts

During the construction activities removal of vegetation, excavation works might uncover previously unidentified cultural sites/artefacts which, by law, should only be removed after authorizations by the appropriate government agencies like NMK and consultations with the traditional authorities.

4.3.17 Sexual exploitation, abuse and harassment (SEA/SH)

An influx of in-migrants may lead to SEA / SH and Workplace Sexual Harassment. The immigration may increase the demand for sex work or the risk of early marriage in a community where marriage to an employed man is seen as the best livelihood strategy for an adolescent girl. Furthermore, higher wages for workers in a community can lead to an increase in transactional sex. The risk of incidents of sex acts between laborers and minors, even when it is not transactional, can also increase. The project may create changes in the project affected communities and can cause shifts in power dynamics between the community members and within households. Male jealousy, a key driver of SEA / SH, can be triggered by labor influx on a project when workers are believed to be interacting with women in the Community. Hence, abusive behavior can occur not only between project-related staff and those living in and around the project site, but also within the homes of those affected by the project.

4.3.18 Impacts on Vulnerable and Marginalized Groups

Vulnerable and Marginalized groups are distinct social and cultural group possessing the following characteristics in varying degrees including: Self-identification as members of a distinct indigenous social and cultural group and recognition of this identity by others, have distinctive collective attachment to geographically distinct habitats, ancestral territories, or areas of seasonal use or occupation, have customary cultural, economic, social, or political institutions that are separate from those of the mainstream society or culture, distinct language or dialect and have historically

suffered, and continue to suffer, disempowerment and discrimination on economic, social, and cultural grounds. Out of the 47 Counties, 22 Counties have been identified to have groups that are categorized as Indigenous Peoples as per ESS7 as shown in Annex 4.

In order to ensure that vulnerable groups meeting ESS7 are given treatment designed to ensure they are not disproportionately impacted and that they share equally in project benefits, VMGP will be prepared to ensure that the vulnerability of the specific groups is established and suitable measures put in place to ensure that they are appropriately culturally and meaningfully engaged and access the project benefits.

4.3.19 Conflict in some project areas

The potential for eruption of conflict during implementation of the project is an adverse impact. Conflict during the implementation may include those related to access to services and competition over resources like water.

The security protocol document will elaborate how potential adverse impacts related to conflict eruption will be mitigated to ensure that communities in conflict-prone areas access project benefits. Resource conflict may also erupt in the operation phase if the benefits are not shared equitably.

4.3.20 Child and forced labor

Employment of children or forced labor is a potential adverse impact that can be experienced directly or indirectly during hiring of labor for construction/operation of the sub projects or when communities provide labor as a requirement for community contribution for specific sub-projects. Similarly, primary suppliers of PV components

4.3.21 Primary supplier risks

Solar projects pose primary supplier risks that may include use of child labor, forced labor, or unsafe working conditions in manufacturing and supply chains; Occupational health and safety (OHS) risks from inadequate safety practices in production and handling of components; environmental risks arising from unsustainable sourcing of materials and inadequate management of hazardous substances or production waste; and quality and lifecycle risk from supply of substandard or short-lifespan equipment leading to premature failure and increased e-waste.

4.4 Mitigation Measures

4.4.1 Flora and fauna

Proposed Mitigation measures: adopt mitigation hierarchy in managing biodiversity risks.

- Sensitive area exclusion: following screening, completely avoiding critical habitats and strictly map buffer zones around wetlands, protected wildlife corridors, and nesting sites during the preliminary routing phase.
- Selective clearing & trimming: Employ hand-cutting or selective mechanical clearing rather than bulldozing vegetation. This maintains continuous canopy cover and allows small mammals to move freely across the corridor.
- Corridor Colocation: Route new distribution lines or mini-grid connections alongside existing infrastructure corridors (e.g., existing roads, pipelines, or cleared pathways) rather than cutting through virgin areas

- Optimize layouts to retain natural vegetation patches and buffers. As much as possible consideration shall be given to alternative design to avoid trees.
- Every tree felled for the purpose of the Mini-Grid Project must be in conformity with the Kenya Forest Service (KFS) guidelines. If there is need for a new tree to be planted, KFS shall be consulted in the identification of species and siting of replacement trees.
- Revegetation of disturbed areas with native plant species as soon as practical.
- Control spread of invasive species (e.g., during material transport) by cleaning trucks moving from sites to different areas, mechanically removing invasive plants from site and using native vegetation species for landscaping after construction works are completed and removal of invasive plant species during routine vegetation maintenance.
- Incorporate prohibition in illegal handling of wildlife by project workers in their code of conduct
- Traffic management plans should consider reduced project vehicle speeds in areas known to have wildlife.
- Low-impact engineering: Use lightweight, stealthy steel poles instead of wide-base pylons or wooden poles to minimize the ground footprint and wildfire risks. Use bundled overhead wiring to reduce the required clearance width.
- Birds and wildlife protections: Install highly visible vertical markers and bird diverters on overhead cables to prevent avian collisions. Incorporate insulated cables and safe perches to prevent electrocution of raptors and arboreal animals.

4.4.2 Impacts on air quality from vehicle exhaust emissions

Proposed Mitigation Measures

- Drivers of construction vehicles must be sensitized so that they do not leave vehicles idling, that exhaust emissions are lowered.
- Maintain all machinery and equipment in good working order to ensure minimum emissions of carbon monoxide, NOX, SOX and suspended particulate matter;

4.4.3 Dust emissions

Proposed Mitigation Measures

- The construction area should be fenced off to reduce dust to the public
- Proper scarf folding should be done to minimize dust emissions to the public
- Sprinkle loose surface earth areas with water to keep dust levels down.
- Construction trucks moving materials to site, delivering sand and cement to the site should be covered to prevent material dust emissions into the surrounding areas;
- Masks should be provided to all personnel in areas prone to dust emissions during construction
- Stockpiles of excavated soil should be enclosed/covered/watered during dry or windy conditions to reduce dust emissions.
- Drivers of construction vehicles must be sensitized so that they limit their speeds so that dust levels are lowered.

4.4.4 Solid waste

Proposed Mitigation Measures

- Ensure spoil from excavations is arranged according to the various soil layers. This soil can then be returned during landscaping and the rehabilitation, in the correct order which they were removed that is topsoil last;
- Contractor to put in place and comply with a site waste management plan
- Provide litter collection facilities such as bins
- The contractor should comply with the requirement of OSHA ACT 2007 and Building rules on storage of construction materials
- Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of waste generated over time

4.4.5 Land take – loss of use

Once identified, the project should acquire the site by paying appropriate compensation in accordance with the resettlement policy framework (RPF), which would be the replacement cost of the assets lost. Siting and design that avoids resettlement impacts will be prioritized. Where feasible, purchase of private land will be based on willing buyer willing seller principal. Where land acquisition is necessary, no site will be handed over to contractors before compensation to the affected owners is completed.

4.4.6 Occupation safety and health hazards

Proposed Mitigation Measures

- The project shall ensure that contractors undertake OHS risk assessment, prepare management plans and provide training for all workers on hazard awareness, safe work practices and emergency preparedness to ensure they are appraised to project sites rules of work, personal protection and prevent injury to fellow workers.
- The Project will require all contractors to implement resourced Environmental, Health and Safety (EHS) plans which will outline procedures for avoiding health and safety incidents and for emergency medical treatment. This will be achieved by making it a component of contractual agreement.
- The project will require all contractors to provide appropriate mandatory and activity-specific Personal Protective Equipment (PPEs) to prevent and minimize exposure to injury.
- Contractors will be required to carry out our regular safety inspections to ensure measures to manage potential OHS hazards are in place and any necessary adjustments are made whenever gaps arise.

4.4.7 Public/community health risk

Proposed Mitigation Measures

- Adopt and implement community health and safety plan (Annex 2)
- Awareness creation by the ESIA team to the public/locals prior to construction
- The contractor is impressed upon not setting a construction camp on site.

- Provide public education/information about HIV/AIDS transmission and prevention measures.

4.4.8 Increased demand for material consumption

Proposed Mitigation Measures

- The contractor should source all building materials such as stone, sand, ballast and hard core from NEMA licensed and approved sites.
- Ensure accurate budgeting and estimation of actual construction materials to avoid wastage.
- Promote reuse of construction materials where possible.

4.4.9 Oil spill hazards

Proposed Mitigation Measures

- In the event of accidental leaks, contaminated topsoil should be scooped and disposed of appropriately.
- It is proposed that the refueling and maintenance of large vehicles will not take place at the construction site but at commercial fuel stations.
- Contractor to create awareness for the employees on site on company procedures of dealing with spills and leaks from oil storage tanks for the construction machinery through induction and safety training.
- Vehicles and equipment must be serviced regularly and kept in good state to avoid leaks.
- In case of spillage the contractor should isolate the source of oil spill and contain the spillage using sandbags, sawdust, absorbent materials and/or other materials approved by materials.
- The contractor should also provide security to guard against vandalism when the site is unattended.
- Proper training for the handling and use of fuels and hazardous material for construction workers
- All chemicals should be stored within the bunded areas and clearly labeled detailing the nature and quantity of chemicals within individual containers.

4.4.10 Storm water and wastewater

Proposed mitigation measures

- Drainage system should be constructed to ensure surface run off does not affect/spill to the neighbor lands
- Construct the drainage system in a way to run along the road and follow natural drain way
- Concrete only the required area for the facility and leave the rest of the land with vegetation like grass
- Construct rain harvesting system on the control buildings and harness into storage tanks for use.

4.4.11 Noise and vibration during construction

Proposed mitigation measures for noise and vibration

These proposed mitigation measures aim to ensure that noise generated by construction and operation activities is kept to minimum and adheres to relevant noise standards. They include:

- Fencing off the construction site with iron sheet during construction
- Install portable barriers to shield compactors thereby reducing noise levels.
- Use of noise-suppression techniques to minimize the impact of construction noise at the project site.
- Use equipment designed with noise control elements.
- Co-ordinate with relevant agencies regarding all construction.
- Control the project area to avoid unnecessary access by idlers
- Limit vehicles to minimum idling time and observe a common-sense approach to vehicle use and encourage drivers to switch off vehicle engines whenever possible.
- Set and observe speed limits and avoid raving of engines
- The Contractor shall ensure that construction activities are limited to working hours (i.e. between 8am and 5pm daily) from Monday to Friday, or as required in terms of legislation.
- Compliance with the recently issued Noise and Vibration Regulations of 2009 is expected at all the phases of the project.

4.4.12 Visual and aesthetic landscape impacts

The visual negative impacts can be mitigated through

- Undertaking landscape and visual impact assessment as part of ESIA studies
- Siting mini grids away from settlements, scenic landscapes, tourism areas
- Avoid ridgelines, hilltops, and prominent skylines
- putting up a perimeter wall round or live fence the facilities to keep off/screen the project stacks, poles, cables and transformers by the project proponent.

4.4.13 Soil Erosion

Proposed Mitigation measures

- The contractor shall avoid groundbreaking during the seasons of high rainfall to avoid erosion.
- Monitoring of areas of exposed soil during rainy seasons during construction phase of the project to ensure that any incidents of erosion are quickly controlled.
- The contractor should ensure recovery of exposed soils with grass and other ground cover as soon as possible.
- Areas compacted by vehicles during site preparation and construction should be scarified (ripped) by the contractor to allow penetration of plant roots and the re growth of the natural vegetation
- Direct the drainage to follow the natural course way e.g. along the road to avoid draining water into private/community land especially once construction is finished.
- Proper drainage channels and leveling especially of the access road to reduce run-off velocity and increase infiltration of rainwater into the soil.
- Proper compaction will also be done along the access road.

4.4.14 Borrow pits and quarry sites

- Use licensed and existing commercial quarries and borrow pits approved by NEMA and county authorities wherever possible.
- Where establishing new material sourcing points, ensure ESIA is completed and license obtained before commencing extraction works
- Avoid establishing new pits within:

- Protected areas, critical habitats, forests, wetlands, riparian zones, and wildlife corridors.
- Community grazing areas and culturally sensitive sites.
- Areas near schools, settlements, hospitals, and water sources.
- Obtain written landowner/community consent and relevant permits before extraction. Agreements shall include verifiable restoration/rehabilitation indicators
- Contractor to prepare and implement material site restoration plan, satisfactory to the implementing agency and NEMA, before being released from site.

4.4.15 Archaeology and physical cultural heritage impacts

- All sites shall be screened for potential physical and cultural heritage impacts at planning stage and results incorporated in the ESIA/ESMP
- Engage local communities on physical and cultural heritage characteristics of the subproject sites and document feedback in the site-specific instruments
- Require contractors to implement the chance find procedure (Annex 3)

4.4.16 Sexual Exploitation and Abuse / Sexual Harassment (SEA/SH)

Proposed Mitigation Measures

- Include SEA/ SH prevention and mitigation measures in standard bidding documents (SBDs) to be extended to contractors and sub-contractors during implementation.
- All project workers including contractors and sub-contractors will sign CoC explicitly prohibiting SEA / SH
- Undertake training to all workers including Contractors and sub-contractors to fully understand the expected requirements.
- Engage qualified SEA / SH expert throughout life of the contracts.
- Minimize labour influx and provide preference to local labour.
- Conduct regular awareness campaigns to educate local communities about their rights and safe reporting mechanisms.
- Establish ethical, safe and confidential Grievance Mechanism that allows survivors to report incidents without fear of retaliation or stigma. This will offer a separate reporting mechanism for SEA/ SH cases that are discreet from standard Grievance Mechanism, and this mechanism is detailed in the SEA /SH prevention & response plan that has been prepared for the project.
- Map out and partner with local service providers (in medical, legal and psychosocial support) to ensure survivors have immediate access to support.

4.4.17 Worker's accommodation management

Avoid Worker Camps Where Feasible

- Prioritize recruitment of local labor where skills are available.
- Where practical, accommodate workers in existing local facilities rather than establishing camps.
- Use rotational work schedules to reduce the need for onsite accommodation.

Contractors to Prepare Workers Accommodation Management Plan, where necessary as part of the C-ESMP and Labour Management Procedures before mobilization. The plan should address:

- Camp design and standards.
- Health and safety.
- Security.
- Community relations.

- Waste management.
- Worker grievance mechanisms.
- Emergency preparedness and response.

Ensure Adequate Accommodation Standards. Worker accommodation should:

- Meet minimum health and safety specifications.
- Provide adequate sleeping space and ventilation.
- Ensure gender-segregated sleeping facilities where required.
- Provide adequate lighting.
- Protect workers from extreme weather conditions.
- Include sufficient recreational and welfare facilities. Poor accommodation can negatively affect worker morale, welfare, and productivity.

Water Supply, Sanitation and Hygiene

- Always provide adequate potable water.
- Install sufficient toilets, bathing facilities, handwashing stations and wastewater management systems.
- Undertake routine cleaning and maintenance.
- Implement hygiene awareness programmes.
- Prevent contamination of surrounding land and water resources.
- Worker Health Measures
- Conduct routine health awareness on HIV/AIDS, STIs and communicable diseases.
- Establish first aid facilities and access to medical services.
- Implement disease surveillance measures during outbreaks.
- Ensure food vendors meet public health requirements and possess valid food-handlers certificates

i. Impacts on vulnerable and marginalized groups

- To ensure that vulnerable groups meeting ESS 7 requirements are given special attention, preparation of Vulnerable and Marginalized Groups Plans will be prepared.
- Employ dedicated communication and awareness campaigns that use local culturally appropriate languages and formats.
- Provide functional culturally appropriate grievance uptake channels.

4.4.19 Risk of conflict in some project areas

Undertake security risk assessments and complete location specific security protocol.

- Prevent labor-related tensions by:
- Prioritizing local hiring where skills exist.
- Communicating recruitment criteria transparently.
- Monitoring labor influx.
- Implementing worker codes of conduct.
- Addressing SEA/SH risks and community-worker relations.
- Site selection should avoid:
- Community grazing reserves.
- Livestock migration corridors.
- Seasonal water points and dry-season grazing areas.
- Areas subject to unresolved ownership disputes.

- Sacred, cultural, or burial sites
- Avoid militarized engagement approaches.
- Where used, train security personnel on community relations and human rights.
- Coordinate with local peace committees and county security structures.
- Implement the principles of proportionality and necessity under ESS4.

4.4.20 Risk of child and forced labor

- Implement the project-specific Labor Management Procedure (LMP) including explicit prohibitions on child labor, forced labor, bonded labor, trafficked labor, and involuntary labor.
- Require supplier declarations, in bidding documents, confirming no child labor or forced labor.
- Include procurement clauses allowing contract termination where violations are identified.
- Monitor suppliers for labor and occupational safety performance
- Require all contractors and subcontractors, through bidding documents, to comply with ESS2 and Kenyan labor laws and include sanctions for non-compliance
- Require contractors to provide labor management policies before mobilization.
- Implement age verification protocol during recruitment using National ID, passport, birth certificate, or other government-issued identification.
- Require contractors and consultants to maintain worker age records and undertake periodic labor audits and inspections

4.4.21 Social risks related to labor influx

Proposed Mitigation measures

- Development and implementation of labor Management procedures (LMP)
- Provision of HIV/AIDS education throughout the project cycle
- Provision of posters within the project enumerating the effects and dangers of HIV/AIDS and other transmission diseases
- Educating the school going girls of the effect of unwanted pregnancies
- Child labor should be avoided at any cost in ASCENT
- Advocacy of engaging protective sex
- All gender-based violence to be reported and dealt with as per the law.
- Any child dropout should be reported to the relevant government agency

4.4.22 Hazardous Waste Mitigation Measure and Management

This ESMF contains potential mitigation measures through which the adverse impacts associated with hazardous waste emanating from this project can be managed. The mitigation measures or guidelines have been designed to avoid, minimize and reduce negative environmental and social impacts at the project level. The mitigation measures are presented in the following tables in a descriptive format.

a. Procurement of Electronic Equipment from Credible Manufacturers

ASCENT will put in place the mitigation measure to ensure that all hazardous and electronic devices are procured from manufacturers that are credible and that all equipment will have a clear date of manufacture and warranty. This will avoid procurement of refurbished or used second hand electronic devices with a shorter shelf life, a common problem that leads to generation of hazardous waste because of obsoleteness.

b. Recycling

Hazardous wastes generated from ASCENT project will be collected by the contractors/companies that will be subcontracted to operate the mini grid facilities and standalone solar home systems companies doing installation and providing after sale services for the standalone solar system (Component 1) and be transported to Nairobi by NEMA licensed transporters to the East African Compliant Recycling Company facility that recycles E-waste, also people and institutions that will acquire and operate solar standalone systems will be sensitized on the e-waste and be linked to hazardous waste Collection Points (CPs) established across the country and that feed into the East African Compliant Recycling Company. The East African Compliant Recycling Company is operating Kenya's first E-waste recycling facility, operating to international health, safety and environmental standards and establishing a local, sustainable IT E-waste recycling industry.

Kenya has developed a national regulations on the disposal of e-waste, the guidelines will be used to guide the disposal of hazardous e-waste generated from the project http://www.nema.go.ke/images/Docs/Guidelines/E-Waste Guidelines.pdf. The Electronic Equipment Disposal, Recycling and Reuse Bill, 2025 strengthens regulations, focusing on safe disposal at designated county sites. The project will develop a project-specific environmental code of practice (ECOP) as a guidance on approach for the collection, transport, storage and disposal of spent batteries, with the aim of ensuring that risks to the environment and human health are prevented or mitigated. Apart from providing approaches to the management of spent PV batteries, such an ECOP will also seek to inform discussion and build awareness of all stakeholders, including rural remote community members, vendors/suppliers of products and service providers, around safe management of used batteries.

c. Waste and E - waste generation

a. Take-Back & Buy-Back Schemes: Require private-sector vendors and service providers receiving project financing to establish end-of-life take-back or deposit-refund programs to incentivize users to return old batteries and solar panels.
b. Extended Producer Responsibility (EPR): Mandate that distributors and suppliers assume responsibility for the collection, safe transport, and recycling of off-grid solar and electronic equipment.
c. Designated Collection Hubs: Establish secure, localized collection and sorting points for defective or irreparable equipment to prevent these items from entering municipal waste streams or being burned.
d. Safe Dismantling Facilities: Utilize specialized, certified recycling facilities for dismantling, extracting precious metals, and ensuring that toxic components (e.g., lithium, lead, and acid) are safely isolated

4.4.16 Managing risks associated with primary suppliers

The IAs shall adopt the following measures:

Implementing agencies shall undertake supply chain due diligence

a. Procure goods only from legally constituted and reputable suppliers.
b. Undertake due diligence to confirm that suppliers:
    a. Do not employ child or forced labor;
    b. Conduct age verification and ensure voluntary employment; and
    c. Maintain basic OHS systems for workers.
    d. Integration of E&S Requirements in Procurement

c. Include E&S requirements in all procurement and bidding documents.
d. Require submission of the Solar Procurement Bidder Declaration on Forced Labor for PV and related components.

Specify minimum standards for environmental sustainability, including recyclability, low toxicity, and product safety.

Supplier Selection and Contractual Controls

- Apply prequalification criteria that assess suppliers' E&S performance and compliance history.
- Include contractual provisions requiring:
  a. Compliance with ESF, ESMP, and LMP requirements
  b. Provision of warranties and after-sales support
  c. Proper handling, replacement, and disposal of defective or end-of-life equipment

Monitoring and Performance Management

- Monitor supplier performance through:
- Periodic reviews and inspections (as feasible)
- Contractor reporting and supervision
- Apply corrective actions, including contractual remedies, in cases of non-compliance.

Life cycle and End-of-Life Management

- Require suppliers, as feasible, to support end-of-life management of solar panels and batteries, including take-back or recycling arrangements.
- Ensure hazardous materials are handled, transported, and disposed of in accordance with national regulations and good international industry practice

4.5 Environmental and Social Assessment

To govern the process of determining individual subproject's environmental and social risk category and the potential environmental and social assessment requirements: the scope of application; categorization; Environmental and social management plans; climate change variability; vulnerability assessment; public consultation; community impacts; appraisal and treatment of indigenous peoples and other vulnerable and marginalized groups and grievance procedures, the ESMF will mainstream environmental, climate change and social considerations into Kenya`s strategy papers and County integrated Development Plans (CIDPs). The broad objective is to identify and assess the Environmental and Social impacts and risks including those related to gender and social inclusion and climate change and vulnerability as outlined in the PAD. The assessment covers, in an integrated way, all relevant direct and indirect environmental and social risks and impacts, including those specifically covered in this ESMF.

Potential environmental impacts include physical: geology and soils, surface and ground water resources, air resources and climate, excessive noise and vibration; biological - flora, resident and migratory fauna, ecosystems, endemic, endangered and threatened species and their habitats and protected areas, poaching. Socio economic and cultural - livelihoods, resettlement, community social structure, gender, vulnerable groups, health and safety, cultural heritage sites.

4.5. 1 appropriate potential adaptation and Mitigation measures

The assessment also covers possible cumulative impacts: impacts on areas and resources that result from the proposed project in addition to projects from other existing or planned developments, including from associated investments, regardless of which entity undertakes those actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time especially including:

- Habitat and biodiversity fragmentation - The wide scale installation of off grid solar systems and clearing for mini - grids solar systems can collectively disrupt local wildlife migration routes and alter sensitive ecosystems.
- Waste and E - waste generation - The accumulation of decommissioned solar panels and battery storage units creates significant long - term waste management challenges if not properly mitigated.
- Pollution- Cumulative manufacturing and improper disposal of solar components can cause air, water and land pollution in absence of stringent management.

4.5.2 Alternatives Analysis Framework

The assessment also considers real alternatives to the subproject`s locations (subcounty / Ward / location/ sub location / actual site) and / or design to avoid adverse impacts and the mitigation strategies for reducing potential adverse impact if avoidance of the negative impact is not possible. To the extent possible, the assessment complies with the relevant legislation and standards applicable in the Kenyan jurisdiction, bearing in mind the equivalence of standards with those of the Bank, and it takes into consideration national or regional level projects that are under implementation or preparation. The Bank intends that the assessment process will build on existing Kenyan systems for environmental, climate, and social risk management such as systems and institutions covering resettlement, ecosystem restoration, biodiversity protection, pollution control and labour standards and working conditions.

4.5. 3 Relevant ESS and Key Gaps with the National Framework

A complete description of the relevant ESS **and Key Gaps with the National Framework** is summarized in **Error! Unknown switch argument.** above and will be used as part of the environmental and social screening process presented in sub section 5.2 of this ESMF.

5. PROCEDURES TO ADDRESS ENVIRONMENTAL AND SOCIAL RISKS

5.1 National Environmental and Social Assessment and Permitting

The National Environmental Management Authority (NEMA) is responsible for managing environmental and social assessments and permitting in Kenya. In the sub - sections below, the environmental and social screening and assessment process for ASCENT subprojects is presented.

5.1.1 The Environmental and Social Screening Process in Kenya

The Environmental Management Coordination Act of 1999 and the Environmental (Impact Assessment and Audit) Regulations (June 2003) prescribe the conduct for Environmental Impact Assessment for development projects. However, these instruments do not contain guidelines regarding the screening, identification, assessment and mitigation and monitoring of potential adverse, localized environmental and social impacts of small-scale investments, where the project details and specific project sites are not known at the time of preparation of the project.

5.1.2 Overall approach for each Subproject

Subprojects will be subject to a proportionate environmental and social risk management process consistent with this ESMF, the applicable national regulatory framework, and the requirements of ESS1. At the concept and planning stage, each proposed subproject will be screened through a desk review and site verification to identify potential environmental and social risks and impacts and to determine the nature and scale of the assessment and management measures required.

The screening process will be used to confirm subproject eligibility, assign the relevant environmental and social risk classification, and determine the instruments to be prepared for managing the environmental and social risks and impacts in accordance with the ESMF. Subprojects involving High Risk impacts, significant irreversible adverse impacts will not be eligible for financing. Where screening identifies material risks and impacts, the implementing agencies will prepare, consult upon, disclose, adopt, and implement the required instruments, as applicable, including ESIAs, A/RAPs and site-specific ESMPs, prior to commencement of the relevant activities.

The preparation of subproject-specific instruments will be undertaken in a manner consistent with the project SEP and applicable stakeholder engagement requirements and will be informed by meaningful consultation with affected and interested parties. All relevant national permits, approvals, and clearances, together with the World Bank's prior review and no objection where required, will be obtained before initiation of procurement or commencement of works. The mitigation hierarchy will be applied throughout subproject identification, siting, design, implementation, and operation to avoid, minimize, mitigate, and, where necessary, offset adverse environmental and social impacts.

The environmental and social requirements applicable to each subproject will be incorporated into the technical design, cost estimates, bidding documents, contracts, and supervision arrangements, as relevant. Contractors will be required to prepare and implement the applicable contractor management plans and to comply with the relevant ESMP, labor management, occupational health and safety, and community health and safety requirements. The PIUs will monitor implementation and compliance throughout the subproject cycle, maintain records of performance, and take timely corrective action where gaps or non-compliance are identified, in accordance with this ESMF and the applicable Environmental and Social Standards.

5.1.3 Application of the Screening processes

The environmental and social screening process outlined in this ESMF complements Kenya's EIA procedures for meeting the environmental and social management requirements. The environmental and social screening process also meets the requirements of the World Bank Environmental and Social Standards. It provides a mechanism for ensuring that potential adverse environmental and social impacts of subprojects by MoEP, REREC and KPLC are identified, assessed and mitigated and monitored as appropriate, through an environmental and social screening process (see *Environmental and social screening form in (Annex 1).* This will be undertaken by qualified NEMA registered EIA/EA experts within REREC, MoEP and KPLC.

The objectives of the screening process are to:

i. Determine the potential adverse environmental and social impacts of the proposed project;
ii. Determine the appropriate environmental category as per ESS 1 and EMCA on Assessment and Management of Environmental and Social Risks and Impacts
iii. Based on the assigned environmental category, determining the appropriate level of environmental assessment required (i.e. whether an ESIA is required or not). Eligible subprojects will not include high risk investments as ASCENT is categorized as a Substantial Risk Project. Screening will further ensure that sub projects that may have potential adverse impacts are recommended for more detailed studies either through preparation of Comprehensive Project Reports (CPR) or full Environmental and Social Impact Assessment (ESIA) study. At planning stage and prior to commencement of sub-projects, the environmental and social experts at the PIUs will fill out the screening form attached to this report (Annex 1) informed by both desk review and preliminary site inspection.
iv. Determine appropriate mitigation measures for addressing adverse impacts using the Environmental and Social Checklist (Annex 1); this checklist can be adjusted to reflect project-specific environmental management requirements;
v. Determine the extent of potential solid and liquid waste generation, including hazardous wastes such as PCB, storage batteries and creosote, and appropriate mitigation measures;
vi. Determine potential adverse impacts on physical cultural resources, and provide guidance to be applied in the case of chance finds;
vii. Incorporate environmental mitigation measures as presented in the screening form and/or separate EA report into the proposed project design;
viii. Determine potential adverse social impacts due to land acquisition; However, the primary requirement is to avoid or minimize involuntary resettlement or economic displacement whenever possible.
ix. Facilitate the review and approval of the screening results and separate ESMP reports (the screening form would be looking at planned construction and rehabilitation activities); and
x. Provide environmental and social monitoring indicators to be followed during the construction, rehabilitation, operation and maintenance of the infrastructure service facilities and related project activities.

The following criteria will be followed for subproject selection to comply with the environmental legislation and this ESMF:

1. Proposed project construction/expansion will avoid or mitigate adverse impacts of the project construction / expansion projects on physical cultural resources, including ensuring government authorities responsible for the protection of cultural assets are notified and have the opportunity to document chance finds, etc.

2. Proposed project construction/expansion will not be located within conservation areas, protected areas, wildlife sanctuary, and forest areas as designated by Wildlife Conservation and Forest Departments.
3. Proposed project will not be located within a wetland or on a reservation of surface water bodies.
4. Potential environmental impacts associated with location will be minimized by selection of alternative sites or design amendments.
5. All stages of the project screening, design and implementation will be done in a participatory manner with public consultation with potentially affected people.
6. Proposed subproject with some significant environmental impacts will be undertaken but adequate mitigation measures will be put in place to minimize those impacts to the manageable size throughout the project period.

Environmental and Social Assessment

The following procedure will be followed for the projects that are under the above criteria:

a. If there are likely to be moderate or substantial adverse impacts as established from screening, the PIUs through the environmental and social experts would be required to prepare a Comprehensive Project Reports (CPR) project and submit it to NEMA county offices for review. NEMA may approve the project to commence at this stage or require the proponent to prepare Terms of Reference (See Annex 8) for NEMA's approval and proceed to full ESIA study. Preparation of Comprehensive Project Reports (CPR) and ESIA/EIA study reports are undertaken by Lead Experts registered by NEMA. The ESIA review process will be subjected to a coordinated approach where PIUs, NEMA and World Bank will work to ensure national laws (EMCA) and World Bank ESF standards are met. The PIUs NEMA registered lead expert will draft ESIA scoping report and ToRs and have them reviewed by the Bank before submission to NEMA. NEMA will review the ToRs to confirm statutory requirements, while the World Bank review will ensure alignment with its ESSs. The review guarantees that baseline studies and public consultations consider both local contexts and international best practices.

b. The environmental and social assessment will be undertaken in a participatory manner, and the stakeholder consultations will be documented in the environmental and social assessment documents; in case a consultant will be used, REREC and KPLC Environment and Social Unit will prepare TOR and be involved in recruitment of EA consultants.

c. For sites where environmental and social assessments will be undertaken, the assessments will be completed before finalization of detailed design to ensure that good practices are included in the technical design.

d. As regards the approval of environmental and social screening results and study reports, Bank's review and approval will be sought first before submission of the reports to NEMA. NEMA's county offices will provide review and clearance prior to the commencement of works.

e. MoEP, REREC and KPLC Environment and social teams will ensure that E & S concerns are addressed during planning, design, construction, and operations of the projects and appropriate mitigation measures are in place.

f. The Environmental Guidelines for Contractors will be attached to the bidding documents to ensure environmentally and socially sound construction practices.

Proposed project selection, design, contracting, mitigation, monitoring and evaluation will be consistent with agreed process outlined in the ESMF and ESMP will be fully integrated into the Project Implementation Plan/Operations Manual and project cost tables.

The list of measures to mitigate potential adverse impacts as per screening results and/or separate EA reports, including terms and conditions and the sector specific ESMP, supplemented by any additional site-specific measures will be attached as a part of the contract specifications.

A clause in the Particular Conditions of Contract will refer to the Environmental and Social Management Plan for a proposed project. The Particular Conditions of Contract prepared by MoEP, REREC and KPLC based on the environmental and social management plan will also stipulate that any non-compliance with the mitigation measures set out in the contract will attract the same remedies under the contract as any non-compliance with the contract provisions; such remedies would be instructions, notices, suspension of works, etc. The Instruction to Bidders will highlight the inclusion of the ESMP in the contract specifications and the contractor's obligation of compliance. The performance agreement will carry a clause to the effect that the recipient shall ensure the design; construction; operation and implementation of the proposed projects are carried out in accordance with the ESMF. In addition, ***Environmental Guidelines for Contractors (Annex 7)*** will be implemented and monitored by the MoEP through the Fund Administration Manager, REREC and KPLC Environmental and Social safeguards staff.

5.2 The Screening Process

The extent of environmental work that might be required, prior to the commencement of construction and rehabilitation of the REREC and KPLC Projects, will depend on the outcome of the screening process described below:

Step 1: Screening of project activities and sites

Prior to commencing, a desk appraisal will be carried out by REREC and KPLC/PIUs and Environment and Social units` staff or selected consultant REREC and KPLC PIUs will carry out the initial screening in the field, by completing the Environmental and Social Screening Form (Annex 1).

The screening form, when correctly completed, will facilitate the identification of potential environmental and social impacts, the determination of their significance, the assignment of the appropriate environmental category consistent with ESS1: Assessment and Management of Environmental and Social Risks and Impacts, offer an opportunity to avoid significant impacts/risks, the determination of appropriate environmental and social mitigation measures, and the need to conduct an Environmental Impact Assessment (ESIA)/ESMPs and/or Resettlement Action Plans(RAPs) and/or prepare VMGPs.

To ensure that the screening form is completed correctly for the various project locations and activities, training will be provided by relevant expert trainers and World Bank as applicable to MoEP, REREC and KPLC PIUs staff, and environment and social unit's staff and regional staff as part of strengthening internal capacity.

Step 2: Assigning the Appropriate Environmental and Social Category

The environmental and social screening form, when completed, will provide information on the assignment of the appropriate environmental category to a particular subproject. World Bank is responsible for confirming the appropriate environmental category to the proposed ASCENT Project in accordance with the requirements of ESS.

Table 4 below shows applicable E & S Instruments according to E&S Risk category.

Table 4: Kenya and World Bank Applicable E&S Instruments as per the E&S Risk Category

National E&S category	World Bank E & S Category	Required E&S Instrum and Permits	Preparation Requiren and Timing
Low	Low	Checklists/Summary Pr Report	Before launc procurement contractor/ Se Provider.
Medium	Moderate	ESMP/Comprehensive Pr Report	
	Substantial		
High	High	ESIA and RAP, as applica	

Step 3: Carrying Out Environmental and Social Impact Assessment

Firstly, determination will be made whether an ESIA or ESMP is required, as well as other potential instruments to mitigate identified risk and impact. In case it is not required, then there will be no need for further development of instruments, but use of basic standard good practice. If the ESIA is required, the ESIA process will identify and assess the potential environmental and social impacts of the proposed construction activities, evaluate alternatives, as well as design and implement appropriate mitigation, management and monitoring measures. These measures will be captured in the Environmental and Social Management Plan (ESMP) which will be prepared as part of the ESIA process for each subproject. **Environmental and Social screening checklist (Annex 1)** will be used in identifying the likely impacts for individual subproject and **Generic EIA TOR in Annex 8** will guide further E&S study for the same.

Preparation of the ESIA/ESMP shall be carried out in consultation with the relevant sector Ministries and potentially affected persons. The relevant government departments in close consultation with NEMA and the Project Coordination Unit will arrange for the (i) preparation of final ESIA terms of reference for projects;(ii) recruitment of a service provider to carry out the EIA where external support is required; (iii) public consultations; and (iv) review and approval of the ESIA through the national ESIA approval process.

Stakeholders Consultations during the assessment

Public consultation during Environmental and social assessment process is a regulatory requirement by NEMA and World Bank for new projects by which the public's input on matters affecting them is sought about the project. Its main objectives will be improving efficiency, transparency and public involvement in the proposed projects that will enhance the compliance of the environmental laws and policies about the implementation of the projects. It will involve notification (to publicize the matter to be consulted on), consultation (a two-way flow of information and opinion exchange) as well as participation involving interest groups as guided by the project SEP.

Through public participation, environmental conservation and mitigation of social impacts will be enhanced. For all subprojects, adequate notices shall be provided to identified stakeholders to facilitate their constructive participation, records of their involvement will be maintained and the respective E&S instruments consulted upon will incorporate reports on how the stakeholders' feedback has been considered.

Final instruments will also be disclosed in the implementing agencies' websites and copies maintained in their offices, including site offices, for access by interested stakeholders.

Step 4: Review and approval of the environmental and social instruments

The respective instruments, prepared by consultants, will be reviewed by REREC/KPLC and MoEP Environmental and Social experts before submission to the World Bank.

All ESIAs/ESMPs, and A/RAP prepared shall be submitted to the World Bank for prior review and no objection before submission to NEMA for final review and licensing and initiating bidding processes.

All documentation, permits, and clearances required under the government's Environmental Regulation for the subprojects as per the reviewed legal framework, should also be obtained before launching the subprojects.

Step 5: Environmental Monitoring

Following approval of E&S instruments, implementation monitoring will take place to characterize and monitor the quality/effectiveness of the environmental and social risks and impacts management in the subproject sites. All monitoring strategies and programmes for the subprojects shall have reasons and justifications which will be designed to establish the status of an environment or to establish trends in environmental parameters where the subprojects shall be implemented. In all cases the results of monitoring will be reviewed, analyzed and reported on monthly basis for the purpose of subproject implementation. The subproject design should have a monitoring program which must have regard to the final use of the data before project monitoring starts. This environmental monitoring for the subprojects should be continuous throughout the subproject life.

Environmental Monitoring Indicators

These are the measurement, statistics or values that provide a proximate gauge or evidence of the effects of environmental management programs or of the state or condition of the environment that could result from the projects that could be implemented by MoEP, REREC and KPLC. The environmental indicators that need to be monitored include; air quality, water quality, flora and fauna, human health, social and economic conditions. Regular review of implementation of ESHS plans shall be undertaken and reports prepared and it will be ensured that implementation of plans through site visits, regular reporting from the field, and other planned monitoring. These include:

- Monitor and report on compliance with the E&S management plans and national E&S regulations.
- Utilize the Grievance Mechanism (GM) to track, address, and resolve grievances from affected parties.
- Continued awareness raising and/or training for relevant staff, contractors, communities.

The PIUs will regularly report on ESMF, ESCP, SEP, and overall E&S compliance to the World Bank ESF. At a minimum, quarterly reporting will be done that shall include (i) the overall implementation of E&S risk management instruments and measures, (ii) any E&S issues arising as a result of project activities and how these issues will be remedied or mitigated, including timelines, (iii) Occupational Health and Safety (OHS) performance (including incidents and accidents), (iv) community health and safety (CHS), (v) stakeholder engagement updates, in line with the SEP, (vi) public notification and communications, (vii) progress on the implementation and completion of project works, and (viii) summary of grievances/ beneficiary feedback received, actions taken, and complaints closed out, in line with the SEP.

Incident reporting and management

It will ensure that the project responds to incidents to care for people and the environment. If the PIU becomes aware of a serious incident in connection with the project, which may have significant adverse effects on the environment, the affected communities, the public, or workers, it should notify the World Bank within 48 hours of becoming aware of such incident. A fatality is automatically classified as a serious incident, as are incidents of forced or child labour, abuses of community members by project workers (including gender-based violence incidents), violent community protests, or kidnappings.

All contractors or consultants in the project shall be contractually required to notify the PIU of such incident within 24 hours of occurrence. Following notification, PIU will ensure that appropriate investigations are promptly conducted to establish the root cause of the incident and formulate corrective actions that will prevent recurrence of a similar incident. Such investigation reports shall also be submitted to the World Bank within the timelines defined in the ESCP. The project has a detailed Incident notification form (See Annex 10)

Apart from the Bank, regulatory notifications shall also be made to the respective authorities including, as applicable, NEMA, DOSHS, Traffic Police, Department of Mines, EPRA, public emergency service providers etc. all contractors shall be required to maintain an up-to-date register and contacts of the local authorities.

Technical Assistance Activities

The PIUs will ensure that all consultancies, studies (including feasibility studies, if applicable), capacity building, training, and any other technical assistance activities under the Project are carried out in accordance with Terms of Reference acceptable to the World Bank, that are consistent with the ESSs. They will also ensure that the outputs of such activities comply with the Terms of Reference (ToRs).

Project completion

At project completion, undertake final Review and Evaluation: Qualitative, quantitative, and/or participatory data collection on a sample basis.

- Assess whether E&S plans have been effectively implemented.
- Ensure that physical sites are properly restored.
- Conduct a final review and evaluation of E&S performance for each subproject, ensuring all mitigation measures have been effectively implemented.

6. STAKEHOLDER ENGAGEMENT, DISCLOSURE & CONSULTATION

A separate Stakeholder Engagement Plan (SEP) has been prepared for the Project, based on the World Bank's ESS10 on Stakeholder Engagement.

6.1 Introduction

Public Consultation and Participation to disclose and deliberate on the ESMF have been conducted. The exact subproject sites are not yet identified, and once they are established, Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs) for Component 2 will be prepared as required by NEMA and World Bank Environmental and Social Standards and further public consultations and stakeholder engagements will be conducted during project implementation stage.

The objectives of consultation were to disclose information on ASCENT 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 aided in taking appropriate decisions for effective environmental management of the subproject 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 sub-projects. The specific objectives of Public Consultation are:

- To keep stakeholders informed about the project components at different stages of implementation,
- To address the environmental and social concerns/ impacts, and device mitigation measures considering the opinion/ suggestions of the stakeholders,
- To generate and document broad community support for the sub-projects,
- To improve communications among interested parties, and
- To establish formal complaint submittal / resolution mechanisms.
- To discuss about ASCENT project and document its issues, concerns and mitigation measures.

6.2 Consultation Process

During the ASCENT ESMF preparation preliminary consultations have been conducted. Consultations with Various Stakeholders including Potential Project Beneficiaries were held in Elgeyo Marakwet, Baringo, Busia and Homabay Counties between 17th March 2026 and 26th March 2026. The consultation meetings targeted potential ASCENT beneficiaries including youth, men, women, representatives of public educational, health and religious institutions and VMG communities. In each of the four counties, prior arrangements were made with the local representatives of National Government Administration Officer (NGAO) and community leaders such as Land and Lake Officials in Baringo, Chief, Assistant Chief and BMU officials in case of Homabay and Busia Counties. This was followed by conducting Focus Group Discussions (FGDs) at the respective village venues. Ideas and feedback for consideration in the design of ASCENT were discussed and documented. In summary a total of 632 participants took part in the engagement sessions. The detailed information on the outcome of the engagement is presented in Annex 5. Such consultations will continue to be ensured during further design and implementation stage of the project. A comprehensive framework for the participatory consultation including an effective feedback mechanism and information disclosure has been developed as project SEP and

incorporated for implementation during the entire duration of the ASCENT project. A critical element in ASCENT project was planning a participatory consultation program that is associated with the selection of participation techniques to meet desired objectives. Considering the importance of effective participation and consultation in a widespread project area along with the time and resource constraints in the ASCENT project, the following participation techniques will be used:

- **Information dissemination** and information sharing techniques to inform the stakeholders regarding the action taken in ASCENT project sites through personal communication to make them aware about the project as well as to incorporate users input at different stages of the project.
- **Information gathering techniques** to gather quantitative and qualitative information about the ASCENT programme through questionnaires survey.
- **Focused Group Discussion (FGDs)** covering different components of the ASCENT programme to increase local awareness about the forthcoming project as well as to incorporate their views, needs, priorities considering different positive and negative impact of the project.
- **Key Informant interviews** in the project area to incorporate their views and suggestions.
- **Workshops** were organized with participation of different types of representative stakeholders.

6.3 Instruments for Use during Consultations & Initial Consultations Held

The guidelines for EIA and EA provide details concerning the public consultation methods in Kenya. Such methods include information notices, brochures/fliers, interviews, questionnaires and polls, community meetings, advisory committees, and public hearings. The guidelines for public consultation include, among others, a requirement that major elements of the consultation program should be timed to coincide with significant planning and decision-making activities in the project cycle. In terms of Kenya's EIA process, and development partners' policy standards, public consultation should be undertaken during:

- The preparation of the EIA terms of reference;
- The carrying out of an EIA;
- Government review of ESIA reports; and
- The preparation of environmental and social terms and conditions of approval.
- Consultation during environmental auditing

Consultations will be carried out with communities as part of the environmental and social screening process of sub-projects, and the results will be communicated in an understandable language to potentially affected people and beneficiaries.

KPLC, REREC and MoEP will be responsible for conducting and providing evidence of meaningful consultation (i.e. in line with free, prior and informed consultation principles) with communities likely to be affected by environmental and social impacts, and with local stakeholders, and also for ensuring broad community support, especially for projects affecting indigenous /vulnerable and marginalized Groups. .

The World Bank's Environmental and Social Standards ESS 10; Stakeholder Engagement and Information Disclosure guides consultation, participation and broad community support, which also provide guidance on affected communities' involvement in the process of project planning, implementation and monitoring. The consultations are mainly based on stakeholder analysis and preceded by disclosure of adequate project information and environmental and social impacts of the project to ensure that participants are fully informed. The consultation and public participation

is a continuous process during project circle and it began at an early stage during project preparation and will continue as needed. It was conducted in a timely manner in the context of key project preparation steps. The results of the consultation are adequately reflected in the project design and in the project documentation.

6.4 Disclosure

This ESMF, as well as the SEP and the Environmental and Social Commitment Plan (ESCP) that have been prepared for this project, have been disclosed in draft form for stakeholder consultations on the website Key feedback on the disclosed ESMF is listed here [summary of feedback will be provided once obtained]. It will be ensured that the project will continue to disclose information to make project information accessible to stakeholders.

All E&S instruments prepared for individual subprojects will also be disclosed in-country by the implementing agencies. These will be available for reference, free of charge, at the implementing agencies' offices, county NEMA offices (only final ESIA reports), and site offices and publicized on the agencies' websites.

6.5 Grievance Redress Mechanism

6.5.1 Introduction

Grievance mechanisms provide a formal avenue for affected individuals, groups or any stakeholders to engage with the project implementers or owners on issues of concern or unaddressed impacts. Grievances are any concerns, complaints or suggestions about the way a project is being implemented. They may take the form of specific complaints for damage/injury, concerns about routine project activities, or perceived incidents or impacts. Identifying and responding to grievances supports the development of positive relationships between projects` team and affected groups/communities, and other stakeholders.

The grievance procedure will be simple and will be administered, as far as possible, at the project level by an independent grievance redress committee (GRC) at the locational, county and national level. Cascading down there will be the Locational Grievance Redress Committee (LGRC) based in each administrative location. It will be established by PAPs through consultative meetings chaired by the representative of the implementing agency. LGRC will act as the voice of the PAPs and will work under guidance and coordination of the County Grievance Redress Committee (CGRC) in handling PAPs grievances. Some of the grievances can be resolved at this level. If not, the LRCC will assist the PAPs to address their grievances to the CGRC. The LGRC will comprise 6 No. Members including Location Chief, 1 village elder, 2 women representatives, 2 members representing Men, 1 Youth, 1 PWD and 1 Businessman / woman representative. A member of village peace committee will be incorporated, while CGRC will comprise Representative from NLC, Representative from county government (Lands, Housing or Physical planning), representative from KPLC, REREC, County surveyor, 1 PAP, 1 Elder member of LGRC and a representative from local CBO.

The members of the grievance committees will be trained to equip them with necessary skills to effectively log, manage and resolve grievances. The existence of the Grievance Mechanism will be communicated directly to communities and stakeholders through sensitization meetings, brochures and digital platforms. The project-level grievance mechanism outlined in this ESMF will not replace existing legal dispute and grievance redress in the country especially in respect to what will be set up by the NLC/IA, which PAPs will be persuaded to use as an option of last resort if they feel dissatisfied. The current Kenyan constitution section 159, Land and Environmental Court Act

2011, National Land Commission Act 2012 and Land Act 2012 advocates for alternative dispute resolution mechanisms before seeking formal legal redress in disputes relating to land and resettlement. In practice, this can be the village head and other local or traditional dispute resolution mechanisms.

The affected people will be given copies of grievance procedures as a guide on how to handle grievances. This will include who to contact (a phone number, address and location, time. The individual PAP has the right to take his/her case to the civil court for litigation. The Land Act 2012 and National Land Commission Act 2012 obligate the NLC to support grievances and disputes related to resettlement or land amicably in conjunction with KPLC/REREC.

6.5.2 Principles of the Grievance Mechanism

- **Accessibility and simplicity:** The procedure should be simple to understand and easily accessible to all stakeholders and beneficiaries, regardless of education level.
- **Confidentiality:** Information must be kept confidential, shared only with those strictly necessary to the investigation to maintain trust.
- **Prompt Resolution:** Grievances must be addressed quickly to prevent frustration, with set timeframes for responses.
- **Fairness & Impartiality:** The process must be objective, ensuring all parties are heard before decisions are made.
- **Non-Retaliation:** Complainants must be protected from any form of victimization or disadvantage for filing a grievance in good faith.
- **Right to appeal:** The process should include an appeals process allowing a higher level of management to review the outcome.

6.5.3 Detailed Procedures for Grievance Management

The procedure for managing grievances under all investments will be as follows:

1. The affected person will file his/ her grievance, relating to any issue associated with the project, in writing to the LGRC. The grievance note should be signed and dated by the aggrieved person. A selected member of the LGRC will act as the sub–Project Liaison Officer (PLO) who will be the direct liaison with PAPs.
2. The PLO will be working in collaboration with the other LGRC members. Where the affected person is unable to write, the PLO will write the note on the aggrieved person's behalf. Any informal grievances will also be documented by the sub–Project Liaison officer. The note should be embossed with the aggrieved person's signature or thumbprint. A sample grievance form is provided in Annex 9. A copy of this completed form should be submitted by the sub–Project Liaison Officer to LGRC.
3. The Project Liaison Officer and LGRC will consult to determine the validity of claims. If valid, the Committee will notify the complainant that she/he will be assisted, and a response will be given in the due time.
    a. The LGRC will meet and respond within 14 days during which time any meetings and discussions to be held with the aggrieved person will be conducted. If the grievance relates to valuation of assets, a second or third valuation will be undertaken, at the approval of CGRC until both parties accept it. Separate independent valuers than the person who carried out the initial valuation should

undertake these. The more valuations required to achieve an agreement by both parties, the longer the process will take. In this case, the Project Liaison Officer must notify the aggrieved person that his/her complaint is being considered.

b. Traditional local mechanisms will be used and will include local leaders and the affected persons trying to find a solution with the parties concerned. These will ensure transparency, fairness, consensus building across cases, eliminate nuisance claims and satisfy legitimate claimants at low cost.

4. If the Committees reject the complainant's claim, the Sub Project Liaison Officer will assist the aggrieved person to take the matter to the CGRC. The CGRC will look at the complaints raised by the PAPs and provide direction, explanation and a response. Sometimes, it will necessitate the aggrieved person to present himself or herself to CGRC for explanation.
5. If the aggrieved person does not receive a response or is not satisfied with the outcome by the CGRC within the agreed time, they may lodge their grievance to the County Land Office, also mandated to help resolve such matters and NLC, which will be the main formal body for grievance mechanisms.
6. Where matters cannot be resolved through local routes, the grievance will be referred to courts. The CGRC will aid at all stages the aggrieved person to facilitate resolution of their complaint and ensure that the matter is addressed in the optimal way possible.
7. All the processes will be documented, including the names, the type of grievances, what was done to resolves it, if it was resolved (if not what was the next step taken). The Project Liaison officer will ensure that each complaint has an individual reference number and is appropriately tracked and recorded actions are completed. The log also contains a record of the person responsible for an individual complaint, and records dates for the following events:
    a. Date the complaint was reported;
    b. Date the grievance log was uploaded onto the Sub project database;
    c. Date information on proposed corrective action sent to complainant;
    d. The date the complaint was closed; and
    e. Date response was sent to complainant.

Table 5 shows the steps in the grievance process, resolution timelines and responsible Parties.

Table 5: Illustrative Table on the GM Steps and Resolution Timelines

Step	Description of process (e.g.)	Timeframe	Responsibility
Grievance uptake	Grievances can be submitted via the following channels: • Toll-free telephone hotline to be operated by the Project Implementation Unit (PIU) Safeguards Team. SMS to be provided by the project PIU.	Continuous	PIU Safeguards Team and County/Community Grievance Focal Points

	E-mail to: to be provided by the project PIU. Letter addressed to: The Project Coordinator, ASCENT Project PIU, P.O. Box , Nairobi. In-person at County Project Liaison Offices in each participating county. Grievance or suggestion boxes located at Chief's offices, market centers, local administration offices, and project sites. • Social media: to be provided by the project PIU. • Tablet/smartphone application: to be provided by the project PIU		
Sorting, processing	All complaints received are forwarded to the County Grievance Focal Point, logged in the ASCENT GM Register and digital GM Database, and categorized as: Environmental, Social, GBV/SEA, Land and compensation, Employment/Labor-related, Procurement/Contractor misconduct, Health, Safety & Security, and General inquiries	Upon receipt of complaint	Local grievance focal points
Acknowledgement and follow-up	A formal acknowledgment is issued to the complainant via SMS, phone call, or written notification by the County GM Focal Point	Within 2 days of receipt	Local grievance focal points
Verification, investigation, action	The complaint is investigated by the County Grievance Redress Committee (GRC) with support from the PIU Environmental & Social Specialists. The proposed resolution is formulated by the GRC and communicated to the complainant by the County GM Focal Point or PIU.	Within 10 working days	Grievance Redress Committee (GRC) composed of Community Representatives, PIU E&S Specialists, County Officials, and Contractor/ Supervision Consultant Representatives

Monitoring and evaluation	Data on complaints are stored in the GM Database and reported monthly to the PIU Project Coordinator and quarterly to the World Bank as part of safeguards reporting.	Monthly and quarterly	PIU Safeguards Team
Provision of feedback	Complainant satisfaction surveys are conducted through phone follow-up, in-person interviews, or digital feedback forms uploaded to the GM portal.	After closure of each case	PIU Safeguards Team and County GM Focal Points
Training	Annual and periodic refresher trainings are conducted for PIU staff, Contractors, Supervision Consultants, and Community GRCs on GM principles, GBV/SEA handling, documentation, and reporting procedures.	Annually & as needed	PIU Safeguards Team with support from GBV/SEA Specialist
Payment of Reparations (if applicable)	Compensation or reparations arising from verified claims will be processed through the PIU Finance Unit following government financial procedures. Payments will be made directly to the affected individual or community via bank transfer or M-Pesa **and** documented in the GM Register.	As required	PIU Finance Unit and Project Coordinator
Appeals process	If the complainant is dissatisfied with the proposed resolution, the case is escalated to the National-Level Grievance Redress Committee, then if unresolved, referred to the Ministry of Energy & Petroleum Appeals Board. As a last resort, complainants may seek redress through the Kenyan judicial system.	Within 15 working days after appeal submission	National GRC, Ministry Appeals Board

6.5.4 Labour Grievance Mechanism (Labor GM)

Labor complaints will be managed separately from community grievances to ensure confidentiality, non-retaliation, and compliance with national labor legislation and World Bank ESS2 requirements. Elaborate GM processes are outlined in ASCENT - SEP. A dedicated Labour Grievance Mechanism will be in place for all project workers, including contractors,

subcontractors, and PIU staff. This mechanism will be detailed in the Labor Management Procedures (LMP) and provides confidential channels for reporting labor-related complaints, including workplace safety issues, contract disputes, discrimination, and GBV/SEA concerns. These requirements shall be reflected in all the works and consultancy contracts in the project.

6.5.5 SEA / SH Grievance Mechanism

There will be a separate reporting mechanism for SEA / SH cases that is discrete from the standard Grievance Mechanism. The mechanism is outlined in detail in the SEA / SH prevention and response plan prepared under the project.

6.5.6 Primary supply workers

Where a significant risk of child labour or safety issues in relation to primary supply workers has been identified, the procedure for monitoring and reporting on primary supply workers will involve various measures that have been put in place to prevent and control them such In instances, where foreign suppliers are contracted, contractors will be required to declare during their procurement process whether their supplier have been accused or sanctioned for any of these issues and their corporate requirements related to child labor, and safety. Locally, grievance committees at the community level will liaise with Department of Child welfare services. In the event of identification of child labour cases, it will be reported to concerned authorities. The labour law also provides for penal and administrative penalties in case of noncompliance with labour law provisions. In instances where local suppliers would be engaged, contractors shall be required to carry out due diligence procedure to identify if there are significant risks that the suppliers are exploiting child or forced labour or exposing workers to serious safety issues. If there are any risks related to child and forced, and safety identified, in case of occurrence, the sanctions stipulated by the Kenyan labour law will be applied.

6.5.7 Contractor Management

The Implementing Agencies will use the world Bank standard bidding documents for requesting for bids and contracts and these include labour and occupational, health and safety requirements and SEA / SH performance declaration.

As part of the process to select contractors who will engage contracted workers, IAs and / or the supervision consultant(s) will review the following information:

a. Information in public records for example corporate registers and public documents relating to violations of applicable law, including reports from labour inspectorates and other enforcement bodies in the Counties and sub counties where the project will be implemented.
b. Business licenses, registration, permits and approvals.
c. Documents relating to labour management systems including OHS issues.
d. Identification of labour management, safety, and health personnel, their qualifications and certifications.
e. Records of safety and health violations, and responses.
f. Accidents and fatality records and notifications to hierarchical authorities.

g. Records of legally required benefits and proof of workers enrollment in the related programs.

h. Workers payroll records, including hours worked and pay received.

i. Identification of safety committee members and records of meetings and

j. Copies of previous contracts with contractors and suppliers, showing inclusion of provisions and terms reflected in ESS 2.

The contracts with selected contractors will include provisions related to labour and occupational health and safety as provided in the World Bank standard procurement documents and laws governing public procurement in Kenya. The Supervision consultant will manage and monitor the performance of contractors in relation to contracted workers, focusing on compliance by contractors with their contractual agreements (obligations, representations and warranties). This may include periodic audits, inspections and spot checks of projects locations and labour management records and reports compiled by contractors. Contractors labour management records and reports include: a) representative sample of employment contracts or arrangements between third parties and contracted workers, b) records relating to grievances received and resolution ,c) Reports relating to safety inspections including fatalities and incidents and implementation of corrective actions, d) records of trainings provided to contracted workers to explain labour and working conditions and OHS for the project.

6.5.8WB's Grievance Redress Service (GRS)

Communities and individuals who believe that they are adversely affected by a World Bank supported project, including resettlement issues, may submit complaints to existing project-level GM or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, because of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. Information on how to submit complaints to the World Bank'scorporate GRS can be found at: http://www.worldbank.org/en/projects-operations/products-and-services/grievance- redress-service. Information on how to submit complaints to the World Bank Inspection Panel, can be found at www.inspectionpanel.org.

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7. MITIGATION MEASURES

7.1 Mitigation Measures

Mitigation measures involve avoiding of impact altogether, minimizing the impact, rectifying the impact and gradual elimination of impact over time. There are three types of mitigation measures: physical, socio-cultural and socio-economic. Physical measures relate to issues of project siting, re-vegetation and preventive measures like bush clearing, erosion, sedimentation and pollution control and good construction practices, waste management, and application of Environmental Guidelines for Contractors. Socio-economic measures will include education and awareness, hygiene and sanitation training, rules and regulations, institutional support (including skills training), and recruitment of qualified personnel while socio-cultural measures could include allowing limited and monitored access to restricted areas for cultural reasons where applicable.

Mitigation measures for the public health issues; explore options to accommodate crew off site and avoid camps and in absence of that, educate the crew about preserving vegetation, provide decent temporary sanitation facilities like toilets. Use local labor as much as possible and provide HIV/AIDS awareness training to the workers and the community, provide guidelines on local culture, behavior and social life to the workers and create walkways and plant grass where necessary.

The mitigation measures for use of hazardous waste include; use off site treatment methods and only deliver poles ready for fixing, proper burning or disposal of any hazardous materials found on site, use protective gear during work, remove or bury all abandoned construction materials and rubbles and fill in and close all latrines and septic systems. The mitigation measures for use of heavy plant and equipment i.e. tippers for material delivery include; Minimize the use of heavy trucks, Provision of drainage channels to guide surface run offs and introduction of mulching to minimize effects on soil erosion and set protocols for vehicle maintenance on site and not dump any oil around the site.

A summary of typical environmental and social impacts and the corresponding typical mitigation measures for the types of activities likely to be undertaken by MoEP, KPLC and REREC are as shown in Tables 6 and 7. The tables are not intended to be exhaustive in content but rather to indicate in general the scope of ESIAs and ESMPs. It is entirely possible that additional impacts will be identified during impact assessment studies 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 and costed accordingly.

Table 6: ESMP and Mitigation Program

No	Potential negative impacts	Mitigation measures	Monitoring activities and surveillance	Responsibility for monitoring	Performance Indicator	Timing
1.	Electric shocks and electrocution of people	Proper public education to the people on safe use of electricity Proper wiring in the customers' premises by qualified technicians Use of danger /*hatari* signs on the poles	Inspection	Supervising Engineer Contractor	No of Public safety awareness sessions held No of accidents recorded No of deaths Medical Records Presence of Hazard communication signs Availability of wiring certificate	Operation
2	Occupation safety and health hazards. During construction many people will be engaged in working. Such people are exposed to occupational risks like falling from heights, Accidents etc.	The contractor must observe all the safety precautions to ensure workers work safely Safety awareness creation to the workers Use of personal protective equipment like gloves, helmet, climbing shoes, harnesses etc. Staff Training and regular equipment service and testing Only trained & certified workers to install, maintain or repair electrical equipment; Use of signs, barriers and education/ public outreach to prevent public contact with potentially dangerous equipment;	Inspection	Safety Engineer; contractor; Technical Engineer	Workers in PPE Records of safety awareness sessions held with workers Fully stacked First Aid Kit Competency records Tool box talk records	Construction Operation & decommissioning

		Community policing to be encouraged to reduce vandalism of transformers and distribution cables Follow safe work procedures Maintain a fully stocked and accessible first aid kit Observe OSHA 2007 regulations				
3.	Public health risk At project implementation many new workers will be involved and new interactions between workers and local communities are likely to take place. These interactions are likely to pose risks to the social fabric of the society. Such risks include public health related issues such as (HIV/AIDS, communicable and sexually transmitted diseases (STDs).	Public awareness of the public health issues identified. Provision of condoms Distribution of HIV & AIDS awareness materials in collaboration NACC VCT / ART	Inspection	Safety Engineer/ Project Engineer	Availability of Condoms No of public health awareness sessions with workers	Construction
4.	Impact on Natural Vegetation The project will involve short service	KPLC to plant trees as a way of compensation 'offset' for the cleared ones	Inspections	Environmentalist	No. of trees planted	Construction & operation

	lines within the 600m radius mainly along the road reserve. No tall growing trees will be allowed below the lines or along the way leave trace. Grass and short vegetation will be cleared to pave way for erection of poles.	Clear limited areas only where the pole will be erected Select alternative alignments to avoid sensitive natural features				
5.	Construction material sourcing-wooden poles. Majority of these distribution lines are constructed using wooden poles. This would impact on the environment significant number of wooden poles will be required to connect electricity to new users from the mini grids	Plant more trees to compensate 'offset' for the poles used Ensure accurate budgeting to ensure only necessary material is ordered Proper storage to ensure minimal loss Supply tree seedlings to schools & farmers to increase forest cover/establish woodlots	Inspection	Environmentalist/ project Engineer	No wooden poles used No. of trees planted	Construction period
5.	Impacts on air quality from vehicle exhaust emissions	Drivers shall not leave vehicles idling so that exhaust emissions are lowered.	Inspection	Project engineer	No. of vehicle idling onsite	Construction

	Exhaust emissions are likely to be generated by the vehicles used to ferry materials during construction. These exhaust emissions can impact on the quality of air.	• Maintain all machinery and equipment in good working order to ensure minimum emissions are produced.			Vehicle maintenance Records	
6.	Solid waste Any solid waste will be generated which includes conductor and tree cuttings.	All left over conductor cuttings to be disposed appropriately or be returned to the store for proper disposal Proper budgeting of materials to reduce wastage practice 3 Rs of waste management: reduce, reuse, recycle of materials Manage storage, transfer, and disposal of transformer oils according to industry standards	Inspection	Project Engineer	No waste on site Records of material return to store if any	Construction & Decommissioning
7.	Noise	Proper servicing of vehicles Not necessary for power lines of such low voltage. However	Inspection	Project Engineer / Safety Engineer	Vehicle maintenance Records	Construction & decommissioning

		contractor should ensure minimal noise generation during construction and decommissioning phases Maintain all work equipment at optimal operating condition Monitor noise levels at sensitive receptors (residential areas, schools, hospitals) Work through community liaison officers to agree on working hours and to respond promptly to complaints.				
8	Risk of Fire from live conductors and Transformers- Potential adverse impacts related to fire hazards remain a main feature of this project. The Transformers will have combustible products like the transformer oil and the risks associated with fire hazards form a significant adverse impact on the human health and environment	No burning of vegetation along the distribution lines rights-of-way Timely maintenance of the right of way Time maintenance of transformers	Routine maintenance	Operation and Maintenance Engineer	Way leave and Transformer maintenance Records	Operation

9.	Damage to crops and trees-	Compensation for loss of crops and trees to the owners	Verification with owners of crops	Socio-Economist	Records of payments made Records of any chance finding and report to the NMK	Construction and operation Construction
10	Loss of physical cultural resources	Physical Cultural Resources may be triggered as a precaution, although the sub- projects are not Expected to traverse areas of cultural or historical importance. Chance find procedures will be included in contracts and in the environmental documents.	Close monitoring of the contractor	Environmental specialist		
11	Oil Leaks -The refilling and emptying of the transformer oil can lead to accidental oil spills. There is a possibility of oil leaking from the transformers can lead to oil spills. This may lead to potential contamination of surface and groundwater as well as soil.	Need to design appropriate protection devices against accidental discharge of transformer oil substances. Frequent inspection and maintenance of the transformers should be done to minimize spilling. All waste oils from maintenance of transformers and other associated equipment should be segregated and disposed properly by a reputable/registered waste handler in accordance with the waste disposal plan.	Close monitoring of the contractor	Environmental specialist	Record of any oil spills incidents recorded	Operation and decommissioning

Table 7: Typical Impacts and Mitigation Measures for Way Leave Acquisition and Component 2 for the ASCENT project

Project Activities/ Environmental Aspects	Potential Associated Impacts	Mitigation Measures
Acquisition of Right of Way (ROW)	Anxiety among potentially affected landowners and users	Work through community liaison officers to keep public fully informed
	Dissatisfaction with compensation; disruption of livelihoods	Prepare and implement compensation plan in accordance with the RPF and ESS 5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement guiding principles and way leave regulations
	Loss of natural habitat	Avoidance shall be adopted. Give preference to sites with no encumbrances Select alternative alignments to avoid protected areas and other sensitive natural features
	Loss of or damage to cultural resources	Select alternative alignments to avoid physical cultural resources Where avoidance is impossible, comply with World Bank ESS 8 on Cultural Heritage and consult with national authorities and/or local leaders on best way to preserve or relocate cultural property. Formulate and implement chance finds procedure
Bush Clearance	Loss or fragmentation of or increased access to natural habitat, leading to reduction in biodiversity, possible impacts on rare or endangered species	Site selection should prioritize land with minimum tree cover Minimize width of cleared area Use labor-intensive mechanical clearing methods to maximize employment opportunities and avoid impacts of herbicides
	Accumulation of brush and debris	Use appropriate disposal techniques; prohibit burning
Pole installation and Cable Stringing; Equipment Delivery and Installation	Soil / groundwater contamination from accidental fuel/engine oil spill refueling	Store fuel and chemicals on an impermeable surface with a bund that will hold 110% of the capacity of fuel and chemicals stored. Train personnel in safe fuel handling Use drip pans to contain any spills during refueling activities
	Onsite noise and vibration and other hazards.	Maintain all work equipment at optimal operating condition Enforce use of PPE Implementation of weekly Health and Safety (H&S) training Daily tool box talks

	Disturbance by noise and vibration in surrounding communities	Maintain all work equipment at optimal operating condition Monitor noise levels at sensitive receptors (residential areas, schools, hospitals) Work through community liaison officers to agree on working hours and to respond promptly to complaints. Sensitize workers to reduce noise during working hours in sensitive areas
	Risk of accidents to life and property	Set and enforce speed limits Mandatory driver training Use warning signs and, where necessary, personnel to direct traffic
	Damage to roads and other infrastructure caused by transit of heavy trucks	Routine inspection, and prompt repair of any damage
	Working at heights and in confined spaces.	Adequate ladder should be provided Provision of climbing shoes Provide safety harness
Distribution line operation	Risk of electrocution, injury or property damage	Prevent encroachment and enforce restrictions on activities in RoW Post warning signs and properly install electrical poles with anti-climbs to prevent access to conductors by unauthorized personnel Provide safety belts and include log-out/tag-out procedures Create public and staff awareness on the electrical safety rules as set out in Kenya power safety book
	Pollution from Improper disposal of solid and liquid wastes	Operators to practice 3Rs of waste management : reduce, reuse, recycle Dispose of wastes and scrapped equipment properly Manage storage, transfer, and disposal of transformer oils according to industry standards
Distribution line maintenance	Damage to natural habitat	Set and enforce restrictions on poaching of wildlife by workers Minimize width of cleared area Use labor-intensive mechanical clearing methods to maximize employment opportunities and avoid impacts of herbicides
	Accumulation of bush and debris	Use appropriate disposal techniques; prohibit burning
	Soil / groundwater contamination from accidental fuel/engine oil spill refueling	Train personnel in safe fuel handling Use drip pans to contain any spills during refueling activities

	Risk of accidents to life and property	Set and enforce speed limits Mandatory driver training Use warning signs and, where necessary, personnel to direct traffic

7.2 Environmental and Social Management Plan (ESMP)

The purpose of the Environmental and Social Management Plan (ESMP) is to provide guidance during the implementation of the Proposed sub-Projects regarding the institutional responsibilities and cost estimates for effective environmental and social management. Towards this end, the ESMP will:

1. Ensure that proper appraisal on the effects of projects takes place and that proper measures are put in place to mitigate the effects;
2. Set out the basis for compliance and management of terms and conditions for approval;
3. Design compliance strategies; and
4. Monitor compliance and management of the environment of environmental and social risks and impacts.

Thus, the provided ESMP (i) describes the potential adverse environmental and social impacts of proposed projects; (ii) outlines proposed mitigation measures to be adopted and indicate parties responsible for implementing mitigation measures; (iii) identifies parties that will carry out the monitoring of the implementation of the mitigation measures; (iv) outlines the implementation schedule for the various activities Including any capacity building which may be required and (v) detail the associated costs and sources of funds. The ESMP will be included in the Project Implementation Manual and the cost estimates for implementing the ESMP will be included in project cost estimates.

7.3 ESMP Monitoring Plan

Monitoring of the implementation of the ESMP will be done by MoEP, KPLC&REREC Environment and Social units with assistance from regional safety officers/engineers. The ESMP will outline the institutional arrangements and cost estimates for environmental and social management during the implementation, operation and decommissioning of the MoEP, REREC and KPLC Projects. The following are specific institutional responsibilities for the projects:

- Play the role of facilitating the implementation of the projects
- Produce annual and quarterly reports to the Bank indicating the actions that have been undertaken towards the implementation of projects on the environmental & social sustainability status.
- Drawing up project objectives for monitoring purposes
- Develop the key indicators for monitoring purposes with the B ank and ensure the monitoring capabilities.
- Carrying out Environmental awareness campaigns and collaborates with other stakeholders where these projects will be implemented.

Capacity building is needed for MoEP, REREC and KPLC safeguards units in terms of training which will involve regional safety engineers/officers and environmental and social units staff in KPLC, REREC and MoEP since they will be involved directly in implementing the subprojects and in carrying out environmental and social screening and monitoring. These trainings will ensure the safeguards staffs have adequate manpower in all environment and social aspects for sustainable project management. Provision of necessary equipment for better execution of their duties and proper monitoring of these subprojects to ensure continuity and sustainability should be provided. The following course shall be offered to the environmental and social safeguards staff who will oversee the environmental and social aspects of the proposed projects. They include:

- Environmental and Social Management Systems and Impact Assessment& Implementation of the ESMF, Hazardous Waste Management and Pollution Control
- Strategic Environmental and Social Assessment (SESA) & Project Management and Monitoring and evaluation

- Social Impact Assessment
- NEBOSH International Certificate in Occupational Safety & Health

8.INSTITUTIONAL CAPACITY FOR ENVIRONMENTAL MANAGEMENT

8.1 Responsibilities for Environmental and Social Risks and Impacts Management

MoEP will have a project coordination unit (PCU) and KPLC and REREC will each have a project implementation unit (PIU), with qualified full-time staff and resources drawn from the existing departments to support the management and coordination of environmental, social, health, safety risks and impacts of the Project. The PIUs will ensure that subprojects undergo the required E&S screening and the site-specific instruments are prepared, consulted on and disclosed and the necessary licensing obtained prior to commencing any works.

During the tendering process, MoEP, KPLC and REREC shall require contractors to have suitably qualified staff and resources as necessary to support implementation and oversight of the C-ESMPs including, for each contractor, a Social Specialist; an Occupational Safety and Health Specialist; and an Environmental Specialist.

8.2 Monitoring, Evaluation and Reporting

Monitoring, evaluation and reporting on environmental and social aspects will be part of project implementation processes and reporting systems. MoEP, REREC and KPLC PIUs will keep records of all activities that will be undertaken at each subproject site, which will be compiled and submitted to PCU and used in enhancing environmental sustainability of the project. The MoEP, REREC and KPLC PIUs will be responsible for environmental and social monitoring at local levels. Compliance to environmental and social screening requirements will also be generated based on quarterly reports, annual reports, evaluation reports, feedback meetings and Implementation support missions. MoEP, KPLC's, REREC Environment and Social Units will submit quarterly progress reports to the World Bank on the status of environmental and social management of subprojects in the Project's Quarterly Reports.

Environmental and social monitoring will be carried out by MoEP, REREC and KPLC PIUs in conjunction with the relevant government departments that have been given that responsibility by the Kenyan laws. Monitoring environmental and social risk management will be undertaken by the environmental and social experts that support the MoEP, KPLC, and REREC PIUs. Reporting will done on quarterly basis during the implementation of the subprojects, as well as during operation and maintenance phases. The reports will be submitted to the World Bank on quarterly basis and during implementation support missions. The table below provides some of the key environmental and social monitoring indicators, to be adopted to the projects as necessary.

Table 8: Key Environmental and Social Monitoring Indicators

Monitoring Indicator
ESIA and other licenses/permits obtained and validity maintained
Reduction in soil erosion
Number of trees cut vs those planted as part of restoration/ areas cleared vs restored
Project incidents involving wildlife (kills/hits etc.)
Drainages around infrastructures
Wayleave acquisition
Hectare of land acquired and timeliness in compensation

No of people affected
Type and amount of assets to be affected for the community members and government
Livelihood status prior to project
Livelihood status after project
Has standard of living increased, decreased, or remained the same
No of women employed in civil works
No of employees receiving HIV/AIDS awareness training at work site
No of community members receiving HIV/AIDS awareness training awareness training during project implementation
No of Labour Influx related risks associated with the implementation of ASCENT
No of people employed from project surrounding areas
Construction Works of the proposed projects
Hectarage of land clearance
Project areas where infrastructure will be constructed
Adequacy of pit latrines/sanitary conveniences for workers at camp site
Adequacy of water points for workers at camp and work sites
No of environmental mitigation measures implemented and financed by projects
Implementation status of safe disposal of creosote-treated poles
Implementation status of the Environmental Guidelines for contractors
No of staff and other personnel having completed environmental awareness training
Implementation status of safe disposal of PCB
Number of complaints on inconveniences caused by the construction works (complaints against dust) and timeliness in their resolution
Number of Accidents
Number of cases contravening health and safety procedures
No of disposal sites for wastes from the construction sites and camp sites
No of Disposal sites that will be restored to original or better state in terms of environmental degradation.
Number of publicity campaigns regarding community health and safety measures related to the project.

The KPLC and REREC environmental and social units will ensure compliance with national and international environmental regulations and with the World Bank Environmental and Social Standards. The staff will include environmental and social specialists and a Socio-economist.

8.3 Capacity Building and Environmental Training

REREC and KPLC have experience in preparation of ESIAs, RAPs, and/or Environmental Audits as well monitoring of other donor funded projects in the respective organizations.

Capacity building should be undertaken for the REREC environmental department, MoEP safeguards officer and KPLC SHE department and Regional Safety Officers/Engineers to ensure that the ESMF is effectively operationalized in line with the ESF. MoEP, REREC, and KPLC PIUs and regional staff involved in environmental and social matters have to be exposed to formal training in the management of environmental and social issues in line with ESF. The training program for various role players will include an orientation program on the ESMF to be done by MoEP safeguards unit, REREC environmental and social unit and KPLC SHE

department which will include environmental and social assessment processes and participatory methodologies. Capacity building will help improve the effectiveness of continuous stakeholders' engagement at various levels in the management of environmental and social impacts during planning, implementation and operation of proposed projects.

Capacity building will enhance the ESMF management capacity by allowing real application of the best practices such as the following:

- Screening of investments for potential environmental and social impacts, scoping assessments, planning mitigation options, public consultation to assess feasibility and acceptability options; steps to implement the environmental and social screening process for projects;
- Environmental and Social: site selection to minimize environmental impacts and social disruption; restoration of drainage patterns including mitigation matters in contracts; management of impacts during construction; monitoring of effectiveness of measures;
- Monitoring and grievance redress: transparency and supervision responsibilities.

Different groups involved in project implementation have different training needs in terms of raised awareness, sensitization to the issues and detailed technical training. The PIUs will attend various courses towards enhancing capacity building when they are identified. These courses include Environmental conservation and management, Project management, GBV SEA SH, Monitoring and evaluation, Waste management, Climate change, Environmental quality assessment and Monitoring, Ecological assessment and monitoring. he training will be conducted by pre - qualified consulting firms and individual consultants. The project staff will be trained continuously, throughout project implementation period. The funds for training project staff will be outlined in the annual training plan.

9. ESMF IMPLEMENTATION BUDGET

The ESMF implementation budget estimates for 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 aspects for the sustainability of the project as well as the sub-projects. Among other things, the ESMF recommends the following key issues, namely; training, capacity building, screening and reviewing & monitoring mechanisms. These issues are clearly described and the staff- who will be involved in the implementation of the project should be trained to enhance their skills in environmental and social aspects. Building the capacity of staff from implementing agencies/departments/ sections such as projects, environmental and social units, SHE, Network Management, Supply Chain Management and Finance will enable them to screen, review and monitor environmental aspects in the sub-projects to ensure compliance with requirements of the National policies, laws and regulations as well as World Bank ESS. Based on experience from implementation of previous operations, the estimated cost for capacity building will be Kshs. 30,000,000.00

Furthermore, screening and reviewing processes would also involve some cost implications. Every sub- project would be screened and reviewed by the implementing unit while involving Environmental Experts. The estimated costs for such processes would be Kshs. 15,000,000.00 Monitoring of the project; there will be monitoring during the implementation of the sub-projects to measure the effectiveness of the mitigation measures. The monitoring and reporting procedures will ensure early detection of conditions that necessitate 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 Kshs. 10,000,000.

Table 9: Estimated level of costs for ESMF Implementation

S/NO	ESMF Proposed Actions	Concerned Institution	Level of cost (Kshs.)
1	Training and capacity Building	MoEP, KPLC and REREC Environmental and Social Units, Procurement, infrastructure and Network Management	30,000,000
2	Screening and reviewing	Project Implementation Unit	15,000,000
3	IEIA Studies & NEMA Licensing	250 sites	125,000,000
4	Monitoring activities	PIUs, NEMA	10,000,000
5	Contingency (5 %)		9,000,000
	Total Costs		**189,000,000**

The cost implications for implementing this ESMF are reflected in Table 9 above. The estimates reflect the tentative cost, but the 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.

10. CONCLUSIONS AND RECOMMENDATIONS

This ESMF has been prepared to establish the mechanism to determine and assess future potential adverse environmental and social impacts of activities that are to be implemented under ASCENT.

This ESMF is meant to ensure that the implementation of ASCENT project, of which the specific project sites are unknown at this stage, will be carried out in an environmentally and socially sound and sustainable manner. The ESMF provides the project implementers with an environmental and social screening process that will enable them to identify, assess and mitigate potential environmental and social impacts of sub-project activities, including the preparation of site-specific Environmental Impact Assessments (EIA) where applicable, in accordance with the Amended EMCA, 2015 as well as World Bank Environmental and Social Standards particularly **ESS1-** Assessment and Management of Environmental and Social Risks and Impacts

Consequently, specific information on the number of sub-projects, site location of sub-projects, Land requirements, geo-physical land features, nature, type and use of equipment, etc. are not available at this stage. Therefore, exact details and the intensity of social and environmental impacts and their effective mitigation cannot be determined with precision.

The framework delineates the World Bank Environmental and Social Standards that are likely to be applicable in the proposed ASCENT project, identifies potential environmental concerns/impacts, environmental and social management plan, institutional responsibilities, capacity building, training needs, and technical assistance required.

In view of these, the ESMF therefore recommends the following:

- Training needs. Staff who will be appointed to the Project Implementation Units (PIU) for the ASCENT Project and other sections which will be responsible for coordinating activities across the Implementing Agencies in managing sub-projects for the purpose of maintaining a formative monitoring system throughout the project to assess the quality of implementation, use of funds, and impacts should have the necessary skills in Environmental and Social Management.
- The implementation of ASCENT sub-projects should strongly integrate environmental and social aspects in relation to the sub-project as outlined in this ESMF. Furthermore, the implementation of the ASCENT project as well as its sub projects must comply with the Kenyan Policies and Laws as well as World Bank ESS.

REFERENCES

1. County Government Acts, 2012
2. Energy Act of 2006
3. Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations 2006
4. Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006
5. Environmental Management and Coordination (Noise and Excessive Vibration pollution) (Control) Regulations, 2009: Legal Notice 61
6. Government of Kenya Wayleave Act
7. Government of Kenya Roads Board Act
8. Government of Kenya State of Environment 2010
9. Government of Kenya Public Procurement and Disposal Act
10. Government of Kenya Agriculture Act
11. Government of Kenya Roads Act
12. Government of Kenya Fiscal Management Act (CAP 5) of 2009
13. Government of Kenya Antiquities and Monuments Act, Cap 215 of 1983
14. Government of Kenya Employment Act, 2007
15. Government of Kenya Maritime Authority Act 2006
16. Kenya Vision 2030:A Globally competitive and prosperous Kenya 2007
17. Land Act, 2012
18. Occupational Safety and Health Act, 2007
19. Penal Code Act (Cap.63)
20. Physical Planning Act, 1996
21. Public Health Act (Cap. 242)
22. The Civil Aviation Act No. 21 of 2013
23. The Constitution of Kenya, 2010: Constitutional provisions
24. The Environment Management and Co-ordination Act, 1999
25. The Environmental Management Coordination (Water Quality) Regulations): Legal Notice 120
26. The Environmental Management Coordination (Waste Management) Regulations): Legal Notice 121
27. The Environmental (Impact Assessment and Audit) Regulations, 2003
28. The Forestry Services Act, 2005
29. The Land and Environment Court Act 2011
30. The Traffic Act Cap 403 0f 2009
31. Wildlife Conservation and Management Act, 2013
32. Urban Areas and Cities Act No. 13 of 2011
33. Water Act, 2016
34. Work Injury and Benefits Act, (WIBA) 2007
35. Kenya power Safety Rules Handbook 2014
36. World Bank Project documentation for ASCENT
37. World Bank ESF
38. World Bank Group Environmental, Health, and Safety Guidelines
39. IFC Performance Standards
40. http://www.nema.go.ke/index.php?option=com_content&view=article&id=90&Itemid=201

ANNEXES

Annex 1: E&S Screening Procedure / checklist

Annex 2: Draft Community health and safety plan

Annex 3: Chance finds procedure

Annex 4: Guidance on E&S Risk Rating and Applicable E&S Instruments

Annex 5: VMG Communities in Kenya

Annex 6: Initial consultations (Minutes and attendance lists).

Annex 7: Map of Kenya showing protected sites.

Annex 8: E & S Guidelines for Contractors

Annex 9: EIA ToR

Annex 1: E&S Screening Procedure / checklist

This Screening Form is to be used for all sub project activities.

The completed forms will be signed and kept in the Project ESF file. The World Bank may review a sample of the forms during implementation support visits.

1. Subproject Information:

Subproject Title	
Subproject Location	
Regional Unit in Charge	
Estimated Cost	
Start/Completion Date	
Brief Description of Subproject	

2. Environmental and Social Screening Questionnaires

Questions	Answer		Next Steps
	Yes	No	
ESS1			
1. Is the subproject likely to have significant adverse environmental and / or social impacts that are sensitive and unprecedented that trigger the 'Ineligible Activities' or other exclusion criteria?			If "Yes": Exclude from project.
2. Does the subproject involve new construction or significant expansion of energy infrastructure, ponds, solid waste management systems, shelters, roads (including access roads), community centers, schools, bridges and jetties?			If "Yes": 1. Prepare a site-specific E&S Assessment and/or ESMP for the proposed subproject. 2. Include E&S risk management measures in bidding documents.

3. Does the subproject involve works with a significant scope whose environmental and social impacts are not immediately known?			If "Yes": 1. Prepare an ES Impact Assessment following national legislation and the TORs provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents.
4. Do the characteristics of the subproject fall under the projects listed under NEMA establishing the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct environmental impact assessment?			If "Yes": 1. Prepare an ES Impact Assessment following national legislation and the TORs provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents.
5. Does the subproject involve works with low/moderate and foreseeable environmental and social impacts that are immediately known?			If "Yes": 1. Prepare an ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents.
6. Will construction or renovation works require new borrow pits or quarries to be opened?			If "Yes": 1. Prepare a site-specific ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents
7. Does the project lead to any risks and impacts on, individuals or groups who, because of their particular circumstances, may be disadvantaged or vulnerable.			If "Yes": Apply relevant measures described in the ESMF and SEP.

ESS2			
8. Does the subproject involve uses of goods and equipment involving forced labor, child labor, or other harmful or exploitative forms of labor?			If "Yes": Exclude from project.
9. Does the subproject involve recruitment of workforce including direct, contracted, primary supply, and/or community workers?			If "Yes": Apply LMP.
10. i. Will the workers be exposed to workplace hazards that needs to be managed in accordance with local regulations and EHSGs, such as work at height, underground trenching, heavy machinery? ii. Do workers need PPE relative to the potential risks and hazards associated with their work? iii. Does the work involve engagement of direct, contracted, community & primary suppliers workers? iv. Does the work require provision of worker accommodation?			If "Yes": Apply LMP, CESMP (with commensurate OHS provisions) and/ or applicable E&S templates Instruments.
11. Is there a risk that vulnerable and disadvantaged groups may be underpaid when compared to men when working on the project construction?			If "Yes": Apply LMP.
ESS3			
12. Is the project likely to generate solid or liquid waste that could adversely impact soils, vegetation, rivers, streams or groundwater, or nearby communities?			If "Yes": 1. Prepare a site-specific ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents.
13. Do any of the construction works involve the removal of asbestos or other hazardous materials?			If "Yes": Apply asbestos guidance provide in the ESCOP
14.			If "Yes":

i. Are works likely to cause significant negative impacts to air and / or water quality? ii. ii) Will the solar/mini grids subprojects utilize wet cleaning technologies and will require substantial water usage for cleaning?			1. Prepare a site-specific ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA. 2. Include in the site specific ESMP, water management plan that detail the water usage, water conservations efforts and how to minimize potential water conflicts with communities due to water competing needs. 3. Include E&S risk management measures in bidding documents.
15. Does the activity rely on existing infrastructure (such as discharge points) that is inadequate to prevent environmental impacts?			If "Yes": 1. Prepare a site-specific ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents.
ESS4			
17. Is there a risk of increased community exposure to communicable disease (such as COVID-19, HIV/AIDS, Malaria), or increase in the risk of traffic related accidents?			If "Yes": Apply LMP and relevant measures in SEP, ESMP (CHS-MP & Traffic MP) and/ or applicable E&S Template Instruments.
18. i. Is an influx of workers, from outside the community, expected? ii. Would workers be expected to use health services of the community? iii. Would they create pressures on existing community services (water, electricity, health, recreation, others?)			If "Yes": Apply LMP.

19. Is there a risk that SEA/SH may increase as a result of project works?			If "Yes": Apply SEA/SH Action Plan in applicable E&S Template Instruments .
20. Would any public facilities, such as schools, health clinic, church be negatively affected by construction?			If "Yes": Prepare a site-specific ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA.
21. Will the subproject require the government to retain workers to provide security to safeguard the subproject?			If "Yes": Prepare a site-specific ESMP for the proposed subproject, including an assessment of potential risks and mitigation measures of using security personnel.
22. Will the project activities pose emergency response situations?			If "Yes", Prepare Emergency Preparedness and Response plan to respond to project level emergencies.
ESS5			
23. Will the sub-project require the involuntary acquisition of new land ?			If "Yes": Refer to and apply the project Resettlement Policy Framework RPF).
24. Will the subproject lead to temporary or permanent physical displacement (including people without legal claims to land)?			If "Yes": Refer to and apply the project RPF.
25. Will the subproject lead to economic displacement (such as loss of assets or livelihoods, or access to resources due to land acquisition or access restrictions)?			If "Yes": Refer to and apply the project RPF.

26. Has the site of the subproject been acquired through eminent domain in the past 5 years, in anticipation of the subproject?			If "Yes": Refer to and apply the project RPF.
27. Are there any associated facilities needed for the subproject (such as access roads or electricity transmission lines) that will require the involuntary acquisition of new land?			If "Yes": Refer to and apply the project RPF.
28. Is private land required for the subproject activity being voluntarily donated to the project?			If "Yes": Refer to and apply the project RPF.
ESS6			
29. Does the subproject involve activities that have potential to cause any significant loss or degradation of critical habitats whether directly or indirectly, or which would lead to adverse impacts on natural habitats?			If "Yes": Exclude from project.
30. Will the project involve the conversion or degradation of non-critical natural habitats?			If "Yes": 1. Prepare a site-specific ESMP for the proposed subproject, based on the templates provided by the ASCENT MPA. 2. Include E&S risk management measures in bidding documents.
31. Will this activity require clearance of mangroves?			If "Yes": Exclude from project.
32. Will this activity require clearance of trees, including inland natural vegetation?			If "Yes": 1. Prepare a site-specific ESMP for the proposed subproject, based on the template in Annex 3. Exclude from

			project if more than x hectares of tree and vegetation cutting is expected. 2. Include E&S risk management measures in bidding documents.
33. Will there be any significant impact on any ecosystems of importance (especially those supporting rare, threatened or endangered species of flora and fauna)?			If "Yes": Exclude from project.
ESS7			
34. Are there any Indigenous Peoples or Sub-Saharan African Historically Underserved Traditional Local Communities present in the subproject area and are likely to be affected by the proposed subproject negatively?			If "Yes": Prepare an Indigenous Peoples Plan OR include the requirements of an Indigenous Peoples Plan in the SEP to be prepared alongside the ESMF.
ESS8			
35. 3Is the subproject to be located adjacent to a sensitive site (historical or archaeological or culturally significant site) or facility?			If "Yes": Apply Chance Find Procedures in Annex 3.
36. Locate near buildings, sacred trees or objects having spiritual values to local communities (e.g. memorials, graves or stones) or require excavation near there?			If "Yes": Apply Chance Find Procedures in Annex 3.

3. Conclusion

Based on the result from the screening above, please list the E&S risk management instruments to be prepared / adapted and implemented:

a.
b.
c.
d.

Recommendations:

Prepared by: _____
Signature: _____
Date and time: _____

Approved by: _____
Signature: _____
Date and time: _____

Annex 2: Community health and safety plan

Annex 2 -Community Health & Safety plan.pdf

Annex 3: Chance finds procedure

Cultural heritage encompasses tangible and intangible heritage which may be recognized and valued at a local, regional, national or global level. *Tangible cultural heritage*, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Tangible cultural heritage may be located in urban or rural settings and may be above or below land or under the water. *Intangible cultural heritage*, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith— that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history.

If during construction, sites, resources or artifacts of cultural value are found, the following procedures for identification, protection from theft, and treatment of discovered artefacts should be followed and will be included in standard bidding documents. These procedures consider requirements related to Chance Finding under national legislation including The National Museums and Heritage Act (Cap 216).

- Stop the construction activities in the area of chance find temporarily.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a guard shall be arranged until the National Museums of Kenya (NMK) takes over.
- Notify the local (county/regional) NMK office immediately.
- NMK shall promptly carry out site investigations to evaluate the significance or importance of the chance finds and advise on appropriate subsequent procedures.
- If NMK determines that chance find is a non-cultural heritage chance find, the construction process can resume upon NMK's clearance.
- The PIU will be notified first and then the PCU will notify the Bank in line with incident notification process.
- If NMK determines chance find isolated chance find, NMK would provide technical supports/advice on chance find treatment with related expenditure on the treatment provided by the implementing agency (KeRRA/KPLC) under whose activities the chance find was reported.
- The following measures shall be applied to realize the objectives of the chance find procedures
- Training all contractors' employees on cultural heritage to raise awareness and on activities if such is detected.
- Planned earthworks will be performed under supervision/monitoring by Environmental and Social Field Officer to avoid the damage of archeological monuments revealed during the earthworks.

Annex 4: VMG Communities in Kenya

Annex 5-VMG Communities in Kenya.pdf

Annex 5: Initial consultations (Minutes and attendance lists).

Annex 6 Initial Consultations Minutes -.pdf

Annex 6: Map of Kenya showing protected sites.

Annex 7. KENYAS PROTECTED AREAS V1 (1).pdf

Annex 7: E & S Guidelines for Contractors

E & S guidelines for Contractors Annex 8.pdf

Annex 8: Indicative Outline of EIA Report

EIA Report ANNEX 9.pdf