Kenya Digital Economy Acceleration Project

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

August 2023

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ABBREVIATIONS/ACRONYMS

ACA	Athi Catchment Area
AEHPMP	Africa Environmental Health and Pollution Management Program
AfDB	African Development Bank
AMRO	Avoid, Minimize, Restore & Offset
CA	Communications Authority
CAPEX	Capital Expenditure
CBC	Competency Based Curriculum
CERC	Contingent Emergency Response Component
C-ESMP	Contractor Environmental and Social Management Plan
CIH	Constituency Innovation Hubs
CO_2	Carbon Dioxide
COVID-19	Coronavirus Disease-2019
CPS	Country Partnership Strategy
DE4A	Digital Economy for Africa initiative
DGBV	Digital Gender-Based Violence
DLP	Digital Literacy Program
DOSHS	Directorate of Occupational Safety and Health Services
E&S	Environmental and Social
ECOP	Environmental Code of Practice
EHPMP	Environmental Health and Pollution Management Program
EHSG	Environment, Health, and Safety Guidelines
ELC	Environment and Land Court
EMCA	Environment Management and Coordination Act
ENNCA	Ewaso Ng'iro North Catchment Area
EPRP	Emergency Preparedness and Response Plan
ERS	Economic Recovery Strategy
ESA	Environmental and Social Assessment
ESIA	Environmental and Social Impact Assessments
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plans
ESSs	Environmental and Social Standards
ESRS	Environment and Social Review Summary
FTTH	Fiber to the Home
FY	Financial Year
GBV	Gender Based Violence
GBVAP	Gender-Based Violence Action Plan
GCCN	Government Common Core Network
GCRF	Global Crisis Response Framework
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIIP	Good International Industry Practice
GoK	Government of Kenya
GRS	Grievance Redress Service

IBRD	International Bank for Reconstruction and Development
ICT	Information and Communication Technologies
ICTA	Information Communications Technology Authority
IDA	International Development Association
IFMIS	Information Management Systems for Tax, Financial management
INDC	Intended Nationally Determined Contributions
IP	Internet Protocol
IPs	Indigenous Peoples
IPF	Investment Project Financing
ISP	Internet Service Provider
ITES	Information Technology Enabled Services
ITU	International Telecommunication Union
IUCN	International Union for Conservation of Nature
KeBS	Kenya Bureau of Standards
KDEAP	Kenya Digital Economy Acceleration Program
KENET	Kenya Education Network
KEPSA	Kenya Private Sector Alliance
KFS	Kenya Forest Service
KODI	Kenya Open Data Initiative
KSH	Kenyan Shilling
KURA	Kenya Urban Roads Authority
LMP	Labor Management Procedures
LVNCA	Lake Victoria North Catchment Area
LVSCA	Lake Victoria South Catchment Area
M&E	Monitoring and Evaluation
MDA	Ministries, Departments and Agencies
MICDE	Ministry of Information, Communications and Digital Economy
MPA	Multiphase Programmatic Approach
MPLS	Multiprotocol Label Switching
NAP	National Adaptation Plan
NAS	National Addressing System
NCCRS	National Climate Change Response Strategy
NDC	Nationally Determined Contribution
NEC	National Environment Council
NECC	National Environment Complaints Committee
NEMA	National Environment Management Authority
NET	National Environment Tribunal
NGN	Next Generation Network
NGO	Non-Governmental Organization
NMK	National Museums of Kenya
NOC	Network Operations Center
NOFBI	National Fiber Optic Backbone Infrastructure
NRI	Network Readiness Ranking
NSDI	National Spatial Data Infrastructure
ODPC	Office of Data Protection Commissioner

OHS	Occupational Health and Safety
OPEX	Operational Expenditure
PAD	Project Appraisal Document
PBC	Performance Based Condition
PCM	Private Capital Mobilization
PDO	Project Development Objective
PIU	Project Implementation Unit
POM	Project Operation Manual
PPP	Public Private Partnerships
PrDO	Program Development Objective
PWD	Persons With Disabilities
RFP	Resettlement Policy Framework
RVCA	Rift Valley Catchment Area
SA	Social Assessment
SEA	Strategic Environmental Assessment
SCD	Strategic Country Diagnostic
SEP	Stakeholder Engagement Plan
SERC	Standards Enforcement Review Committee
SIEM	Security Information and Event Management
SMP	Security Management Plan
SOAR	Security Orchestration Automation and Response
SOC	Security Operations Centre
SPV	Special Purpose Vehicle
SSA	Shared Service Architecture
SSA	Sub-Saharan Africa
STEM	Science, Technology, Engineering and Mathematics
TA	Technical Assistance
TCA	Tana Catchment Area
TOR	Terms of reference
TTL	Task Team Leader
TVET	Technical and Vocational Education and Training
UCS	Unified Digital Communication System
UNICEF	United Nations Children's Fund
USD	United States Dollars
USF	Universal Service Fund
VMG	Vulnerable and Marginalized Groups
VMGF	Vulnerable Marginalized Groups Framework
VMGP	Vulnerable and Marginalized Group Plan
VOCs	Volatile Organic Compounds
VoIP	Voice Over Internet Protocol
WB	World Bank
WBG	World Bank Group
WIBA	Work Injury Compensation Benefit Act
WMC	Waste Management Council

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EXECUTIVE SUMMARY

Environmental and Social Management Framework (ESMF) Purpose and Specific Objectives

The purpose of this Environmental and Social Management Framework (ESMF) is to aid Information Communications Technology Authority (ICTA) comply with World Bank Group (WBG) as well as Government of Kenya (GOK) environmental and social requirements in the implementation of Kenya Digital Economy Acceleration Project (KDEAP, P170941). The purpose of the ESMF is to detail a set of procedures methodologies and management measures to ensure that the environmental and social risks and impacts of subprojects are addressed in an appropriate manner.

Project Description

Objective

The objective of KDEAP is to expand access to high-speed internet, improve the quality and delivery of education and selected government services, and build skills for the regional digital economy.

KDEAP coverage is nationwide. It will support the expansion of last mile internet connectivity for 1,450 national ward-level public offices, Ministries, Counties, Departments, and Agencies (MCDAs), at least 2,000 schools in underserved rural areas, as well as universities and TVETs, and later healthcare centers, and judicial bodies.

Project Components

The project comprises five components as highlighted below:

Component 1: Digital Infrastructure and Access – The aim of this component is to increase access to high-speed internet for individuals, industry, and government—the 'foundation of the foundations' of a digital economy and strengthen Kenya's role as regional digital leader.

Component 2: Digital Government and Services – This component will invest in automating and digitizing selected government services while strengthening the legal and policy frameworks and the technical architecture needed to enable a whole-of-government transition to paperless Government.

Component 3: Digital Skills and Markets – This component aims to equip young Kenyans with digital skills and strengthen their abilities to access and compete in domestic and regional markets through supporting skills development, to study mechanisms to improve access to affordable devices and through enhancing the enabling environment for e-commerce to support Kenya's role as a regional digital hub.

Component 4: Project Management – This component will support project implementation, coordination, and capacity building for the Project Implementation Unit (PIU).

Component 5: Contingent Emergency Response Component (CERC) – A CERC with an initial zero value, may be financed during the project to allow for an agile response to an eligible crisis or emergency.

Applicable World Bank Environmental and Social Standards (ESSs)

The overall environment and social risks classification for the project is rated *Moderate*. Environmental risks and impacts are classified moderate due since they are of low magnitude, localized, temporary, reversible, easily avoided, minimized, or can easily be mitigated by enforcement of Environmental and Social Management Plans (ESMPs) and Occupational Health and Safety (OHS) Plans. Social risks and impacts, on the other hand, are also expected to be of low magnitude, site specific, predictable, temporary, and reversible thus classified moderate.

Nine (9) of the ten (10) ESSs are relevant to the project:

- Assessment and Management of Environmental and Social Risks and Impacts – **Relevant**. ESS1 applies to all projects supported by the Bank through Investment Project Financing (IPF).
- Labour and Working Conditions – **ESS2 is relevant** to this project due to different classes of labour working on the project.
- Resource Efficiency and Pollution Prevention and Management – **ESS3 is relevant** since the project is expected to generate both general waste and e-waste.
- Community, Health, Safety and Security – **ESS4 is relevant** to this project given potential risks to the community health and safety that could result from accidents at project sites, the transmission of diseases, and GBV/SEA/SH risks. The project may also cause risks to community health stemming from inappropriate disposal of generated e-waste.
- Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement – **Relevant** because land acquisition and involuntary resettlement are expected though minimal.
- Biodiversity Conservation and Sustainable Management of Living Resource – **Relevant** If waste generated from the project is not properly managed, it pollutes the environment impacting biodiversity.
- Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities – **Relevant.** It is expected that some project activities will be conducted in locations with vulnerable indigenous people.
- Cultural Heritage – **Relevant.** *Chance finds procedures have been prepared to guide any cultural heritage found at project sites.*
- Financial Intermediaries – **Not relevant.**
- Stakeholder Engagement and Information Disclosure – **Relevant** because the Project involves engagement of various stakeholders and at different levels.

Government of Kenya (GOK) Environmental and Social (E&S) Requirements

This ESMF is anchored in the following key GOK policies, plans and legal frameworks: **Policies and plans** (Constitution of Kenya, National Environment Policy (2014), Kenya Vision 2030, National Information, Communications and Technology (ICT) Policy (2019), The Kenya National Digital Master Plan 2022-2032, National Policy on Gender and Development (2019), and the Kenya Kwanza Manifesto; and **Legal Frameworks** [EMCA, 1999 (Revised 2015) and its subsidiary regulations, Sustainable Waste Management Act (2022), The Kenya Information and Communications Act (2011) and Amendment (2013) and subsidiary guidelines, The Occupational Health and Safety Act (OSHA) (2007), The Employment Act (2007), The Sexual Offences Act (2006), County Government Act (2012), Land Act (2012), and The National Museums and Heritage Act (2006) Revised (2012)]. For a detailed list of relevant policies, plans and legal frameworks, see *Chapter Two (2)* of this ESMF.

Potential Environmental and Social Risks and Impacts

Some of the key risks related to environmental liabilities, OHS, and biodiversity are shown in Table 0-1. Residual risk rating after mitigations is also included.

Table 0- 1 Summary of Project Environmental and Social Risks and Impacts and Rating

Impact	Significance (Pre-mitigation)	Residual Impact
Construction Phase		
Terrestrial habitat alteration	Moderate Negative	Minor Negative
Aquatic habitat alteration	Moderate Negative	Minor Negative
Water pollution and soil contamination	Moderate Negative	Minor Negative
Biosecurity risk	Negative	Not rated
Impacts on local air quality	Moderate Negative	Negligible
Impact on SEA/SH & GBV	Moderate Negative	Minor
Impacts on employment, procurement, and economy	Positive Impact	Positive Impact
Impact on noise environment and vibration	Moderate Negative	Minor Negative
Solid and e-waste generation	Moderate Negative	Minor Negative
Labour and working conditions including OSH	Moderate Negative	Minor Negative
Traffic congestion impact	Moderate Negative	Minor Negative
Loss of access to productive assets	Moderate Negative	Minor Negative
Impact on disease transmission	Moderate Negative	Minor Negative
Conflicts with local community	Negative	Not rated
Impact on local security	Negative	Not rated
Impact on cultural heritage	Negative	Not rated
Operations Phase		
Impacts on employment, procurement, and economy	Positive Impact	Positive Impact
Impacts on local air quality	Negative	Not rated
Impact on noise environment and vibration	Negative	Not rated
Hazardous Materials and Waste	Negative	Not rated
Labour and working conditions including OSH	Negative	Not rated

Note: Impact significance assigned in this ESMF is not prescriptive and will vary depending on local baseline conditions.

Procedures to Address Environmental and Social Issues

Chapter Five (5) of this ESMF provides details on subprojects/activities screening, categorization, exclusion list, capacity building program, responsibilities for its implementation and monitoring, procedures, and budgets for ensuring enhancement of the environmental and social performance of the Project.

Stakeholder Engagement

The main objective of the Stakeholder Engagement process is to inform and consult with stakeholders and the public about the proposed project and its likely effects, and in turn incorporate their inputs, views, and concerns into project planning. A summary of stakeholder engagement conducted during the ESMF process is presented in *Chapter 6* of this report. Table 0-3 shows a summary of meetings and stakeholder groups engaged during preparation of safeguards instruments. Detailed minutes of the stakeholder consultation meetings conducted during the ESMF and safeguard instruments preparation process, and attendance registers, are all presented in the SEP.

Table 0-2 Meetings and Stakeholder Groups Engaged During Safeguards Instruments Preparation

Stakeholder	Mode of Engagement	Engagement Date	Venue
Various i.e., WBG, ICTA, Private Sector, NGOs/CSOs	Workshop	December 13 2022	Sarova Stanley, Nairobi
Various i.e., WBG, ICTA, Counties	Workshop	December 13-14 2022	Sarova Stanley, Nairobi
Ogiek people	Focused Group Discussed (FGD)	December 19 2022	Nassuit, Marioshoni, Molo Sub-county of Nakuru County
Masai people	FGD	December 21 2022	Mai Mahiu, Naivasha Sub-county of Nakuru County
Masai, Samburu and Turkana	FGD	December 20 2022	Kongasis, Ol Jorai, Gilgil Sub-county, Nakuru County
E-Waste Initiative Kenya (EWIK) – George Thuo, EWIK Chairperson	KII & Observation	December 21 2022	Nyayo Market, Ngara, Nairobi.

Implementation Arrangements and Responsibilities

Project Implementation Unit (PIU) – ICTA shall deploy or recruit - and thereafter maintain, throughout the implementation of the Project - additional specialists to staff the PIU in the ICTA (apart from Project coordinator, a procurement specialist, a financial management specialist, environmental health and safety specialist, social risks management specialist, with terms of reference, composition (including education technology specialist, a part-time security consultant, a part-time sexual exploitation, harassment risks management consultant and technical specialists) and resources satisfactory to the Association, to be responsible for Project coordination,

management, communication and monitoring and reporting including overseeing the day-to-day implementation and management of the Project.

Project Steering Committee (PSC) – A PSC will be set up to provide strategic oversight and governance for the project. The PSC will be chaired by the Principal Secretary (State Department for ICT and Digital Economy), and comprising, amongst others, CEO of ICTA, director general of Communications Authority (CA) and representatives of the Ministry of Education (MOE), the Ministry of Public Services, Gender and Affirmative Action (MPSGAA), and the National Treasury (NT), as well as the KDEAP Project Coordinator as secretary and - with mandate, powers and resources satisfactory to the Association.

Technical Committees (TCs) – The project will form technical committee(s) (TC) with representatives from relevant MCDAs to inform the technical aspects of the project activities and their implementation are well coordinated across the MCDAs.

1 INTRODUCTION

1.1 Background

A World Bank digital economy diagnostic study, conducted in 2019[1], revealed gaps in digital infrastructure and access to broadband, especially in rural areas, gaps and a lack of integration in government infrastructure for digital service delivery, and in its platforms and practices. While there are pockets of excellence, nevertheless the study also found wide disparities in digital skills and barriers to scaling up digitally enabled firms and employment opportunities. Sustaining Kenya's digital leadership will require significant private and public investments and forward looking policies to close the broadband connectivity divide. It will also require focused efforts to improve accessibility, uptake and user experience for e-government services. Likewise, the growing privacy and security risks of the digital era will need to be mitigated to boost trust and uptake of digital transactions and services.

Key challenges to be tackled are:

1. Need to expand access to broadband;
    a. Broadband network coverage remains insufficient, particularly in rural and underserved areas where over 70 percent of the population resides;
    b. Last mile connectivity remains low, hindering delivery of key public services such as education, health, and judicial services; and
    c. Limited government support to reduce the costs of broadband infrastructure deployment and operations in rural areas is limiting further private sector investment.
2. Need to enhance government institutions and infrastructure for improved service delivery;
    a. A lack of secure and seamless connectivity within the Government Common Core Network (GCCN) is affecting efficient digitization of government operations;
    b. Capacity gaps in government communication infrastructure are holding back gains in productivity and threaten continuity of operations; and
    c. Government digitization and e-services expansion have created a need for better data protection and an opportunity to harness data-driven insights to enhance public service quality; and
3. Need to boost digital capabilities to fuel the digital economy and creative industries;
    a. Substantial gaps remain in the delivery of basic digital skills training in primary and secondary education;
    b. There is also a need to scale labor market initiatives geared toward nurturing and linking digital talent, particularly youth, to income-generation opportunities in the digital age;
    c. The new Government is focusing on further development of the 'creative economy', combined with digital initiatives, to absorb some of this overhang and connect Kenyan youth to new types of job opportunities;
    d. Gender gaps exist in access to affordable smart devices and around the safe use of the internet, as indicated by sex-disaggregated data collection;

[1] Key findings are featured in the 20th edition of the Kenya Economic Update. See: *http://documents.worldbank.org/curated/en/968481572468094731/pdf/Kenya-Economic-Update-Securing-Future-Growth-Policies-to-Support-Kenya-s-Digital-Transformation.pdf.*

e. Supporting climate-proof infrastructure will also be critical given that Kenya has also been identified as highly vulnerable to climate change on the Notre Dame Global Adaptation Index (rank 149/182, in 2020).[2]
f. Last, Kenya needs the economies of scale and network effects of a larger and more competitive regional market for its tech startups and IT firms to grow and achieve its vision to be one of the premier digital investment and innovation hubs on the continent.

1.2 Project Description

The objective of the Kenya Digital Acceleration Project (KDEAP) is to expand access to high-speed internet, improve the quality and delivery of education and selected government services, and build skills for the regional digital economy.

KDEAP coverage is nationwide. It will support the expansion of last mile internet connectivity for 1,450 national ward-level public offices, 105 Ministries, Counties, Departments, and Agencies (MCDAs), at least 2,000 schools in underserved rural areas, as well as universities and TVETs, and later healthcare centers, and judicial bodies.

1.2.1 Project Level Indicators

The project indicators are listed below:

i. Estimated percentage of the population who are users of high-speed internet (of which, % female);
ii. Optical fiber border crossings with neighboring countries (number);
iii. Public institutions provided with new or enhanced access to high-speed internet under the project (number);
iv. Transactional government services that are digitized under the project (number);
v. Students, provided with new or enhanced access to high-speed internet under the project (number, of which female);
vi. People provided with enhanced digital skills training under the project (number, of which female).

1.2.2 Project Components[3]

Component 1: Digital Infrastructure and Access (US$320 million, including US$190 million equivalent from IDA SUW; US$10 million equivalent from national IDA, US$20 million equivalent from Regional IDA, and US$100 million expected in unguaranteed commercial financing)

The aim of this component is to increase access to high-speed internet for individuals, industry, and government—the 'foundation of the foundations' of a digital economy and strengthen Kenya's role as regional digital leader—while leveraging matching investments from the private sector.

[2] A country's ND-GAIN index score is composed of a vulnerability score and a readiness score. Vulnerability measures a country's exposure, sensitivity, and ability to adapt to the negative impact of climate change. ND-GAIN measures the overall vulnerability by considering vulnerability in six life-supporting sectors—food, water, health, ecosystem service, human habitat, and infrastructure; see *https://gain.nd.edu/our-work/country-index/rankings/*.

[3] PAD 4616

***Subcomponent 1.1: Extending the Reach of the Backbone Networks (middle mile) (*US$120 million including US$60 million equivalent from IDA SUW and US$60 million expected in unguaranteed commercial financing)**

This subcomponent aims to deepen the coverage of national broadband backbone networks by extending coverage to the ward level and by providing redundancy on key routes Project funds will be used, potentially complemented with funding from the country's USF[4] and other donor partners, to supplement investments from network operators. The aim is to increase the length of fiber networks from the current 8,900 km to a national target of 100,000 km, as set out in the ICT Master Plan 2022–2032[5]. This new 'digital superhighway' is intended to extend coverage from the current sub-county level to ward level, thereby ensuring coverage of rural and underserved areas, and reducing the costs of last-mile connectivity.

Subcomponent 1.2: Increasing Last Mile Connectivity for Education (US$120 million including US$90 million equivalent from IDA SUW and US$30 million expected in unguaranteed commercial financing)

This subcomponent will support the expansion of last mile internet connectivity for priority locations in the education sector[6], particularly in underserved rural areas. The aim is to ensure that students, at all levels and across the country, have access to good quality internet resources to help them build digital skills. Key public institutions to be connected include universities, TVETs, teacher training colleges and schools under Phase 1, as well as healthcare centers and law courts in Phase 2 (and by the USF in phase 1). The feasibility study conducted to explore connectivity costs has already evaluated the costs of connecting schools from the nearest existing fiber node. Almost 20,000 of Kenya's schools that were mapped (50 percent) are within 1 km of the nearest fiber node, and these can be served relatively profitably. A further 11,000 are within 1-5 km (28 percent) and would require some level of subsidy for service to be profitable. Serving those schools within 5 km of the nearest fiber node would require around 32,000 km of fiber. But for the remaining 9,000 (22 percent) that are beyond 5 km, which are clustered mainly in Northern and Eastern Kenya, a further 94,000 km of fiber (i.e., 75 percent of the total) would be required with today's backbone. Many schools in rural areas will also require a package that also includes provision of renewable energy alongside internet connectivity, and devices and skills development (see component 3). This project will be coordinated with other projects in the World Bank portfolio aimed at extending renewable energy solutions in rural areas. Depending on commitments from the network operators, other donor partners, and the USF, it should be possible to provide enhanced connectivity to a minimum of 2,000 schools, TVETs and universities, including the planned Open University of Kenya, in the first phase. The PIU in ICTA will work with the MoE and the Kenya Institute of Curriculum Development (KICD) as

[4] The manifesto (2022) of the new government party, the United Democratic Alliance, includes a commitment for universal broadband availability within five years and to contribute KES 40 billion (~US$325 million) to this end from the USF toward a 'digital superhighway' (see https://uda.ke/downloads/manifesto.pdf).

[5] The target for this project is around 50,000 km of fiber that will benefit from public funds, and the government assumes that a further 50,000 km that would be funded entirely by the private sector, without a need for subsidy, and is therefore not included in the results framework.

[6] Although the focus of Phase 1 is on the education sector, in practice, if there are other public institutions in the near vicinity (such as hospitals, community institutions etc., they can be connected at the same time, to ensure efficient in network deployment.

implementing partners for this sub-component, and with other institutions in the education sector including KENET, in its role as the national Research and Education Network (REN)[7].

Subcomponent 1.3: Enhancing Government Connectivity *(US$35 million from IDA SUW)*

This subcomponent aims to boost the level of internet connectivity provided to Government MCDAs in rural areas by extending last-mile connectivity and supplying them with pre-paid bandwidth under long-term supply agreements. The MCDAs initially targeted would be the main beneficiaries of initiatives under KDEAP (i.e., MICDE, Education, Healthcare, and the Judiciary, as well as *Huduma* centers, which are county-based one-stop shops for accessing government services[8]). In addition, this subcomponent will support the provision of internet capacity to around 300 of the 25,000 public WiFi hotspots the Government is aiming to provide, again focusing on those where there is overlap with those rural MCDAs already served with internet under the project.

Subcomponent 1.4: Strengthening the Digital Enabling Environment (US$5 million equivalent from IDA SUW)

This subcomponent will finance TA and capacity building to enhance the policy and regulatory environment for the digital sector in line with the evolving needs of a thriving digital economy, including strengthening the CA and the USF (support for data protection and cybersecurity is covered under subcomponent R2.3). The support to the CA, Kenya's digital economy regulator, will include the implementation of Kenya's eCommerce Strategy and providing some targeted TA and capacity building for the CA, to enhance the regulatory framework for the future growth of Kenya's digital economy and support regional digital market integration. For the USF, the TA to be provided will seek to enable it to conduct its own reverse auctions. Most of its work to date has been for extension of the cellular network, but it may now need to focus also on working to achieve the Government's goal of creating a digital superhighway.

Regional Subcomponent R1.5: Enhancing Regional Digital Integration **(US$40 million including US$20 million equivalent from regional IDA, US$10 million equivalent from national IDA and US$10 million expected in unguaranteed commercial financing).**

This subcomponent will extend the efforts to enhance Kenya's backbone network (subcomponent 1.1) by strengthening its broadband connections with neighboring countries and increasing the number of fiber border crossings.

Component 2: Digital Government and Services (US$104 million IDA equivalent, of which US$89 million from IDA SUW, US$5 million from national IDA and US$10 million from Regional IDA)

This component will invest in automating and digitizing selected government services while strengthening the legal and policy frameworks and the technical architecture needed to enable a whole-of-government transition to paperless Government. Many MCDAs have adopted individual data hosting and digital solutions which hamper the cohesiveness of digital platforms across Government. Some e-Services introduced have not been user-friendly, pointing to gaps in business

[7] KENET worked successfully in implementing the KTCIP project and has subsequently gained a lot of experience with providing connectivity, not only for universities and TVETs but also for schools. KENET is a membership-based organization with a Board of Governors comprising many of the leading Universities in the country. KENET has recently received funding from the Internet Society to develop a model of serving schools with connectivity from a local university under a hub/satellite model.

[8] Currently, only 19 of the 52 *Huduma* centers have a fiber-based internet connection.

process reengineering and the application of user-centric design. Lack of a secure and robust foundational integrated digital infrastructure enabling workflow and exchange of information across the public sector limits the scope of services that can be provided electronically to citizens and businesses. This component will invest in: (i) strengthening the existing e-Service delivery mechanisms of the Government to enable the introduction of additional critical e-Services in the short term, while in parallel (ii) designing and introducing foundational integrated digital infrastructure (i.e., "critical enablers," which include interoperability; unified communication; digital identity management; customer relationship management; electronic payments; recognition and validation of electronic records; security and privacy of data; and organized, systematic, and secure access to non-confidential data) to enable full transition to e-Government over the medium term. This two-pronged approach will leverage the strengths of the existing e-Service delivery channels to serve the Government's ambition to digitize more services in the short term, while ensuring that adequate legal and policy frameworks and technological infrastructure are in place to enable the transition to a secure, efficient, and modern e-government over the medium term.

Subcomponent 2.1: Digitizing Selected Government Services (US$44 million from IDA SUW)

This subcomponent will provide end-to-end digitization for selected key government services. Despite good progress in recent years regarding digitizing some government services, many of these services still require some level of offline processing, the reliability of the existing e-Service delivery channels and portals has been less than optimal, and the interfaces are now showing their age. Under this subcomponent, further assessments will be carried out to understand the adequacy of the existing e-Service delivery platforms to onboard a select number of additional critical government services in the short term (i.e., within the first three years of project implementation). Selection of these services will be informed by a whole-of-government approach and a clear set of criteria that includes implementation readiness, impact, accessibility, as well as the overall budget envelope allocated to this subcomponent. Principles of universal accessibility[9] would be applied to facilitate access for PWDs.[10]

Subcomponent 2.2: Developing the Critical Enablers for Digital Government (US$45 million equivalent from IDA SUW)

This subcomponent will strengthen the technical, institutional, legal, and regulatory foundations that provide the enabling environment for internal efficiencies and collaboration across the government. It will support: (i) the design and implementation of a government-wide Enterprise Architecture and Interoperability Framework for deploying the cross-cutting and multi-channel platforms (i.e., "government shared services") that are fundamental for information exchange, workflows, and business continuity; and (ii) the design of four cross-cutting platforms ("critical enablers") that constitute the foundation for an e-Government that can facilitate the digitization of most government services.

[9] Every effort should be made to ensure the services are re-engineered and simplified before digitization. The services should be designed to be user-centric (meet requirements of user acceptance testing) and meet accessibility standards to meet the IDA 20 commitments.

[10] Conducting paperless, cashless, and presence-less transactions online not only enhances convenience and reduces transaction costs and risk of disease transmission but also minimizes the climate footprint that would normally be incurred by paper-based transactions and travel to seek in-person services.

Regional Subcomponent R2.3: Enhancing Regional Data Governance (U$15 million equivalent, of which US$10 million from Regional IDA and US$5 million from National IDA)

This regional subcomponent will seek to establish Kenya as a regional leading services provider through strengthening its data governance regime and capabilities in line with international and regional standards. A thriving digital economy requires a foundation of trust in online transactions and personal data being secure. The ODPC was created following the adoption of the Data Protection Act, which came into force on November 25, 2019. The project activities will focus on increasing capacity for developing and implementing a comprehensive framework for data protection and cybersecurity. This can be achieved through strengthened data regulation, institutional frameworks, and technical and operational capabilities for data protection. The EARDIP regional program is supporting several regional initiatives, initially through EAC and IGAD, to develop cybersecurity frameworks, infrastructure and capacity, and to support data exchange, governance and protection. This subcomponent will allow Kenya also to participate in such regional initiatives in the Horn of Africa and Eastern Africa regions, with a focus on developing regionally harmonized approaches.

Component 3: Digital Skills and Markets (US$51 million equivalent, of which US$36 million from IDA SUW, and US$10 million from regional IDA and US$5 million from national IDA)

This component aims to equip young Kenyans with digital skills and strengthen their abilities to access and compete in domestic and regional markets through supporting skills development, to study mechanisms to improve access to affordable devices and through enhancing the enabling environment for e-commerce to support Kenya's role as a regional digital hub. This component will complement interventions to connect educational institutions under component 1 by supporting wider access to digital skills development, including strengthening basic digital literacy through the formal education system, entry-level digital skills through the tertiary education system as well as advanced digital skills certification programs for professionals.

Subcomponent 3.1: Supporting Digital Literacy (U$25 million equivalent from IDA SUW)

This subcomponent, with MoE as an implementing partner, will strengthen digital literacy and digital skills programs including through the rollout of Phase 3[11] of the national DLP to junior secondary schools and TVETs, and capacity building and content development for teachers in teacher training colleges to leverage digital technologies. Strengthening digital skills and fostering a culture of innovation and collaboration will be critical to preparing young Kenyans for the workforce of the future. The project will support the advancement of basic, intermediate, and advanced digital skills, as well as provide relevant e-business skills. This will therefore involve equipping the targeted educational institutions with access to digital devices, ICT equipment, and digital content.

Subcomponent 3.2: Enhancing Employment-ready Digital Skills (US$15 million from IDA SUW)

[11] In 2015 the GoK launched the DLP. The first phase of this program equipped 22,000 primary schools with tablets, teacher laptops, and wireless access points to enable teachers and learners in the earliest years of primary school (grades 1 to 3) to integrate ICT into their teaching and learning activities. The slogan for DLP Phase 1 was '*Learn to Use*' and the focus was on familiarizing young children with the device and its operation. In 2019, the program entered the second phase which addressed years 4 to 6 of primary school. The slogan for DLP Phase 2 was *'Use to Learn*' and the focus was on using the devices to access content and enrich learning in all subjects. The third phase of the DLP program will address secondary schools (years 7 to 12 of learning). The slogan for Phase 3 is '*Use to Produce'* and the emphasis is on equipping older children to use the devices to exploit their natural talents.

This subcomponent will seek to provide Kenyans with advanced digital skills in line with emerging opportunities in creative industry and the digital economy. The ICT Masterplan aims to train some 10,000 local high-end ICT professionals by 2030[12]. Under this subcomponent there will be a concerted effort to encourage private sector co-investment in digital skills development, for instance, by working with private sector providers and digital ecosystem intermediaries, such as coding bootcamps, to extend digital skills courses beyond Nairobi and offer vouchers towards the cost of tuition for such courses.

Subcomponent 3.3: Promoting Device Affordability (US$1 million equivalent from IDA SUW)

[12] This corresponds to Pillars 3 and 4 in the MICDE's National Digital Skills Program.

This subcomponent will complement the work on digital skills development by studying the mechanisms for putting advanced digital devices in the hands of those that need them most. Despite a consistent reduction in the price of internet-enabled devices, high-level devices, such as laptops or tablets, remain unaffordable to most students and young people in Kenya, and even smartphones remain out of reach for low-income Kenyans. The new Government has committed to turning 'hustlers' into entrepreneurs and turning students into active participants in the creative economy. The shortest route to do this is to equip them with the digital devices they need to bring about a transformation in their lives. This subcomponent will provide financing support to facilitate wider device access, including a feasibility study and capacity building for the establishment of an access scheme for smart devices.

Regional Subcomponent R3.4: Positioning Kenya as a Regional Digital Hub (US$10 million equivalent of which US$5 million from Regional IDA and US$5 million from National IDA)

This regional subcomponent will seek to position Kenya as a regional hub for software development and promotion of digital content. The ICT Master Plan seeks to position Kenya as a regional center of excellence for digital innovation, noting that the country already has over 60 tech hubs as well as establishing some 187 constituency innovation hubs across the country. In 2022, the country ranked fourth in Sub-Saharan Africa and 88th worldwide in the Global Innovation Index.[13] This sub-component will also seek to develop a software export promotion strategy and enhance regulatory and fiscal frameworks to facilitate regional eCommerce, covering areas such as intermediary liability, consumer protection, over-the-top services, data pricing and e-signatures, directly linking to and leveraging work undertaken at the EAC and IGAD, financed by EARDIP.

Component 4: Project Management (US$15 million equivalent of which US$5m from IDA SUW, and US$5 million from Regional IDA)

This component will support project implementation, coordination, and capacity building for the Project Implementation Unit (PIU). The PIU will be situated in the ICTA, which is a specialized agency of MICDE, and which will draw upon expertise and staff from MICDE, MOE and other MCDAs. At a minimum this will initially include support for a dedicated project manager, procurement and financial management specialists, and environmental and social specialists. Other positions, for instance technical specialists, M&E, gender, communications, etc. may be added later. It will also provide support for office equipment, incremental operating costs, and audits. Consultants will be used when Government capacity is insufficient. This component will also fund additional TA for M&E, such as a survey of ICT usage by households and individuals, to supplement the work of the CA and KNBS.

Component 5: Contingent Emergency Response Component (US$0) A Contingent Emergency Response Component (CERC), with an initial zero value, may be financed during the project to allow for an agile response to an eligible crisis or emergency. Adding the component from the beginning, albeit with zero funding, provides for flexibility to respond to crises as they arise, and the Project Implementation Manual will be adapted to guide the utilization of this component including risk mitigation strategies. These could include, for instance, humanitarian crises which require the provision of emergency communications services to replace facilities that have been damaged or to facilitate emergency humanitarian payments using mobile money.

1.2.3 KDEAP Alignment with Government Commitments

Table 1- 1 KDEAP Alignment with Government Commitments

[13] WIPO. 2022. *Global Innovation Index*, see: *https://www.wipo.int/global_innovation_index/en/2022/*.

Government Commitments	KDEAP Action
Universal broadband within 5 years - construct a digital superhighway of 100,000 km of national fiber networks.	Subcomponent 1.1 - Middle mile connectivity; and R1.5 – Regional connectivity
Reduce costs of calls and data to allow for entrepreneurs and youth to use online platforms for entertainment, information, and business. **Establish a special service tariff for all learning institutions.**	Subcomponent 1.2 - Pre-purchase of internet capacity for universities, TVETs and other selected institutions
Improve learning outcomes by pledging to connect all schools to the internet.	Subcomponent 1.2 - Last mile connectivity for schools
Government digitization - make available 80 percent of government services online.	Subcomponents 1.3, 2.1 and 2.2 - Support for Government connectivity, digitization of services and a shared services architecture
Pay for in-service teacher training.	Subcomponent 3.1 - Support for digital literacy plan
Promote Africa Regional Hub for promotion of software exports. **Expand space for the creative economy.**	Subcomponents 3.1 DLP; 3.2 Digital skills; 3.3 Device affordability and R3.4 – Digital Hub

1.2.4 Project Beneficiaries

The project will benefit a wide range of beneficiaries, including citizens, the private sector, public sector agencies, students, and civil servants. Individuals across the nation will benefit from wider opportunities to participate in the digital economy through increased access to broadband including via public Wi-Fi hotspots and community access schemes, access to uninterrupted priority public services (education, healthcare, judicial services), and access to digital skills via digital training programs, and enhanced data protection. The private sector will benefit from a growing digital-savvy consumer base, from opportunities for public support in the provision of infrastructure, strengthened digital talent, and a secure data environment for online operations and transactions. The public sector would enjoy cost savings stemming from digitization and automation of core administrative functions and services to relieve strain on public finances and improve service delivery, helping build greater trust in state-run functions.

- **Direct beneficiaries.** These include (a) public institutions: 1,450 national ward-level public offices, 105 MCDAs in Nairobi; (b) at least 2,000 schools, as well as universities and TVETs, and later health care centers, and judicial bodies connected to the internet; (b) network operators, including private sector players, will benefit from contracts for last mile delivery of connectivity, businesses supplying communications for the Government, and digital devices/digital content for schools; and (c) individuals: at least four million new internet users, and students trained in digital skills in schools, individuals trained in advanced digital skills for securing jobs, and civil servants trained in digital skills.

- **Indirect beneficiaries.** Given the project's nationwide coverage, citizens across the nation, central and local government institutions, public service delivery centers (schools, health centers, judicial bodies), and private sector businesses providing last mile connectivity and digital service offerings are likely to benefit.
- **Regional beneficiaries.** Kenya's neighbors will benefit from enhanced connectivity, support and collaboration for cybersecurity and data protection, and development of harmonized rules for increased digital trade.

The project places a strong emphasis on 'digital inclusion', bridging the digital divide, by empowering women and girls, PWDs, and vulnerable communities in rural and underserved areas. Digital access initiatives will be geared toward encouraging adoption in rural and underserved areas, where uptake of broadband and access to digital services is lagging. Moreover, all community connectivity access schemes, including public Wi-Fi hotspots, connected schools, universities and TVETs, as well as ICT equipment and software funded through the project, will be designed to ensure access for women and PWDs (for example, through ramps to public offices, women-friendly opening hours, gender-appropriate locations, accessible websites etc.).

1.3 Objectives of the Environmental and Social Management Framework (ESMF)

Projects and programs prepared and managed by World Bank's Investment Policy Financing (IPF) support need to comply with the Environmental and Social Standards (ESSs) of the World Bank's Environmental and Social Framework (ESF). Therefore, the proposed KDEAP (P170941) is required to satisfy the World Bank's ESF in addition to conformity with environmental and social legislation of the Government of Kenya (GOK).

Given the broad nature of the project, details of all the specific subprojects are not known at this stage. What is known is that the project will potentially fund expansion of broadband internet to public institutions, enable last mile delivery of connectivity by network operators, provide training in digital literacy, and establish a device affordability program. As and when details of these specific interventions are identified, information necessary to carryout site specific environmental and social (E&S) assessments and prepare appropriate mitigation measures to address E&S risks and impacts, would be required. Thus, while site-specific Environmental and Social Impact Assessments (ESIA) cannot be conducted at this stage, what is possible is to carry out an identification of generic E&S risks and impacts that are typically associated with this type of interventions.

Thus, the purpose of this ESMF is to support ICTA comply with WBG ESF as well as GOK E&S requirements in the implementation of KDEAP (P170941) through detailing a set of procedures methodologies and management measures to ensure that the E&S risks and impacts of subprojects are addressed in an appropriate manner. Specifically, this ESMF:

a) Establishes clear procedures and methodologies for E&S planning, assessment, review, approval and monitoring of subprojects to be financed under the project;
b) Specifies appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring E&S concerns related to subprojects;
c) Determines training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF; and
d) Provides practical resources for implementing the E&S requirements.

2 ENVIRONMENTAL AND SOCIAL MANAGEMENT REQUIREMENTS

This section provides the relevant institutional, policy, and legal framework governing the ESMF. As indicated in *section 1.3*, the ESMF is required to satisfy the requirements of WBG ESF, EHSGs and GOK legal requirements. This section also assesses ICTA's capacity to comply with WBG E&S requirements, and gaps between national ESIA requirements and WBG's ESSs & EHSGs. Thereafter, recommends gap filling measures.

2.1 Institutional Framework

The following key administrative agencies regulate ICT and its E&S implications in Kenya:

Table 2- 1 E&S Institutional Framework

No	Institution/Ministry	Description of their role	Relevance to the project
1.	Ministry of Environment and Forestry (ME&F)	Facilitate good governance in the protection, restoration, conservation, development and management of the environment and natural resources for equitable and sustainable development.	Sets environmental management policy
2.	National Environment Management Authority (NEMA)	Exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment.	• Grants ESIA approval for subprojects • Monitors and assesses E&S performance of projects.
3.	National Environmental Complaints Committee (NECC)	Investigates allegations and complaints of suspected cases of environmental degradation. The Committee also prepares and submits to the NEC periodic reports of its activities.	Members of the public can register or appeal to this committee regarding any aspects of the project that violates the law and its NEMA license conditions.
4.	National Environment Tribunal (NET)	• reviews administrative decisions made by NEMA relating to issuance, revocation or denial of license and conditions of license; • provides legal opinion to NEMA on complex matters where the Authority seeks such advice; and • has powers to change or give an order and direction regarding environmental issues in dispute.	Members of the public can register or appeal to this committee regarding any aspects of the project that violates the law and its NEMA license conditions.
5.	Water Resources Authority (WRA)	responsible for the regulation of water resources such as water allocation, source protection and conservation, water quality management and pollution control and international	Any water abstraction by the project should obtain permit from WRA.

No	Institution/Ministry	Description of their role	Relevance to the project
		waters.	
6.	Ministry of ICT, Communication and Digital Economy (MICDE	• in charge of all matter's communication; and • charged with the formulation and implementation of ICT policy	Owner of the project
7.	Communications Authority (CA)	• regulator of communications sector / digital economy in Kenya; • responsible for facilitating the development of the information and communications sectors including broadcasting, cybersecurity, multimedia, telecommunications, electronic commerce, postal and courier services; and • mandate to administer the Universal Service Fund (USF)	• Beneficiary of the project • Issues **Network Facilities Provider, TIER 1 License** (For deployment of infrastructure nationally)
8.	ICT Authority (ICTA)	• tasked with rationalizing and streamlining the management of all Government of Kenya ICT functions; • enforcing ICT standards in Government and enhancing the supervision of its electronic communication; and • promotes ICT literacy, capacity, innovation, and enterprise in line with the Kenya National ICT Digital Masterplan 2017[14].	Project implementing entity. Hosts PIU.
9.	Ministry of Labour and Social Protection	• formulate and implements the national labour Legislation and policy; and • Parent to Directorate of Occupational Safety and Health Services (DOSHS)	• DOSHS monitors working conditions at workplaces; • Enforces WIBA insurance for staff; • Workplace registration for all project sites; and • Annual occupational safety and health audits
10.	Ministry of Sports, Culture and Heritage	develop, promote, preserve, and disseminate Kenya's diverse cultural, artistic and sports heritage through	Through National Museums of Kenya (NMK) must be informed of any

[14] *https://icta.go.ke*

No	Institution/Ministry	Description of their role	Relevance to the project
		formulation and implementation of policies which enhance national pride and improve the livelihood of the Kenyan people.	chance finds during project implementation.
11.	Kenya Wildlife Service	facilitate good governance for sustainable development, management and marketing of tourism and wildlife.	Obtain approval for any works within protected areas.
12.	Ministry of Education (MOE)	derives mandate from the Constitution of Kenya, Chapter Four Articles 43, 53, 54, 55, 56, 57, and 59 which provides for children's right to free and compulsory basic education, including quality services, and to access education institutions and facilities for persons with disabilities.	• Project beneficiary. • Oversight and coordination role in the project.
13.	Ministry of Health (MOH)	• Health policy • Health regulation • National referral Health facilities • Capacity building and • Technical assistance to Counties	• Project beneficiary. • Oversight and coordination role in the project.
14.	KeNHA	manages, develops, rehabilitates, and maintains national trunk roads.	Obtain permission for trunk road reserve utilization.
15.	KURA	Responsible for the management, development, rehabilitation, and maintenance of National Trunk Roads in the urban areas.	Obtain permission for road reserve utilization.
16.	KeRRA	development, rehabilitation, maintenance, and management of rural roads in the country.	Obtain permission for road reserve utilization.
17.	KPLC	• Owns and operates most of the electricity transmission and distribution system in the country; and • Provider of fiber.	• Obtain permission for using KPLC poles for microwave links in hilly terrain. • Notify them of planned works. • Partner in last mile connectivity delivery.
18.	Water companies	Water utility companies within the project footprint.	Notify them of planned works
19.	Telcos	Telecommunication companies with fiber networks in Kenya.	• Notify them of planned works; and

No	Institution/Ministry	Description of their role	Relevance to the project
			• Partner in last mile connectivity delivery

2.2 Policy Framework

2.2.1 Constitution of Kenya

Kenya has undergone regulatory reforms over the past two decades, culminating in the enactment of a new constitution in 2010. The Constitution is the supreme law in Kenya and gives a lot of emphasis on environmental conservation and sustainable development. For instance, in the Preamble, the Constitution states that "We, the people of Kenya will be respectful of the environment, which is our heritage, determined to sustain it for the benefit of future generations".

Article 2(5) of the Constitution states that the general rules of international law shall form part of the laws of Kenya. For the purposes of protection of the environment, several principles of international environmental law are incorporated, viz:

- the polluter pays principle;
- principle of public participation;
- principle of sustainability;
- principle of inter & intra-generational equity;
- principle of prevention; and
- precautionary principle.

The principle of sustainable development is entrenched in Article 102(d) of the Constitution as one of the national values and principles of governance.

The Constitution guarantees the right to a clean and healthy environment in Article 42. Article 42 further guarantees the right to have the environment protected for the benefit of present and future generations through legislative and other measures particularly those contemplated in article 69 and the right to have obligations relating to the environment fulfilled under Article 70. Article 69 imposes obligations on the state. The state is required to;

a) ensure sustainable exploitation, utilization, management, and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;
b) work to achieve and maintain a tree cover of at least ten percent of the land area of Kenya;
c) protect and enhance the intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
d) encourage public participation in the management, protection, and conservation of the environment;
e) protect genetic resources and biological diversity;
f) establish systems of environmental impact assessment, environmental audit, and monitoring of the environment;
g) eliminate processes and activities that are likely to endanger the environment; and
h) Utilize the environment and natural resources for the benefit of the people of Kenya.

Article (69) (2) imposes obligations on every person, to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

Article 70 provides an avenue for redress for any person who alleges that the right to a clean and healthy environment has been or is likely to be denied, violated, infringed, or threatened. The Court is empowered to issue preventive, cessation, or compensatory orders.

Article 70 relaxes the rule on locus standi because of which, there is no need to prove loss or injury by an applicant. Anyone may institute a claim seeking to enforce the environmental rights and obligations stipulated in the Constitution.

Enforcement contemplated by Article 70 will be done through the Environment and Land Court established under Article 162 (2) (b). The Court has the same status as the High Court. This effectively denies High Court jurisdiction over environmental matters under Article 165 (5) (b).

ICTA should ensure project activities do not compromise the right to a clean and healthy environment. Requisite measures should be put in place to guarantee the sustainability of the Project. Such measures should include but not limited to pollution prevention and control and sustainable utilization of natural resources.

2.2.2 Sessional Paper No.10 of 2014 on the National Environment Policy, 2014

The overall goal of this Paper is to ensure better quality of life for present and future generations through sustainable management and use of the environment and natural resources.

Section 5.6 of this Policy focusses on infrastructure development and environment and makes explicit policy statements to ensure sustainable management and use of the environment and natural resources during the construction and operation of infrastructure developments including roads.

These policy statements require the commitment of the Government to:

- Ensure Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), Social Impact Assessment (SIA) and Public Participation in the planning and approval of infrastructural projects;
- Develop and implement an environmentally friendly national infrastructural development strategy and action plan; and
- Ensure that periodic Environmental Audits are carried out for all infrastructural projects. Relevance to this Project.

All civil works subprojects should undergo an ESIA process before implementation.

2.2.3 Kenya Vision 2030

The Vision 2030, Kenya's long-term development blueprint aims to create a globally competitive and prosperous nation, transforming Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment. Vision 2030 three pillars, namely the Economic, Social, and Political are anchored on macroeconomic stability; continuity in governance reforms; enhanced equity, and wealth creation opportunities for the poor. The Economic Pillar captures the expectations of the ICT market seeks to improve the prosperity of all regions of the country and all Kenyans by achieving a 10% GDP growth rate by 2017.

Implementation of the project will contribute to realization of this Vision.

2.2.4 National Information, Communications and Technology (ICT) Policy, 2019

This policy is designed to realize the potential of the digital economy by creating an enabling environment for all citizens and stakeholders. The ICT Policy defines the forward-looking position of the Government on various areas of the evolving ICT sector landscape in Kenya. Again, the Policy

provides guidelines on making available capital-intensive ICT public infrastructure for use by Kenyan private and commercial operators on fair and equitable terms, and this is a welcome move.

The project should ensure the targeted US$ 100m Private Capital Mobilization (PCM) is realized.

2.2.5 The Kenya National Digital Master Plan 2022-2032

The Kenya National Digital Masterplan 2022-2032 is a sequential progression of the Masterplan 2014-2017. A plan for leveraging and deepening the contribution of ICT to acceleration of economic growth. It adopts a conceptual model that espouses the critical elements necessary for a socio-economic growth. The Master Plan has the four pillars namely: Digital Infrastructure; Digital Service & Data Management; Digital Skills and Digital Innovation; and Enterprise and Digital Business.

KDEAP is aligned with this Masterplan and has incorporated activities that contribute to each of the four pillars.

2.2.6 National Climate Change Framework Policy

This Policy was developed to facilitate a coordinated, coherent, and effective response to the local, national, and global challenges and opportunities presented by climate change. An overarching mainstreaming approach has been adopted to ensure the integration of climate change considerations into development planning, budgeting, and implementation in all sectors and at all levels of government. This Policy therefore aims to enhance adaptive capacity and build resilience to climate variability and change, while promoting a low carbon development pathway.

The project should 'climate proof' its infrastructure, ensuring that infrastructure investments are not compromised in the future.

2.2.7 National Policy for the Sustainable Development of Northern Kenya and other Arid Lands, 2012

The focus of this policy is on promoting social and economic development and the provision of easily accessible services throughout Kenya, and in the arid and semi-arid Lands. The goal is to ensure that Kenya, and in the arid and semi-arid Lands, develops into regions of opportunity and potential, eliminating historical challenges.

Its key objectives are to; strengthen the integration of Northern Kenya and other arid lands with the rest of the country and mobilize the resources necessary to ensure equity and release the region's potential; improve the enabling environment for development in Northern Kenya and other arid lands by establishing the necessary foundations for development; develop alternative approaches to service delivery, governance and public administration which accommodate the specific realities of Northern Kenya and pastoral areas; and, strengthen the climate resilience of communities in the ASALs and ensure sustainable livelihoods.

In terms of access to Infrastructures like (transport, water, energy, and ICTs), it recognizes that only one county, Isiolo, is currently connected to the national electricity grid with mobile telephone operators expanding their networks, although the coverage is still limited to the major towns. It further states that The ICT infrastructure is inadequate and expensive. Despite, the fibre-optic cable reaching several locations in the north, for the most part communication remains heavily reliant on satellite.

Subcomponents 1.1 and 1.2 of the Project should ensure that broadband access is extended to northern Kenya and other arid lands.

2.2.8 National Policy on Gender and Development (2019)

The National Policy on Gender and Development seeks to create a just, fair and transformed society free from gender-based discrimination in all spheres of life practices. The National Policy highlights

the fact that the patriarchal social order supported by statutory, religious, and customary laws and practices; and the administrative and procedural mechanisms for accessing rights have continued to hamper the goal of attaining gender equality and women's empowerment.

The Policy promotes inclusion of women in ICT through increasing access to STEM education, removing social barriers and fostering opportunities for women in ICT[15]. KDEAP aims to support this vision through (i) furthering internet access for women (including through supporting public Wi-Fi hotspots, for instance); (ii) offering customized training on digital literacy training and safe use of internet in schools; and (iii) supporting collection of gendered data.

This also policy specifies the need to "Collect and disseminate gender data on ICT access and use to inform policy and decision making" recognizing these central gaps.

The Project is aligned with the precepts of this policy. The project will: (a) further internet access for women (including through supporting public Wi-Fi hotspots, for instance); (b) offer customized training on digital literacy training and safe use of internet; and (c) support collection of gender data.[16]

2.2.9 The Kenya Kwanza Manifesto

The Kenya Kwanza administration has made the following ICT commitments:

1. Universal broadband availability through-out the country within five years. Increase and fast track broadband connectivity across the country by the construction of 100,000km of national fibre optic connectivity network;
2. Enhance government service delivery through digitization and automation of all government critical processes and make available 80 percent of government services online; and
3. Establish Africa Regional Hub and promote development of software for export.

KDEAP will contribute towards realization of these ICT commitments as shown is Section 1.2.3.

[15] *http://psyg.go.ke/wp-content/uploads/2019/12/NATIONAL-POLICY-ON-GENDER-AND-DEVELOPMENT.pdf*.
[16] Project Appraisal Document

2.3 Relevant Legal Frameworks

Table 2- 2 Relevant Legal Frameworks

Legislation	*Key Provisions*	*Relevance to the Project*
Environmental Management and Coordination Act, 1999 (Revised 2015)	Requires ESIA for all projects listed in the Second Schedule	All subproject ESIAs will be conducted in accordance with this Act.
EMCA (Impact Assessment and Audit) Regulations, 2003 (Amendment 2019)	requires that the EIA/EA be conducted by a registered lead or firm of experts in accordance with the terms of reference developed during the scoping exercise. Categorizes all telecommunication projects as medium risk and thus a comprehensive project report (CPR) must be prepared submitted to NEMA for licensing.	All subproject ESIAs must be conducted by registered experts or firm of experts. CPRs should be prepared for subprojects to comply with these regulations. All subprojects with ESIA licenses must undergo annual environmental audits (EA).
EMCA (Air Quality) Regulations, 2014	prohibits any person from causing air pollution either directly or indirectly	machinery used in project works must be in good working order to minimize exhaust emissions.
EMCA (Waste Management) Regulations 2006	requires waste generators to segregate waste by separating hazardous waste from non- hazardous waste for appropriate disposal. prohibits any industry from discharging or disposing of any untreated waste in any state into the environment	e-waste from out-of-use ICT equipment in the Project will require appropriate disposal in line with these regulations.
EMCA (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009	prohibits any person to make or cause to be made excessive vibrations which annoy, disturb, injure, or endanger the comfort, repose, health or safety of others and the environment.	Project works should be planned in a way that limits excessive noise and vibration especially near sensitive receptors like schools and health facilities.
EMCA (Fossil Fuel Emission	Promotes use of clean fuels, use of catalysts and inspection	Machinery and equipment in the project will require

Legislation	*Key Provisions*	*Relevance to the Project*
Control) Regulations, 2006	procedures for engines and generators.	unleaded fuels in line with the regulations.
Sustainable Waste Management Act, 2022	Requires preparation of Waste Management Plans (WMPs) by counties, private entities, and individuals.	Waste from the project will require appropriate disposal in line with prepared WMPs, by licensed waste handlers, and in coordination with respective county governments.
Wildlife Conservation and Management Act, 2013	Requires KWS approval for any civil works in protected areas.	Get KWS approval for any project works within protected areas.
Climate Change Act, 2016	encourages persons to put in place measures for elimination of climate change including reduction of greenhouse emission and use of renewable energy and put in place measure to mitigate against adverse effects of climate change.	The project should focus on resilience of investments considering country and location specific risks, targeting use-cases (education) that enhance resilience of population, and considering relevant mitigation measures for greenhouse gas (GHG) emissions from project investments.
The Forest Conservation and Management Act, 2016 & Amendment Act, 2021	Prohibits any person from felling, cutting, damaging, or removing, trading in, or exporting or attempting to export any protected tree species or family of trees or regeneration thereof or abet in the commission of any such act.	Obtain permit from Kenya Forestry Service (KFS) before any tree felling to pave way for civil works.
The Access to Information Act, 2016	Mandates project proponents to disclose pertinent information to stakeholders during the project lifecycle.	Prepare and implement a SEP to guide information disclosure to varied stakeholders.
The Kenya Information and Communications Act, 2011 and Amendment, 2013	Requires telecommunication operator to ensure that as little damage as possible is caused to the land and to the environment and shall pay fair and adequate compensation to the owner or occupier of the land for any damage or loss sustained by reason thereof. Requires deployers of national infrastructure to obtain **Network Facilities Provider, TIER 1 License.**	Implement the E&S requirements stipulated in this ESMF and/or subproject ESIAs. Prepare and implement and RPF to guide any land take. Obtain the **Network Facilities Provider, TIER 1 License** before broadband expansion subjects.
The Kenya Information and	Requires compliance with the EMCA, 1999, WBG IFC	Implement the E&S requirements stipulated in this ESMF

Legislation	*Key Provisions*	*Relevance to the Project*
Communications Act, 2011 and Amendment, 2013 ***Guidelines for Installation and Maintenance of ICT Infrastructure, 2018***	Environmental, Health & Safety Guidelines for Telecommunication, for any ICT infrastructure works. Requires annual environmental audits (EA) for ICT infrastructure	and/or subproject ESIAs. Conduct annual EA for subprojects involving civil works.
Public Health Act, Cap 242	Prohibits a person/institution to cause nuisance or condition liable to be injurious or dangerous to human health. Requires county governments to enforce the same.	Implement the E&S requirements stipulated in this ESMF, other safeguard instruments, and/or subproject ESIAs.
The Standards Act, Cap 496	Requires that all materials, machines, and equipment meet set standards to safeguard property, project workers and community at large.	Materials, machines, and equipment used in the project will require to meet set KEBS standards.
Fiber Optic-Backbone, Metro and Last Mile Infrastructure Standard, ICTA. 2.001: 2021	Guides the design, development and implementation of both backbone and last mile fiber optic infrastructure this includes constructing a multi-use duct along the cable routes.	Broadband expansion subcomponent should be guided by this Standard.
Accessibility — ICT products and services – KS 2952-1:2022 – ICS 33.030; 53.080: 2022	Requires ICT products, services and opportunities are made accessible to all, including Persons with Disabilities (PWDs).	Prepare and implement a Vulnerable and Marginalized Group Plan (VMGP) to cater for needs of PWDs.
The National Construction Authority (NCA) Act, 2012	Requires construction works are carried out by NCA registered contractors and supervised by qualified engineers. Requires construction sites to have permits.	Only engage NCA registered contractors. Register all civil works sites with NCA.
The Occupational Health and Safety Act (OSHA), 2007	Requires Project sites to be registered by DOSHS. Requires workplace and fire safety audits for internal environments.	Register all subprojects sites as workplaces annually. Conduct annual workplace and fire safety audits for project's internal environment (buildings).

Legislation	*Key Provisions*	*Relevance to the Project*
	Requires examination and testing of plants and equipment. Requires accident investigation and reporting to DOSHS within 24 hours (fatal accidents) and 7 days (non-fatal accidents).	Ensure all machines and equipment are serviced and inspected as per manufacturers' specifications. All accidents or incidents should be reported to DOSHS and WBG within 24 hours and 48 hours respectively.
Work Injury Compensation Benefit Act 2007	Requires compensation for employees on work related injuries and diseases. Requires employer to report an employee's injury to DOSHS county offices within 24 hours (fatal accidents) and 7 days (non-fatal accidents).	All Project workers should have WIBA insurance. All accidents or incidents should be reported to DOSHS county offices within 24 hours.
The Employment Act No 11, 2007	Prohibits forced and child labour, discrimination, and sexual harassment in employment. Requires employers to provide contracts to all employees and annual leave.	Prepare and implement an LMP, SEP and GBVAP.
National Gender and Equality Commission Act No. 15 of 2011	Requires projects to offer equal opportunities to women, men, persons with disabilities, the youth, children, the elderly, minorities, and marginalized communities.	Prepare and implement LMP, SEP, GBVAP and VMGP to meet this Act's requirement.
The Sexual Offences Act (No. 3 of 2006)	Requires elimination of sexual offences e.g., sexual exploitation and harassment, e.g., everywhere including workplaces.	Prepare and implement GBVAP to meet this Act's requirement.
County Government Act No. 17 of 2012 **Physical and Land Use Planning Act, 2019**	Requires project proponents to seek development approval from county governments.	Seek development approval from respective counties for subprojects involving civil works.
Land Act, 2012	Requires all development activities be carried out in	Adhere to land use plans at project sites.

Legislation	*Key Provisions*	*Relevance to the Project*
	accordance with land use plans.	
Traffic Act, Cap 403 & Traffic (Amendments) Act 2015, 2017, 2022	Requires licensing of drivers and vehicles. Requires drivers to give way to pedestrians. Requires all road users to follow traffic rules and regulations.	Only licensed drivers and vehicles should be used in the project. Contractors should develop and implement a driving for work policy.
The National Transport and Road Safety Act, 2012 (Revised 2019)	Requires registration of vehicles, machinery, and equipment. Rules in respect of records as to hours of work, journeys, loads, etc.	All Project vehicles, machinery and equipment plus operators should be registered by NTSA.
The National Museums and Heritage Act (2006) And its Revised Edition (2012)	Requires project proponents to notify NMK of any cultural heritage discovery and sets restrictions on moving objects of archaeological or paleontological interest.	Prepare and implement chance finds procedures.
HIV/AIDS Prevention and Control Act (Act No.14 of 2006, Revised in 2012)	requires HIV/AIDs education in the workplace.	Implement HIV/AIDs awareness programmes throughout project lifecycle.

2.4 WBG Environmental and Social Framework (ESF)

The WBG ESF sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards (ESSs) that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. This Framework comprises:

- A Vision for Sustainable Development, which sets out the Bank's aspirations regarding environmental and social sustainability;
- The World Bank Environmental and Social Policy for Investment Project Financing, which sets out the mandatory requirements that apply to the Bank;
- Ten (10) Environmental and Social Standards (ESSs), which set out the mandatory requirements that apply to the Borrower and projects; and
- WBG Environmental health and safety guidelines (EHSGs).

The ESSs set out the requirements for Borrowers relating to the identification and assessment of E&S risks and impacts associated with projects supported by the Bank through Investment Project Financing (IPF). The Bank believes that the application of these standards, by focusing on the identification and management of E&S risks, will support Borrowers in their goal to reduce poverty and increase prosperity in a sustainable manner for the benefit of the environment and their citizens. The standards will:

a) support Borrowers in achieving good international practice relating to E&S sustainability;
b) assist Borrowers in fulfilling their national and international E&S obligations;
c) enhance nondiscrimination, transparency, participation, accountability, and governance; and
d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.[17]

Nine (9) of the ten (10) ESSs are relevant to the project. Table 2- 3 provides key requirements for each ESS and relevance to the proposed project.

[17] The World Bank Environmental and Social Framework (ESF), 2017

Table 2- 3 ESS Key Requirements and Relevance to the Project

ESS No.	ESS Title	Key Requirement	Relevance to the Project
ESS1	Assessment and Management of Environmental and Social Risks and Impacts	Requires the assessment, management and monitoring of E&S risks and impacts of the project throughout the project lifecycle. Requires the application of the Bank's EHS Guidelines, or other more stringent measures where these exist. Requires the preparation of an ESCP as part of the legal agreement with material measures and actions required for the project to achieve compliance with the ESSs.	Relevant. ESS1 applies to all projects supported by the Bank through Investment Project Financing (IPF). As such, ESS1 is relevant to this project. The required instruments and processes to comply with this standard are referred to in the environmental and social commitment plan (ESCP). These are ESMF, ESIAs that include ESMPs, LMP, SEP, VMGF (to promote inclusion of women, PLWD and minority groups), GBVAP, SMP.
ESS2	Labour and Working Conditions	Requires development and implementation of labor management procedures. Requires workers to be provided with clear information and documentation on terms and conditions of employment. Promotes nondiscrimination of workers in employment and treatment.	ESS2 is relevant to this project due to different categories of labour working on the project: (i) direct workers, (ii) contracted workers, and (iii) primary supply workers. An LMP to guide management of labour during project implementation has been prepared and is annexed to this ESMF.
ESS3	Resource Efficiency and Pollution Prevention and Management	Requires implementation of technically and financially feasible measures for improving efficient consumption of energy, water, and raw materials, as well as other resources. Requires pollution prevention through avoidance of the release of pollutants or, when	The Project will procure and install ICT equipment for schools, entrepreneurs, upgrade and rehabilitate existing NOFBI and GCCN. The relevance of ESS3 is mainly related to ensuring energy efficient ICT and electronic equipment are procured where practical by the Project. During implementation the Project will generate solid waste and e-waste. For any ICT equipment that may be replaced it will have to be

ESS No.	ESS Title	Key Requirement	Relevance to the Project
		avoidance is not feasible, minimization and control the concentration and mass flow of their release using the performance levels and measures specified in national law or the EHSGs, whichever is most stringent.	disposed of in a manner that follows the ECOP as articulated in the ESMF, ESIAs and ESMPs.
ESS4	Community, Health, Safety and Security	Requires the assessment, management and monitoring of E&S risks and impacts of the project on the health and safety of the affected communities (vulnerable) during the project life cycle. Requires an assessment of how use of security by the Project to safeguard personnel and property could impact on community considering human rights.	ESS4 is relevant to this project given potential risks to the community health and safety that could result from accidents at project sites the transmission and spread of diseases, and GBV/SEA/SH risks. Moreover, the project may also cause risks to community health stemming from inappropriate disposal of generated e-waste, vehicle traffic, dust, noise and vibrations, generation of hazardous material and conflicts, access to residences, businesses and institutions, and security and community conflicts. Completion SEA/GBV Risk Assessment.
ESS5	Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	Anticipates and avoids physical and economic displacement or, where avoidance is not possible, to minimize adverse social and economic impacts. Requires preparation and implementation of Resettlement Policy Framework (RPF) to guide any physical and economic displacement.	Relevant. Project Components 1, 2, and 3 will invest in: laying of underground optic cable; construction of transmission towers; and buildings/construction/rehabilitation for server rooms and huduma centers that are likely to induce land acquisition, resettlement and impacts on livelihoods. Land needs will be in schools, hospitals, and public land thus land acquisition will be limited and no land acquisition is envisaged under the project. An RPF has been developed to manage the potential risks of land acquisition and involuntary resettlement.

ESS No.	ESS Title	Key Requirement	Relevance to the Project
ESS6	Biodiversity Conservation and Sustainable Management of Living Resource	E&S assessment as set out in ESS1 but considers direct, indirect, and cumulative project-related impacts on habitats and the biodiversity they support. This assessment should consider threats to biodiversity, for example pollution and incidental take, as well as projected climate change impacts. E&S assessment of the systems and verification practices used by the primary suppliers.	Relevant. The Project will finance the expansion and upgrading of NOFBI and the last mile FOC connections to selected school and MCDAs, this will be done within existing road reserve. This ESMF includes an exclusion list to avoid significant impacts and risks, such as opening of new green field roads, access roads and any activities in protected areas and critical habitats. Again, if waste generated from the project is not properly managed, it may pollute the environment negatively impacting biodiversity.
ESS7	Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Full consultation and provision of opportunities for Indigenous Peoples / Sub-Saharan African Historically Underserved Traditional Local Communities in project design and in the determination of project implementation arrangements. Obtain the Free Prior and Informed Consent (FPIC) of the affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. Culturally appropriate and accessible grievance mechanism for the project.	Relevant. Kenya has indigenous groups and communities. Even though specific sub-project locations are not known, it is expected that some project activities will be conducted in locations with VMGs. The project will ensure these communities are adequately consulted prior to and involved in implementation of the proposed subprojects. A social assessment has been conducted and VMGP prepared. A communication strategy targeted at the VMGs is also in place.
ESS8	Cultural Heritage	E&S assessment as set out in ESS1 but considers direct, indirect, and cumulative project-related impacts on cultural heritage. Stakeholder consultation during cultural	Relevant. The project a ginormous footprint and involves a lot of civil works. As such, there is a likelihood to encounter cultural heritage.

ESS No.	ESS Title	Key Requirement	Relevance to the Project
		heritage identification process. Listing of all legally protected cultural heritage areas affected by the project. Chance finds procedures.	This ESMF includes *Chance finds procedures to guide any cultural heritage found at project sites.* Again, this ESMF includes an exclusion list for avoidance of significant impacts and risks, such as opening new paths/access roads that will potentially impact cultural heritage sites.
ESS9	Financial Intermediaries	Development and implementation of an environmental and social management system (ESMS). Stakeholder engagement.	Not relevant.
ESS10	Stakeholder Engagement and Information Disclosure	Stakeholder engagement during project preparation. Stakeholder Engagement Plan (SEP). Stakeholder engagement during project implementation and external reporting. Grievance redress mechanism. Organizational capacity and commitment.	*A SEP incorporating a GRM is annexed to this ESMF.* Other safeguards instruments that guide key stakeholder involvement in the project are also annexed. These are: LMP, RPF, and ESMF. All the safeguard instruments have been disclosed.

2.5 WBG Environmental, Health and Safety Guidelines (EHSGs)

The EHSGs are technical reference documents that address the Bank's expectations regarding the EHS performance of its projects. 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.

2.5.1 General EHSGs

General EHSGs contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors; these are listed in Table 2- 4.

Table 2- 4 WBG General EHS Guidelines

Environmental	**Occupational Health and Safety**
• Air Emissions and Ambient Air Quality • Energy Conservation • Wastewater and Ambient Water Quality • Water Conservation • Hazardous Materials Management • Waste Management • Noise • Contaminated Land	• General Facility Design and Operation • Communication and Training • Physical Hazards • Chemical Hazards • Biological Hazards • Radiological Hazards • Personal Protective Equipment (PPE) • Special Hazard Environments • Monitoring
Community Health and Safety	**Construction and Decommissioning**
• Water Quality and Availability • Structural Safety of Project Infrastructure • Life and Fire Safety (L&FS) • Traffic Safety • Transport of Hazardous Materials • Disease Prevention • Emergency Preparedness and Response	• Environment • Occupational Health and Safety • Community Health and Safety

2.5.2 Telecommunication EHSGs

Telecommunications EHSGs are applicable to telecommunications infrastructure such as fixed line and wireless voice and data transmission infrastructure, including long distance terrestrial and submarine cables (e.g., fiber optic cables), as well as radio and television broadcasting, and associated telecommunications and broadcasting installations and equipment.[18]

These telecommunication sector-specific EHSGs contain information on cross-cutting EHS issues in the industry, these are listed in Table 2- 5.

[18] Associated installations and equipment include cellular, microwave, and other radio-based systems; satellite receivers; wire line and wireless receiving, transmitting, and switching stations, and related equipment such as masts and towers, cables and connectors, equipment housing such as shelters and cabinets, backup batteries, and auxiliary power units (generators).

Table 2- 5 WBG Telecommunication EHS Guidelines

Environmental • Terrestrial habitat alteration • Aquatic habitat alteration • Visual impacts • Hazardous materials and waste • Electric and magnetic fields • Emissions to air • Noise	**Occupational Health and Safety** • Electrical safety • Electromagnetic fields (occupational) • Optical fiber safety • Elevated and overhead work • Fall protection • Confined space entry • Motor vehicle safety
Community Health and Safety • Structural and site access issues • Aircraft navigation safety • Driver safety and cellular phones	**Construction and Decommissioning** Environment Occupational Health and Safety Community Health and Safety

Where applicable, the above-mentioned EHSGs will be applied to the Project.

2.5.3 Parameter Specific EHS Guidelines

2.5.3.1 Air Emissions and Ambient Air Quality

The WBG recommend that the air quality guidelines as set out by the World Health Organisation (WHO) be utilised in such an assessment. The WHO standards are divided into several stages, which have interim targets and a final guideline target. The WHO guidelines are recognised to be particularly conservative, as they make no consideration of the economic burden of achieving the stipulated guidelines. The WHO final guideline target is aspirational, and as such, this target should be progressively worked towards. In the case of the proposed Project, progression towards the achievement of the final guideline target may be assisted by regulatory changes to the quality of fuel used for construction and project-owned vehicles (for example, low sulphur fuels) and the regular maintenance and potential mandatory testing of those vehicle emissions. Based on the above, Table 2- 6 sets out the Kenyan Air Quality Emission Standards for industrial areas.

Table 2- 7, on the other hand, shows WHO ambient air quality guidelines.

Table 2- 6 Kenya's Ambient Air Quality Tolerance Limits for Industrial Areas

Pollutant	Time Weighted Average	Tolerance Limit
SOx	Annual average	80 µg/m^3
SOx	24 Hours	125 µg/m^3
NOx	Annual average	80 µg/m^3
NOx	24 Hours	150 µg/m^3
NO_2	Annual Average	150 µg/m^3
NO_2	24 Hours	100 µg/m^3
Suspended Particulate Matter (SPM)	Annual average	360 µg/m^3
Suspended Particulate Matter (SPM)	24 Hours	500 µg/m^3

Pollutant	Time Weighted Average	Tolerance Limit
Respirable Particulate Matter (<10µm) (RPM)	Annual average	70 µg/m^3
Respirable Particulate Matter (<10µm) (RPM)	24 Hours	150 µg/m^3
$PM_{2.5}$	Annual average	35 µg/m^3
$PM_{2.5}$	24 Hours Maximum	75 µg/m^3
Lead	Annual average	1.0 g/Nm^3
Lead	24 Hours	1.5 g/m^3
Carbon monoxide (CO)/ Carbon dioxide (CO2)	8 Hours	5.0 mg/m^3
Carbon monoxide (CO)/ Carbon dioxide (CO2)	1 Hour	10.0 mg/m^3
Hydrogen Sulphide	24 Hours	150 µg/m^3
Non-methane hydrocarbons	Instant peak	700 ppb
Total Volatile organic Compounds (VOC)	24 Hours	600 µg/m^3
Ozone	1 Hour	200 µg/m^3
Ozone	8 hour (instant Peak)	120 µg/m^3

Table 2- 7 WHO Ambient Air Quality Guidelines

Pollutant	Averaging Period	Guideline Value in µ g/m3
Sulfur dioxide (SO2)	24-hour	125 (Interim target-1) 50 (Interim target-2)
Sulfur dioxide (SO2)	10 minute	20 (guideline) 500 (guideline)
Nitrogen dioxide (NO2)	1-year	40 (guideline)
Nitrogen dioxide (NO2)	1-hour	200 (guideline)
Particulate Matter (PM_{10})	1-year	70 (Interim target-1) 50 (Interim target-2) 30 (Interim target-3) 20 (guideline)
Particulate Matter (PM_{10})	24-hour	150 (Interim target-1) 100 (Interim target-2) 75 (Interim target-3) 50 (guideline)
Particulate Matter ($PM_{2.5}$)	1-year	35 (Interim target-1) 25 (Interim target-2) 15 (Interim target-3) 10 (guideline)

Pollutant	Averaging Period	Guideline Value in µ g/m3
Particulate Matter ($PM_{2.5}$)	24-hour	75 (Interim target-1) 50 (Interim target-2) 37.5 (Interim target-3) 25 (guideline)
Ozone	8-hour daily maximum	160 (Interim target-1) 100 (guideline)

The WHO guidelines are more stringent than Kenya air quality standards e.g., Kenya's PM2.5 for 24-hours is 75 µg/m^3 corresponds to WHO's Interim target-1 with the ultimate guideline being 25 µg/m^3 for the same period. WHO ambient air quality guidelines shall thus apply to the Project.

2.5.3.2 Noise

The WBG EHS Guidelines – General EHS Guidelines: Environmental Noise Management 1.7 Noise (WBG 1.7 Noise) is an internationally recognised guideline document containing information for the assessment and management of noise.

Table 2- 8 presents the WBG noise guidelines that should not be exceeded at the nearest Noise Sensitive receptor (NSR) locations offsite. In addition to the absolute values provided in Table 2- 9, the WBG also requires that noise increase above existing (background) levels should not exceed 3 dB.

Table 2- 8 WBG Noise Level Guidelines

Receptor	One Hour LAeq (dB(A))	
	Daytime (07:00 – 22:00)	**Night (22:00 – 07:00)**
Residential; institutional; educational	55	45
Industrial; commercial	70	70

LAeq = A-weighted equivalent sound levels over a measurement period, dB(A) = A-weighted decibel

Table 2- 9 Maximum Permissible Noise for Construction Sites in Kenya

	Facility	Maximum Permissible Noise Level in dB(A)	
		Day (0601-1800, LAeq 12 hour)	**Night (1801-0600, LAeq 12 hour)**
(i)	Health facilities, educational institutions, homes for disabled, etc.	60	35
(ii)	Residential	60	35
(iii)	Areas other than those prescribe in (i) and (ii) (and of applicability to this Project).	75	65

Since most of the civil works will be undertaken during the day and around health facilities, educational institutions, and rural residential areas, the WBG Noise Guideline of 55 dB(A) shall apply to Project since it is more stringent. Kenyan standards shall apply to any nighttime activities are more stringent, 35 dB(A) and 65 dB(A) for industrial and commercial areas.

2.6 Assessment of ICTA Capacity to Comply with Environmental and Social Requirements

ICTA has hosted a Project Implementing Unit (PIU) to implement World Bank-financed projects for almost two decades, dating back to the Kenya Transparency Communication Infrastructure Project (KTCIP) (P094103). The existing PIU in ICTA, which will be expanded to take on the implementation responsibility of KDEAP, supports several World Bank-financed projects including the Horn of Africa Gateway Development Project (P161305), currently rated *Moderately Satisfactory*. To implement the KDEAP, that PIU's staffing would be expanded through redeployment of Government staff, project-financed recruitment of specialists where capacity is missing, and cost sharing of existing positions. The PIU will oversee all project-related fiduciary functions, including managing financial management (FM) and procurement, as well as implementation of project-related environmental and social standards commitments. It will be responsible for orchestrating project planning, delivery, and M&E, leveraging key project management tools such as annual work plans and budgets (AWPBs).

Currently, ICTA's PIU does not have the capacity to implement Project-related E&S safeguard commitments since they do not have E&S Safeguards Specialists. The PIU will be initially staffed (by project effectiveness), at a minimum, with a project coordinator, procurement, FM, and environmental, health and safety (EHS) specialist and social safeguards specialist. Other experts such as SEA/SH and SH advisors will also be engaged on part-time basis. To complement PIU's E&S specialists, the Contractors and Supervision Consultant (s) will be required to have experienced and qualified environmental, health and Safety (EHS) staff and social safeguards staff respectively. PIU's E&S specialists will undergo additional training, as necessary, to enhance competence in ensuring that the WBG ESF requirements are met during project implementation.

2.7 Assessment Similarities and Gaps between National ESIA Requirements and WBG's Environmental and Social Framework (ESF) requirements on Telecommunication

This subsection focuses on similarities and gaps between GOK environmental and social requirements and relevant Bank Environmental and Social Framework requirements.

2.7.1 GOK and WBG ESF Similarities

The World Bank Group ESF requirements and GOK legal frameworks on environmental assessment are generally aligned in principle and objective:

- Both require screening of subprojects in order to determine which level of social and environmental assessment (e.g., ESMP, EIA, etc.) is needed;
- Both require detailed ESIA for projects with more significant impacts (High and substantial risk), a less detailed EIA study for projects with less significant impacts (Medium/Moderate risk) and a summary ESIA project report (SPR) for projects likely to have minimal or no adverse environmental impacts (Low risk);
- In mitigating/managing environmental and social risks, both frameworks emphasize the adoption of the mitigation hierarchy approach (Avoid, Minimize, Restore and Offset); and
- In the ESIA process, both frameworks require key stakeholder engagement during planning, implementation, and operational phases of the project.

2.7.2 GOK and WBG ESF Gaps/Discrepancies

Table 2- 10 GOK and WBG ESF Discrepancies and Proposed Gap Filling Measures

No.	Aspect	GOK	WBG	Gap Filling Measures
•	Preparation of Safeguard Instruments; ESIA, ESMP	No procedure for approval of standalone ESMPs but requires them to form part of an SPR/CPR/full study report	Okay with a standalone and more detailed ESMP document for low-risk projects.	All sub-project ESIAs to contain an ESMP section.
•	Scope of safeguards instruments	Requires a general determination of environmental and social impacts and mitigation measures	Requires preparation of specialist documents e.g., social assessment, Labour Management Procedures (LMP), Security Management Plan (SMP), Stakeholder Engagement Plan (SEP), Resettlement Policy Framework (RPF), Vulnerable and Marginalized Groups Framework, and Vulnerable and Marginalized Group Plan (VMGP), etc.	ESIA reports to provide detail on labour management, elaborate stakeholder engagement including with vulnerable groups.
•	Compensation for temporary loss of access to productive assets	Does not compensate people for temporary loss of access to productive assets or those without title deeds/leases.	Demands compensation for such loss.	No land take is envisaged in the project though. When necessary, the project RPF will be followed to provide compensation for temporary loss of access to land use and assets in kind or cash.
•	Post-approval environmental performance	ESIA does not result in effective post-approval environmental performance. The mobilization of contractors is weak.	Conducts monitoring and supervision to track environmental and social performance post-approval. Requires capacity building of key stakeholders to assure E&S implementation.	There is need to focus E&S training on project implementation, and less on design and approval. Environmental inspection capacity by NEMA and counties needs to be significantly improved.

2.8 List of Environmental and Social Licenses/Permits/Approvals Required for the Project, as per the Requirements of Kenyan Law

Table 2- 11 provides a summary of the environmental and social permits and licenses required for the Project for both the construction and the operations phases.

Table 2- 11 License/Permits/Approvals and Issuing Institutions

Institution	Licenses/Permit/Approval
Communication Authority of Kenya (CAK)	**Network Facilities Provider, TIER 1 License** (For deployment of infrastructure nationally)
County Governments	Development approval from respective counties for civil works
National Environmental Management Authority (NEMA)	ESIA license for sub-projects Annual environmental audit
National Construction Authority	• Registration of all civil works sites • Contractor's licensing and their key staff practicing license
KeNHA/KURA/KERRA	Wayleave approval
DOSHS	• Annual OSH audits. • Registration all civil work sites as workplaces.
Contractor's Preferred Insurance company	WIBA policy.
KWS	Approval to work in a protected area e.g., park.
KFS	Approval to work in a gazetted forest.
NTSA	Registration of all project vehicles and drivers.
MOH	Approval to access healthcare facilities
Ministry of Education	Approval to access educational facilities

3 ENVIRONMENTAL AND SOCIAL BASELINE/CONTEXT

3.1 Overview

This Chapter 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 conditions of the environment 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. Additionally, guidelines for conducting environmental baseline studies (EBS) for specific subprojects, once project locations are known, is included in this Chapter.

3.2 Physical Environment

3.2.1 Size, Location and Geography

Kenya covers a land area of approximately 583,000 square kilometers. Kenya straddles the Equator between approximately 4.5 degrees South and 4.5 degrees North latitude. The Republic of Kenya is bordered by the Indian Ocean, Uganda, Tanzania, Ethiopia, South-Sudan, and Somalia. Nairobi, Mombasa, and Kisumu are the three main cities in Kenya. Nairobi lies in central Kenya, Mombasa on the Indian Ocean, and Kisumu on the Lake Victoria shores. Nakuru, Eldoret, Kitale and Lamu are among the major towns. The capital city of Kenya is Nairobi, which is considered the main tourist hub[19].

3.2.2 Climate and Climate Change

3.2.2.1 Climate

Kenya has a tropical climate, but there are large regional climatic variations influenced by several factors, including altitude. Temperatures drop by about 6°C for every 1,000m you climb (or 3.5°F per 1,000 ft). Kenya's daytime temperatures average between 20°C/68°F and 28°C/82°F, but it is warmer at the coast. The coast is hot and humid all year round. The dry and wet seasons are as follows: *Dry season* – June–October—These are the coldest months and temperatures vary significantly per region and with their difference in altitude.

Daytime temperatures are usually around 23°C/73°F at higher altitudes, and 28°C/82°F at lower altitudes, like the coastal areas; and *Wet season* - November to May—During the wet season daytime temperatures are between 24°C/75°F and 27°C/81°F at higher altitudes. At lower altitudes daytime temperatures are more consistent and hover at 30°C/86°F. From December to April the humidity is intense in coastal areas. There are long (March to May) and short (October to December) rainy seasons interspersed with dry spells in the months of January to March and May to October.

3.2.2.2 Climate Change

Climate change has evolved from being simply an environmental problem to a major development challenge impacting all economic sectors. There is evidence from historical records that Kenya has experienced increased temperature over the last 50 years. The frequency of intense extreme weather events like droughts and floods has also increased. Future climatic predictions indicate a possible temperature increase of 1°C by 2020 and 2.3°C by 2050. Rainfall pattern changes have also been noticed since the 1960s. Increased rainfall has been observed during the October to December rainfall season[20]

[19] ("Cities in Kenya - Major Cities and Towns - Kenya Cities," 2018)

[20] Ongoma, V., Chen, H. and Gao, C. (2017). Projected changes in mean rainfall and temperature over East Africa based on CMIP5 models. *Int. J. Climatol*. DOI: 10.1002/joc.5252

while decreasing during the March to May season. The March to May rainfall, which is the long rain season, has become increasingly unreliable in some part of Kenya[21].

Kenya has been identified as highly vulnerable to climate change on the Notre Dame Global Adaptation Index (rank 149/182 in 2020).6 More than 80 percent of the landmass is arid and semi-arid land with poor infrastructure, and the economy is highly dependent on climate-sensitive sectors such as rain-fed agriculture. While temperatures vary across Kenya, a distinct warming trend is evident, particularly since the 1960s. Extreme rainfall events are occurring with greater frequency and intensity, as well as aridity and droughts in certain areas. These climatic trends are expected to persist and increase in climate scenarios. Repeating patterns of floods and droughts have had large socio-economic impacts and high economic costs (droughts impacting 8 percent of GDP roughly every five years). Lower-income populations reside in more hazard prone locations, with high potential for significantly increased exposure of already underserved populations. [22]

The project will help advance the Kenya's climate goals.[23] Kenya is one of a few countries where the government explicitly recognizes the role of the digital sector for climate action. The 2019 National Information, Communications and Technology Policy has a section on the environment and envisions ICT as a tool for adaptation and mitigation. It specifically states, "*the Government will ensure that ICT players and consumers minimize the effect of infrastructure, appliances, machines, devices and tools on the environment*." In the Digital Economy Blueprint, Green ICT is considered cross-cutting with the goals of putting in place mechanisms to e.g., minimize e-waste and ensure the efficiency of ICT equipment. The country's current National Adaptation Plan (NAP) notes the need to 'climate proof' infrastructure, ensuring that infrastructure investments are not compromised in the future. The project will support these goals through for example, a focus on resilience of investments considering country and location specific risks, targeting use-cases (education) that enhance resilience of population, and considering relevant mitigation measures for greenhouse gas (GHG) emissions from project investments.

3.2.3 Geology, Topography and Soils

3.2.3.1 Geology

Kenya lies along the equator and most of the country consists of high plateau areas and Mountain ranges that rise to 3,000 meters above sea level (m.a.s.l) and more. The geology of Kenya is characterized by Archean granite/greenstone terrain in western Kenya along Lake Victoria, the neoproterozoic 'Pan-African' Mozambique Belt, which underlies the central part of the country and Mesozoic to recent sediments underlying the eastern coastal areas. The eastern Rift Valley crosses Kenya from North to South and the volcanics associated with rift formation largely obliterate the generally north-south striking neoproterozoic Mozambique Belt. Rift valley volcanogenic sediments and lacustrine and alluvial sediments cover large parts of the eastern rift[24].

3.2.3.2 Topography

Kenya is notable for its topographical variety. The low-lying, fertile coastal region, fringed with coral reefs and islands, is backed by a gradually rising coastal plain, a dry region covered with savannah and thorn bush. At an altitude of over 1,500 m.a.s.l. and about 480 km inland, the plain gives way in the southwest

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[21] Awuor C.B., Orindi V.A. and Adwera A.O. (2008). Climate change and coastal cities: the case of Mombasa, Kenya. *Environ Urban*, 20: 231-242.

[22] World Bank, Climate Knowledge Porta, at: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15724-WB_Kenya%20Country%20Profile-WEB.pdf

[23] Kenya has ratified Multilateral Environmental Agreements such as the UNFCC, Kyoto Protocol, the Paris Agreement, and others and formulated national policies such as the National Climate Change Response Strategy in 2010, the National Climate Change Action Plan (2013–2017) in 2012, and the current NAP (2015

[24] (Schluter, 1997)

to a high plateau, rising in parts to more than 3,050 m, on which most of the population and most economic activities are concentrated. The northern section of Kenya, forming three-fifths of the whole territory, is arid and of semi desert character, as is the bulk of the south-eastern quarter. In the high plateau area, known as the Kenya Highlands, lie Mt. Kenya (5,199 m.a.s.l /17,057 ft), Mt. Elgon (4,310 m.a.s.l /14,140 ft), and the Aberdare Ranges (rising above 3,962 m.a.s.l /13,000 ft). The plateau is bisected from north to south by the Great Rift Valley, part of the geological fracture that can be traced from Syria through the Red Sea and East Africa to Mozambique.

In the north of Kenya, the valley is broad and shallow, embracing Lake Turkana, which is about 207 km long; farther south the valley narrows and deepens and is walled by escarpments 600–900 m.a.s.l (2,000–3,000 ft) high.

3.2.3.3 Soils

Kenya has a very wide range of soils resulting from the variation in geology (parent material), in relief and climate. Soil resources vary from sandy to clay, shallow to very deep and low to high fertility. However, most of them have serious limitations such as salinity/ sodicity, acidity, fertility, and drainage problems. The major soils used in agriculture are ferralsols, vertisols, acrisols, luxisols, luvisols and nitosols[25].

3.2.4 Water Resources

Most of Kenya's water originates from its five "water towers": Mau Forest Complex, Aberdare ranges, Mount Kenya, Mount Elgon and the Cherengani Hills. They are the largest montane forests in the country and form the upper catchments of the main rivers in Kenya (except Tsavo river flowing down Mount Kilimanjaro)[26]. There are six main catchments in the country, used as unit for the water resources management by the Water Resources Authority (WRA): 1) Lake Victoria North Catchment Area (LVNCA), covering 3.0 % of the country; 2) Lake Victoria South Catchment Area (LVSCA), covering 5.0 % of the country; 3) Rift Valley Catchment Area (RVCA) which includes the inland lakes, covering 22.5 % of the country; 4) Athi Catchment Area (ACA) stretching up to the coast, covering 11.5 % of the country; 5) Tana Catchment Area (TCA), covering 21.7 % of the country; 6) Ewaso Ng'iro North Catchment Area (ENNCA), covering 36.3 % of the country[27]. The water distribution in the drainage basins is uneven with, for example, 282,600 m^3/ km^2 in Lake Victoria basin, or over 750 m^3/year per capita and 21,300 m^3/km^2 in the Athi Catchment, or 162 m^3/year per capita[28].

Inland water bodies, mainly nine large lakes, cover 11,230 km^2. Most of them are saline, except for the lakes Victoria, Naivasha and Baringo. The lakes Nakuru, Naivasha, Bogoria, Baringo and Elementeita, as well as Tana River Delta, have been declared Ramsar sites of international importance for the conservation of biodiversity, totaling over 265,000 ha[29].

Internal renewable surface water resources are estimated at 20,200 million m^3/year and renewable groundwater resources at around 3,500 million m^3/year, but 3,000 million m^3/year is overlap between surface water and groundwater, which gives a value of total internal renewable water resources (IRWR) of 20,700 million m^3/year. External water resources are estimated at 10,000 million m^3/year, which is the inflow from Lake Omo from Ethiopia into Lake Turkana. Surface water leaving the country is estimated at 8,900 million m^3/year through the Lake Victoria to Uganda (8,400 million m^3/year) and through the Ewaso Ng'iro river, also called Lagh Dera, into Somalia (500 million m^3/year). The dependency ratio is thus around 33 percent and the total renewable water resources are 30,700 million m^3/year, or 692

[25] (Gachene, C.K.K. and Kimaru, G., 2003)
[26] (NEMA, 2010)
[27] (WRMA, 2013)
[28] (WRMA, 2011)
[29] (RAMSAR, 2013)

m^3/year per capita in 2014. This per capita value is projected to fall under the absolute water scarcity threshold of 500 m^3/year by 2030 due to population increase.

There are six hydro-geological formations, which influence the distribution and availability of the groundwater resources: eastern quaternary sediment areas, bed rock areas, western quaternary areas, volcanic rock areas in the Rift valley, volcanic areas outside the Rift valley, older sedimentary areas. The volcanic and quaternary geological formations are rich in groundwater. The country's safe yield of surface water has been assessed at 7,400 million m^3 per year while that of groundwater is about 1,000 million m^3 per year[30]. However, this figure needs to be reviewed with the new aquifers identified in 2013 in Turkana County, and with five deep high-capacity groundwater reserves accounting for about 250,000 million m^3. Among those, the Lotikipi aquifer, west of Lake Turkana, is estimated at over 200,000 million m^3 of water and the small Lodwar basin aquifer that could serve as a strategic reserve for Lodwar, regional capital of Turkana County[31].

The total capacity of large and medium dams (>15 m) is about 24,800 million m^3, all for hydropower and urban water supplies. In addition, around 4,100 small dams and water pans increase the storage capacity by an additional 184 million m^3 available for all uses[32].

3.3 Biological Environment

3.3.1 Biodiversity

Kenya is endowed with diverse ecosystems and habitats that are home to unique and diverse flora and fauna. Kenya's rich biodiversity can be attributed to several factors, including a long evolutionary history, the country's varied and diverse habitat types and ecosystems, diversity of landscapes and variable climatic conditions. About 70 % national biodiversity resources are found outside the protected, while the 30 % are within protected areas that include national parks, reserves, sanctuaries, gazetted forests, and heritage forests[33]. Specifically, Kenya is rich with over 35,000 species of flora and fauna found in large diversity of ecological zones and habitats, including lowland and mountain forests, wooded and open grasslands, semi-arid scrubland, dry woodlands, inland aquatic, as well as coastal and marine ecosystems. The species diversity is dominated by insects[34].

Coastal mangroves and coral reefs, critical for fisheries, storm surge protection and tourism, are damaged by rising seas and increasing ocean temperatures. Reefs are highly sensitive to heat stress and have not yet fully recovered from an extensive 1998 *El Niño*-induced coral bleaching event[35]. Inland grasslands and forests are at risk from increasing temperatures and more variable rainfall, leading to drought conditions, increased risk of grassland and forest fires, and shifting distributions of native and invasive species. These changes may have detrimental impacts on the African elephant, lion, and buffalo – important for both ecosystem functioning and tourism[36].

3.3.2 Rare or Endangered Species

International Union for Conservation of Nature (IUCN) Red List for 2018 has identified a total of 8 species in Kenya which are threatened[37]. None of the species identified are endemic and no species have been identified as extinct.

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[30] (WRMA, 2013)
[31] (UNESCO, 2013)
[32] (MALF, 2015)
[33] (NEMA, 2015)
[34] (NEMA, 2015)
[35] (Cinner et al., 2012)
[36] (World Travel & Tourism Council, 2017)
[37] (IUCN, 2018)

A total of 32 species were assessed and one insect, five plants and two reptile species were identified as being threatened. The IUCN regard the threatened status of animals and plants as one of the most useful signs for assessing the condition of an ecosystem and its biodiversity. Five plants of the *Magnoliopsida* class (*Euphorbia tanaensis, Bauhinia mombassae, Gigasiphon macrosiphon, Ziziphus robertsoniana, Diospyros shimbaensis)* are endangered. The Kenya Jewel insect is critically endangered[38].

3.4 Socio-economic Conditions

3.4.1 Population

Kenya is a young and urbanizing country with a mean age of 20.1 years and a growing population that reached 53 million in 2021[39] having increased rapidly over the previous 30 years[40]. Population growth has averaged 2.7 percent annually since 2000, with the urban population growing at 4.4 percent, reaching over 27 percent in 2020. However, a vast majority of Kenyans (73 percent) continue to reside in rural areas. Kenya's young population, coupled with the bulging urbanization, presents an opportunity to capitalize on a demographic dividend, paired with the challenge of creating enough jobs to support the boom in the working-age population.

3.4.2 Politics, Ethnicity, and languages

Kenya is the world's seventh most ethnically diverse country with an evolving political structure aimed at balancing competition and fostering national unity. In the past, political competition has been ethnically divisive, entrenching deep patron-client networks with lasting impacts on the lives of Kenyans. Access to national resources and services mirrored access to political power, widening disparities across diverse communities and accentuating concerns over political exclusion, voice, and accountability. In 2007, these tensions manifested themselves in severe political violence that ended only after parties agreed to develop a new Constitution (2010).[41]

Kenya is characterized by counties with diverse ethnicities, cultures, and languages. The commonly spoken languages include English, Swahili, and numerous other indigenous languages. The population is comprised of various ethnic groups such as Kikuyu (22%), Luhya (14%), Luo (13%), Kalenjin (12%), Kamba (11%), Kisii (%), Meru (6%), other African (15%), non-African (one %)[42].

3.4.2.1 Vulnerable and Marginalized Groups (VMGs)

Ogiek, Sengwer, Waliangulu, and Waata are identified as part of the marginalized groups. Below is a brief overview of the groups profile.

Ogiek mostly live at Marioshoni ward of Molo constituency, Nakuru County, Kenya. The land they inhabit was forest land and has been cleared for settlement in the last twenty years. The Ogieks' livelihoods revolve around bee keeping and honey. According to Kang'ethe, Ontita and Mwangi (2000) honey is critical to their religion and belief systems and is a central item in their rituals and ceremonies. They have placed beehives in the forests around them and on their farms. They sell the surplus honey through cooperatives and self-help groups. They also grow maize, beans, vegetables, and potatoes for domestic consumption and for sale to the rest of the country through middlemen who transport it. The Ogiek rear dairy cattle and sell most of the milk in Njoro and Nakuru towns. Some of them conduct business activities in the trading centres in their territory and beyond. The Ogiek are a patriarchal society. They have a strong council of elders that holds sway in most community-wide decisions. All members of the

[38] (IUCN, 2018)
[39] World Bank, World Development Indicators.
[40] Kenya National Bureau of Statistics. 2019. *https://www.knbs.or.ke/download/2019-kenya-population-and-housing-census-volume-iii-distribution-of-population-by-age-sex-and-administrative-units/*
[41] KDEAP PAD
[42] ("Kenya Demographics Profile 2018," 2018)

council are men, but women participate in local community meetings and contribute to discussions without hindrance. Other representative organizations of the Ogiek include churches, self-help groups organized around honey production and sales, the NGO Ogiek Peoples Development Program (OPDP) and several Community-Based Organizations (CBOs).

Sengwer are an indigenous and marginalized community in Kenya who traditionally inhabit the Cherangany Hills and the Embobut Forest in the Rift Valley region. The Sengwer have a rich cultural heritage that includes unique traditions, practices, and oral history. They have a deep spiritual connection to their land and forests, which play a vital role in their cultural identity and traditional way of life. Historically, the Sengwer have practiced a semi-nomadic lifestyle, combining hunting, gathering, and small-scale agriculture for subsistence. They rely on the forest for food, medicine, and other essential resources.

The Waata, also known as the Wata or Sanye, are an indigenous hunter-gatherer community in Kenya. They are part of the larger Cushitic-speaking Oromo ethnic group and primarily inhabit the coastal forests and arid regions of northeastern Kenya, particularly in the Tana River, Lamu, and Garissa counties. The Waata have a distinct cultural heritage and traditional way of life. Historically, they were nomadic hunter-gatherers who relied on the forest for their livelihoods, gathering wild fruits, honey, and medicinal plants, and hunting small game. They have a rich oral tradition, with storytelling and music playing important roles in their culture.

3.4.2.2 Project Impact on VMGs

The VMGs identified the following positive impacts of the project: Cheaper and faster internet connections. The VMG participants in meetings said that this was going to benefits their businesses including meat and livestock, honey, and agricultural produce, as this will open online market opportunities, online education and training. The VMG participants in the meetings said that the project will benefit their teachers to deliver better online and college students to access education and training, Jobs for the youth. The VMG participants said that once internet access becomes cheaper, and speeds improve youth will access online job opportunities and support their families and communities, online Business opportunities. The VMG participants in the meetings averred that cheaper and easier internet access is likely to spur online business opportunities including meat, livestock, and honey sales as well as imports of goods and services required locally; online meetings for local groups including church and community groups. The VMG participants in the meetings said that they conducted some of their group activities such collecting funds from group members on WhatsApp. However, they reckoned this was expensive and inaccessible to some members. They averred that when the KDEAP is implemented, and internet access becomes cheaper they will intensify group activities online and safe time for other productive activities, entertainment and news. The VMG participants in the meetings said that they were aware that internet platforms had a lot of news and entertainment programs that they will enjoy when internet becomes cheaper and more accessible; and Reduced carbon emissions because with stable and affordable internet connections fewer people will travel for meetings or classes away from home or even to visit cyber cafes in towns.

The potential adverse/negative impacts of the project on VMGs may include livelihood disruptions. The VMG participants in the meetings indicated that their fences, kiosks, and other temporary business structures along the roads where fiber optic cables will be laid are likely to be affected; Exclusion of the VMGs from the project. This is likely to result from the VMGs' current limited access to ICT equipment and internet services, inadequate awareness on computing and the digital economy, and increased crime. If internet connections improve through the KDEAP there is a likelihood that small businesses such as cyber cafes and online jobs will flourish in those isolated VMG areas and crime may set in due emerging inequality and health and safety during construction. Trenches for laying the fiber optic cables unless

managed properly will pose safety challenges for humans and livestock, and labor influx during construction. Although the numbers of workers may not be large, there will be workers from outside the VMG territories who may pose a threat to the safety of children, girls, and women. Gender-based Violence will likely increase in the VMG territories as transactional sex set in. This may lead to the spread of diseases such as COVID-19, HIV/AIDS, and other Sexually Transmitted Diseases (STDs) in VMG territories. The labor influx during construction may also disrupt the social lives of the VMGs especially their languages, taboos, and norms. Workers from outside may bring in new ways of life including diets and relationships with people of the opposite or same sex that may be offensive to VMG social organization.[43]

3.4.3 Employment profile

According to Kenya National Bureau of Statistics (KNBS), Quarterly Labour Force Report released in May 2021, the overall employment to population ratio in the country, for the working age population, was 63.7% in the first quarter of 2021 compared to 64.4 % recorded in the same quarter of 2020, and 65% recorded in the last quarter of 2020. The same report notes that the unemployment rate, measured based on the strict definition of seeking work in the last four weeks, was 6.6% in the first quarter of 2021, compared to 5.2% in the same quarter of 2020 and 5.4 % recorded in the last quarter of 2020. The age groups 20-24 and 25-29 continued to record the highest proportion of the unemployed at 16.3 per cent and 9.1 per cent, respectively.[44]

3.4.4 Poverty profile

Kenya's strong economic growth over the last 15 years has contributed significantly to poverty reduction, but the pace of the decline has slowed in recent years. Over the medium term, Kenya is expected to sustain an annual GDP growth of approximately 5 percent (like the pre-pandemic pace of about 4.7 percent during 2015–2019). This presumes the Government's continued implementation of critical reforms and the necessary fiscal consolidation (supported by prospective Development Policy Financing programs and an ongoing program of support from the International Monetary Fund [IMF]). Robust GDP per capita growth since 2005, primarily associated with a strong growth in private consumption, saw the share of the population living below the national poverty line fall from 46.8 to 33.5 percent and below the international poverty line[45] from 43.8 to 35.8 percent between 2005 and 2019. Although poverty in Kenya remains below the Sub-Saharan Africa average and among the lowest in the East African Community (EAC), it is still notably higher than other Lower Middle-Income Countries (LMICs) (12.8 percent in 2018).

The decline in poverty has been accompanied by an increase in vulnerability. The average poverty gap decreased by 7.5 percentage points between 2005 and 2019 as consumption levels of the poor increased. However, the share of population with expenditure levels increased just up to 20 percent above this threshold. Subsequently, the COVID-19 pandemic is estimated to have increased Kenya's poverty rate by around 4 percentage points. Nationwide more than one-third of non-poor Kenyans are classified as vulnerable. Vulnerability is most common in households that derive most of their income from agriculture and with low levels of education or that are headed by women. It is of concern that the poverty elasticity of growth, already lower than other African LMICs, has slowed in recent years from 0.43 during 2005–2015 to 0.27 during 2015 to 2020. To eradicate extreme poverty by 2030, Kenya's annual poverty reduction rate must rise to at least 0.4 percent.[46]

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[43] KDEAP Project VMGP

[44] *https://www.knbs.or.ke/download/quarterly-labour-force-report-2021_quarter_1/*

[45] The poverty line is US$1.90 in purchasing power parity terms.

[46] KDEAP PAD, March 2023

3.4.5 Education

Most of the Kenyan population is literate (78%). Males have a slightly higher literacy rate (81.1 %) than females (74.9%)[47].

In 2003, the Kenyan government instituted a free primary education programme for all, followed by free secondary education in 2018. As a result, nearly 3 million more students were enrolled in primary school in 2012, and the number of schools grew by 7,000[48]. Between 2003 and 2012, the overall secondary school enrolment ratio increased from 43% to 67%. However, one million children were still out of school in 2010.

At a university level, between 2012 and 2014, the enrolment rates have more than doubled as the free primary and secondary learners have increasingly enrolled at universities (between 2013 and 2014, student numbers increased by 28%).

Education related issues continue to persist with over a quarter of young people obtaining less than a secondary education and one in 10 did not complete primary school[49].

3.4.6 Water

A total of 82% of the urban population have access to a drinking water source with only 52% of the rural population having access. Overall, 59% of the Kenyan population has access to a drinking water source. Some 18% of the urban population do not have access to a drinking water source, while 48% of the rural population do not have access to a drinking water source[50].

Kenya's scarce water resources, strained by population growth and severe forest degradation, could be further stressed by increasing temperatures, evaporation rates and rainfall variability. The country relies predominantly on surface water sources, but key rivers and lakes are highly susceptible to climate change. In 2010 Kenya's water availability was 586m^3 per person annually, well below the internationally acceptable threshold of 1,000m^3 per person; this figure is expected to fall to as low as 293m^3 by 2050. Increasingly severe droughts and flooding will impact water availability and diminish water quality, with implications for irrigation and domestic water supply and sanitation, which combined account for 87 percent of current use. Urban areas are already highly water stressed; Nairobi and Mombasa regularly implement water rationing[51].

Glacial loss on Mount Kenya is further straining water resources and turning once glacially-fed perennial rivers, such as the Ewaso Ng'iro, to seasonal flows, leading to conflict over water resources between communities upstream and downstream[52].

3.4.7 Sanitation

A total of 31.2% of the urban population in Kenya have access to sanitation facilities with only 29.7% of the rural population having access to improved sanitation facilities. A total of 68.8 % of the urban population have unimproved sanitation facilities, followed by 70.3% of the rural population having unimproved access to sanitation facilities. Overall, a total of 69.9% of the Kenyan population have unimproved sanitation facilities[53].

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[47] ("Kenya Demographics Profile 2018," 2018)
[48] (Clark, 2015)
[49] (Clark, 2015)
[50] ("Demographics of Kenya - Facts and Figures," 2018)
[51] (Climate Service Center Germany, 2015).
[52] (Wesangula. 2017)
[53] ("Kenya Demographics Profile 2018," 2018)

3.4.8 Source of energy

Much of Kenya's energy comes from non-fossil fuel sources. Eighty-nine (89)% of installed energy capacity comes from hydro (40%) and geothermal power (49%)[54]. In 2010, 19.2% of the Kenyan population had access to electricity, this percentage increased significantly to 75% in 2019[55].

Increased evaporation rates and more severe drought threaten Kenya's hydropower production, which accounts for about one-half of domestic electricity production. Hydro production is reduced by up to 40 percent in drought years, leading to persistent power outages and reliance on more expensive petroleum-based thermal generation[56]. Projections of sea level rise and increased heavy precipitation events leading to flooding and landslides put energy, transportation and building infrastructure at risk. Models estimate that in Mombasa as much as $4.8 billion worth of assets will be exposed to flooding and inundation from sea level rise by 2050, including Port Kilindini, the largest seaport in East Africa[57].

3.4.9 Waste management

3.4.9.1 General Solid Waste Management in Kenya

Waste management is a major challenge in Kenya, especially in rapidly growing urban metropolises and coastal areas. Investigations conducted by NECC in the major cities in the Country including Nairobi, Mombasa, Kisumu, Eldoret and Nakuru listed the following findings:

- Nairobi produces around 2,400 tons of waste every day, of which only 38 per cent is collected and less than 10 per cent recycled (JICA, 2010). The remaining 62 per cent is disposed of at the uncontrolled Dandora dumpsite, illegally dumped on roadsides and waterways, or burned releases toxic air emissions and particulate matter. Illegal dumping and burning is particularly common in low-income areas of the city, which are home to over 2.5 million people who cannot afford waste collection services.
- A common observation made by NECC across most Counties is haphazard dumping of waste within towns/urban areas which is a health hazard to the public and has caused environmental pollution.
- Waste transportation is largely rudimentary using open trucks, hand carts, donkey carts among others. These poor transportation modes have led to littering, making waste an eyesore, particularly plastics in the environment. However, some counties have adopted appropriate transportation trucks as stipulated by the Waste Management Regulations. In addition, County Governments have privatized waste transportation through Private Public Partnership arrangements.
- There is no current data on generation, recovery and disposed waste.
- Disposal of waste in the country remains a major challenge as most of the counties lack proper and adequate disposal sites. The few towns that have designated sites practice open dumping of mixed waste as they lack appropriate technologies and disposal facilities.
- Disposal sites are undesignated this is since they are either located near residential areas, surface water sources, hospitals, schools, and other vital facilities. The proximity causes environmental pollution that increases chances for occurrence of human illnesses. Open disposal sites also face management challenges as communities around are against their location. Therefore, there is need for Counties to undertake research and identify suitable areas to site waste management facilities.

[54] (GoK. 2020)
[55] (The World Bank, 2018)
[56] (GoK. 2015. Second National Communication, UNFCCC).
[57] (Kebede et al. 2010)

- There is minimal prioritization for waste management in the counties has led to inadequate budgetary allocation. As a result, management of the entire waste management cycle (collection, transportation, and disposal) is hampered. Low funding has also affected investment in waste management facilities and equipment.

3.4.9.2 E- waste Management

Overview

According to the Global E-Waste Monitor report of 2020, a record 53.6 million metric tonnes of electronic waste was generated worldwide in 2019, up 21 percent in just five years. The report predicts global e-waste will reach 74 metric tonnes by 2030, making e-waste the world's fastest-growing domestic waste stream, fuelled mainly by higher consumption rates of electric and electronic equipment, short life cycles, and few options for repair. In Kenya, an average of 3,000 tonnes of e-waste is generated each year with 99% of the total e-waste ending up in the informal sector where it's disposed in an unhealthy way.

Kenya E-Waste Legal Frameworks

Kenya Constitution – The Kenya Constitution 2010 gives the right to every Kenyan to a clean and healthy environment under Article 42. Article 69 obligates the government to eliminate any processes that degrade the environment. Kenya Constitution 2010 legislates that any Convention that the Country has ratified becomes part of the national laws. Some of the international conventions regulating hazardous waste include the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. The Bamako Convention aims at introducing preventive measures and guaranteeing appropriate disposal of hazardous waste in Africa. Kenya has not yet ratified the Bamako Convention.

Guidelines for E-Waste Management in Kenya – The guidelines have been developed with the strategic objective of providing a framework for the development of regulations and policies in Kenya. Specific objectives of the guidelines include: To enhance environmental protection from e-waste; To establish a basis for a policy and regulatory frameworks on e-waste management; and To raise public awareness on sustainable management of e-waste in Kenya.

Sustainable Waste Management Act, 2022 – Part II of the Act, Section 9. (1) County governments shall be responsible for implementing the devolved function of waste management and establishing the financial and operational conditions for the effective performance of this function.

EMCA (Waste Management) Regulations 2006 (Legal Notice 121) – Part II, Regulation 4 (2) states that a waste generator shall collect, segregate, and dispose such waste in the manner provided for under these regulations. The regulations require a waste generator to collect, segregate and dispose each category of waste in such manners and facilities as provided by relevant county governments. Regarding transportation, licensed persons shall operate transportation vehicles approved by NEMA and will collect waste from designated areas and deliver to designated disposal sites.

E-Waste Business in Kenya

As of 2021, only 6 recyclers have licenses to handle e-waste in Kenya. These are few, considering the huge number of EEE users in Kenya:

The WEEE Centre provides E-waste collection, dismantling and automated processing services in Nairobi and in other major cities in Kenya. The valuable materials are sold to local recycling facilities. Its partnership with international partners enables the shipping of hazardous and non-valuable e-waste fractions to international recyclers and smelters.

Safaricom Limited actively participates in collection of used phones and other e-waste and safe disposal of the same. It has partnered with local institutions such as the WEE Centre to receive the collected waste for dismantling and further processing. Safaricom has invested heavily in raising public awareness and runs collection drives to ensure safe disposal of electronic gadgets.

Sintmund Group is a licensed company operating advanced recycling facility for e-waste such as bulbs, batteries, fridges, freezers, cartridges, computers among others.

Sinomet Kenya Limited is a company specializing in waste transportation, treatment/disposal and trans-boundary movement of waste with special emphasis on e-waste.

E-waste Initiative Kenya (EWIK) is a Kenyan based NGO dealing with electronic waste management specifically in the informal sector, providing a safe disposal option across the country through their networks.

Enviroserve Kenya provides responsible, environmentally friendly, and accredited electronic waste recycling services. Enviroserve Kenya is part of the global Enviroserve Group which is focused on electronic waste (e-waste) recycling.

Recyckla International is an end-of-life electronic waste management company that allows consumers to dispose their electronics in a sustainable way.

E-Waste Recycling Challenges in Kenya

E-waste recycling in Kenya faces the following challenges: Low-level of citizen awareness on the harmful effects of WEEE on the environment, their health and safety; Low purchasing power – go for cheaper second hand EEE with short life; Low capacity/priority to manage e-waste among state institutions compounded by fragmentary operations; Inadequate regulatory framework to deal effectively with WEEE management at the local level. Again, existing frameworks are not implemented effectively; No government infrastructure and resources for Environmentally Sound Management (ESM) of WEEE. As such, most WEEE is handled by the informal sector through crude recycling, refurbishment and dismantling to extract precious metals and parts used for repair; and No segregation of waste protocols for county governments.

3.4.9.3 Waste Treatment/Disposal Facilities

Non-hazardous waste disposal facilities

Non-hazardous waste disposal in Kenya is done through dumpsites operated by respective county governments. Other disposal methods include illegal dumping on roadsides and in waterways or burning. Illegal dumping and burning are particularly common in low-income areas. There are a myriad of county government and NEMA licensed *non-hazardous waste collection, recycling and disposal companies* in the most urban areas of Kenya that could be used by the project.

Hazardous waste disposal facilities

The most common method of waste treatment/disposal in Kenya is thermal through incinerators and cement kilns. However, most of the incinerators do not comply with the requirements of the Third Schedule of the waste management regulations of 2006. Some licensed private companies that could be used by the Project for disposal of hazardous waste:

1. Colnet Limited;
2. Transbiz Waste Solutions; and
3. Environmental and Combustion Consultants Limited.

Hazardous wastes that cannot be thermally treated are collected and aggregated by NEMA and exported to European countries with requisite facilities.

3.4.10 Health

There are approximately 5,000 health facilities in Kenya. Hospitals in Kenya are classified according to the agency that owns the health facility. Such agencies include the government, which manages public health institutions, faith-based organizations (FBOs), non-governmental organizations (NGOs) and private investors. The Kenya government runs 48% of hospitals, 35 % is managed by the private sector, 15% by

FBOs and 2% are managed by NGOs. Kenya has two national hospitals namely, the Kenyatta National Hospital and Moi Teaching and Referral Hospital.

The health status of Kenyans has improved in the last five years, but significant health challenges including geographic and economic inequities remain. According to the last census in 2019, the population was estimated at 47.6 million, with 36 percent of the population living below the poverty line and 65 percent in rural areas[58]. The life expectancy of Kenyans has improved from 63 years in 2013 to 67 years in 2020[59]. Under-five and infant mortalities dropped from 52 and 39 deaths per 1,000 live births respectively in 2014 to 41 and 32 in 2022 partly due to improved primary care inputs and significant progress in the HIV/AIDS response[60]. However, challenges remain around neonatal mortality, which remains high at 21 deaths per 1,000 live births in 2022: a marginal decline from 22 per 1,000 live births in 2014. Additionally, while the country has recorded improvements in childhood nutrition, 18.0 percent of children aged below 5 years are stunted, a decline from 26 percent in 2014. Overall, there has been a decline in the disease burden with mortality dropping from 1,052 to 585 deaths per 100,000 population between 2000 and 2019 largely driven by the reduction in the burden of the communicable diseases[61]. Despite the reduction in the burden of communicable diseases, HIV/AIDS, lower respiratory tract infections, diarrheal diseases and malaria were the top 10 causes of mortality in 2019. Progress with neonatal disorders and non-communicable diseases (NCDs) has been slow. NCDs have overtaken communicable diseases and now constitute the major cause of morbidity and mortality in the country. NCDs account for 41.0 percent of all mortalities in Kenya with the share projected to increase to 55.0 percent by 2030[62]. Furthermore, over 50 percent of long Average Length of Stay (ALOS) in hospitals are attributed to NCDs and injuries (ibid). With the changing population structure (aging population), NCDs are poised to become the dominant cause of disease burden in the country.

Coronavirus disease (COVID-19) pandemic also posed a major health risk, both within Kenya and globally. COVID-19 is an acute respiratory infection caused by severe acute respiratory syndrome coronavirus 2 (SARS- CoV-2). SARS-CoV-2 belongs to the Sarbecovirus subgenus of the Coronaviridae family and is the seventh coronavirus known to infect humans. Coronaviruses are a large family of enveloped RNA viruses, some of which cause illness in people (e.g., common cold, SARS, MERS), and others that circulate among mammals (e.g., bats, camels) and birds. Rarely, animal coronaviruses can spread to humans and subsequently spread between humans. Like SARS and MERS, it is thought that human transmission occurs via respiratory droplets produced when a person sneezes or coughs. Current estimates of the incubation period range from 1 to 14 days, according to the World Health Organization. The average incubation period is currently estimated to be 5 days. Transmission can occur during the incubation period.

3.4.11 Safety and security

Overlapping roles, tensions, and mistrust between various security stakeholders in counties, including county governments, National Government Administration Office, and the police have created security gaps. Youth unemployment and lack of sustainable livelihood opportunities in both rural and urban counties remain a serious challenge contributing to criminal activities among the youth in Kenya. Criminal activities such as drug abuse, gangsterism, banditry and terrorism are commonly practiced by the unemployed youth in Kenya.

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[58] Kenya Demographic and Health Survey 2022

[59] World Bank Estimates: *https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=KE*

[60] Kenya Demographic Health Survey, 2022. Key Indicators Report

[61] IHME. Global Burden of Disease 2019

[62] World Health Organization 2022. Non-Communicable Disease Progress Monitor

Unresolved land disputes and tenure in various counties are also contributing factors to intra-County and inter-County conflicts[63]. The diversity among counties remains another challenge. Residents either have different ethnic backgrounds, or clan/regional divides, thus, 'indigenous' versus 'outsiders' divides among residents poses the potential for conflict among counties in Kenya.

3.4.12 Roads

Kenya has a road network of about 177,800 km out of which only 63,575 km is classified. The classified road network has increased from 41,800 km at independence to 63,575 km today, a development rate of less than 600 km per annum. During the same period, the paved road length grew from 1,811 km to 9,273 km. It is presently estimated that about 70% (44,100 km) of the classified road network is in good condition and is maintainable while the remaining 30% (18,900 km) requires rehabilitation or reconstruction.

3.4.12.1 Road Reserves

Road reserves are the designated strips of land along existing or proposed roads that are reserved for road development, maintenance, and expansion. These road reserves serve several purposes, including ensuring the efficient operation of transportation networks, providing space for future road widening or upgrades, facilitating road safety measures, and installation of utility services e.g., water pipelines, fibre optic cables, electricity transmission lines, etc.

The road reserves are established and managed by the relevant government authorities, such as the Kenya National Highways Authority (KeNHA), Kenya Urban Roads Authority (KURA), Kenya Rural Roads Authority (KERRA), and the county governments. The exact width of road reserves can vary depending on the classification and importance of the road. Generally, major highways and roads have wider road reserves compared to local or rural roads. KeNHA's average road reserve width for Class A and B roads (Trunk) is 60 meters. KURA's average road reserve width is 25 meters and KeRRA average road reserve width is also 25 meters. The road reserves are wide enough to perform their transportation function, utilities, and accommodate KDEAP civil works.

Recently, the road agencies have demarcated the road reserves, obtained title documents for the reserves, and implemented various measures to ensure they are maintained clear and free from encroachment.

3.4.12.2 Road Reserves Legal Frameworks

The specific regulations and guidelines for road reserves are outlined in various laws and policies, including the Traffic Act, the Physical Planning Act, Land Act, and the Roads Act. These laws empower the government to acquire land for road reserves through processes such as compulsory acquisition or negotiations with landowners.

3.4.12.3 Road Reserves Encroachment

Encroachment on road reserves is illegal in Kenya. To undertake civil works within road reserves, one is required to seek authorization from relevant authorities. KDEAP will seek consent from the road agencies before laying any infrastructure on the reserves.

Additionally, if there is encroachment on the reserve meant to be utilized for the digital infrastructure, the project will; (i) explore other design options (offsetting, overhead cables, micro-trenching) to avoid physical or economic displacement; or (ii) when redesign is not possible, a resettlement action plan (RAP) consistent with the project's RPF shall be prepared and implemented.

[63] (Mkutu, Marani, & Ruteere, 2014)

3.4.13 Access to telecommunication services

According to Communication Authority's 2019 Annual report, ICT sector has registered significant growth because of the Authority's continued provision of an enabling environment for service providers, which saw the sector grow from 11.0% in 2017 to 11.4% in 2018. This growth was catapulted by the continued uptake of mobile communication services whose subscriptions increased from 45.6 million to 52.2 million while those of broadband services increased from 20.4 million to 22.2 million in comparison to the preceding reporting period. Additionally, the number of mobile money subscriptions rose from 29.7 million the previous year to 32.6 million during the year in review. This increase was supported by the increase in the number of active mobile money transfer agents from 290,432 compared to 266,022 recorded the previous year. Consequently, the number of Kenyans accessing mobile information and communication services, mobile money services, e-commerce, high-speed Internet/ broadband services, and other ICT services have continued to grow[64].

3.4.13.1 Access to the Internet

Kenya stands out as the digital leader in the East African Region, earning an early reputation as the 'Silicon Savannah'.[65] The country continues to benefit from early liberalization of the telecom sector, strategic public investments in the national fiber optic backbone infrastructure (NOFBI),[66] and a vibrant private sector that has used this market openness and public infrastructure to invest in network expansion and roll out innovative digital services. As a result, Kenya boasts over 98 percent population coverage of mobile broadband networks of 3G and higher,[67] an estimated 73 percent smartphone adoption rate (one of the highest in Africa[68]), 69 percent mobile money penetration among adults (the highest in the world[69]), and a thriving tech ecosystem.[70] Kenya is also ahead of many of its peers in the region on 'e-government'[71] and is ranked third in the continent in the 'Networked Readiness Index' 2021 rankings.[72] Kenya's digital agenda is championed by the country's top leaders and is reflected in the ambitious 'Vision 2030' aim of transforming Kenya into a regional ICT hub, coupled with a dedicated government ministry and agencies established to drive the digital agenda, including the MICDE, ICTA, and CA.

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[64] (Communications Authority, Annual Report 2018-2019)

[65] *https://techcrunch.com/2015/07/23/the-rise-of-silicon-savannah-and-africas-tech-movement/.*

[66] One of the first submarine cables on Africa's East coast was the East Africa Submarine System, in 2010, in which the International Finance Corporation (IFC) is an investor.

[67] GSMAintelligence.com

[68] Communications Authority Annual Report 2020–21, at https://www.ca.go.ke/wp-content/uploads/2022/04/Annual-Report-for-the-Financial-Year-2020-2021.pdf.

[69] World Bank. 2022. "Global Findex Database, 2021." https://www.worldbank.org/en/publication/globalfindex/interactive-executive-summary-visualization.

[70] In 2019, Kenya had the third highest number of tech hubs (48) in Sub-Saharan Africa, after Nigeria (85) and South Africa (80). *https://www.gsma.com/mobilefordevelopment/blog/618-active-tech-hubs-the-backbone-of-africas-tech-ecosystem/.*

[71] Kenya is ranked 116 in the world and 12 in Africa in the UN DESA 2020 e-Government survey. *https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf*.

[72] Kenyan was ranked 84 worldwide, behind South Africa (70) and Mauritius (71) in Africa.

3.4.13.2 Digital Infrastructure and Access to Broadband

A World Bank digital economy diagnostic study, conducted in 2019[73], revealed gaps in digital infrastructure and access to broadband, especially in rural areas, and a lack of integration in government infrastructure for digital service delivery, and in its platforms and practices. While there are pockets of excellence, nevertheless the study also found wide disparities in digital skills and barriers to scaling up digitally enabled firms and employment opportunities. Sustaining Kenya's digital leadership will require significant private and public investments and forward looking policies to close the broadband connectivity divide. It will also require focused efforts to improve accessibility, uptake, and user experience for e-government services. Likewise, the growing privacy and security risks of the digital era will need to be mitigated to boost trust and uptake of digital transactions and services.

3.5 Guidelines for Developing Baselines for Subprojects

Developing baselines [Environmental and Social Baseline Studies (ESBS)] for KDEAP subprojects is vital in predicting and evaluating potential environmental and social risks and impacts prior to any development. The baseline shall help understand existing environmental and social conditions thus defining the focus of the environmental and impact analysis and resources that need protection through appropriate and viable mitigation measures. Several national and international environmental policies and multilateral lending agencies regulations require description of existing environment that might be affected by potential development. Once specific subproject locations are known, the below guidelines should be followed to understand the baseline environmental conditions prior to development:

3.5.1 Scoping

The early ESBS process should start with a scoping exercise (by a multi-disciplinary team) for key environmental issues to define: a) the key environmental factors; b) baselines for the key factors; and c) project alternatives, including "no project" option. Inputs from consultations with NEMA, are also incorporated in the final scoping document. Based on the valued ecosystem components, the ESBS scope should cover, but not limited to the following: Climatic conditions; Drainage and water resources; Soils; Flora; Faunal studies; Air quality issues; Noise quality; Land use and tenure systems; and Socio-economic aspects.

A comprehensive work plan is then drawn outlining details of the key environmental and social aspects to be considered, methods to be used for baseline data collection, the various stakeholders to be consulted, estimated human and financial resources required and time allocation for the various components of the ESBS.

3.5.2 Methods of Baseline Data Collection

Baseline environmental and social information should be assembled using:

- Collection and analysis of existing data;
- Carrying out specific field studies to acquire supplementary data to help in prediction of impacts of the subproject project and its alternatives, and to identify potential trade- offs in ESIA studies; and
- Community consultation.

[73] Key findings are featured in the 20th edition of the Kenya Economic Update. See: *http://documents.worldbank.org/curated/en/968481572468094731/pdf/Kenya-Economic-Update-Securing-Future-Growth-Policies-to-Support-Kenya-s-Digital-Transformation.pdf*.

3.5.2.1 Review of existing data and sources

Before embarking on an extensive and costly field studies, maximum effort should be directed at determining the numerical and spatial data that already exist and can be used in describing the baseline environmental conditions in the subproject area.

Existing data sources include:

- GOK databases and routine monitoring programs – review scope and extent of these programs and re-focus studies to include areas and parameters relevant to ESBS;
- Historical environmental studies in the subproject area – review all available scientific and technical literature including unpublished information from academic and civil society groups active in the area of study for use in the ESBS;
- Experience gained from similar subprojects – useful in focusing baseline studies on key issues of concern;
- Aerial photographs and satellite images – useful in determining the historical land use changes, which have occurred in the area and prediction of additional cumulative impacts of the subproject development on various features of the landscape; and
- Traditional knowledge – local communities possess profound and refined knowledge of the spatial and temporal distribution of wildlife and their ecological relations often lacking in scientific literature. This is useful in understanding social-cultural impacts of subproject development, which affect the subsistence economy and continuous relationship of the indigenous people to land.

3.5.2.2 Field studies

Field studies are required to fill in data gaps realized from review of the existing information or to provide more focused information for the ESBS.

Field sampling programs for baseline studies is designed with an aim of providing sufficient information to assist in impact predictions and developing a reference base to guide and test future subproject monitoring programs. The level of detail and scope are tailored to meet the needs of the proposed subproject.

3.5.2.3 Community consultation programmes

The community consultation programs are aimed at creating awareness and ensuring early involvement and active participation of the local communities living in the subproject area and other stakeholders, which may be directly affected on implementation of the subproject.

The consultations between community leaders and ICTA/proponent representatives should be confined to key issues of concern. The local people including administration, elders, women, PWDs, and the youth, should be consulted and given a chance to articulate their concerns, fears and offer environmental solutions for consideration in subpproject planning, design, and implementation. An appropriate feedback mechanism on issues raised should be established and maintained to avoid suspicions and ensure smooth implementation of the proposed subproject.

3.5.3 Impact Prediction

3.5.3.1 Impacts types

The potential impacts of subprojects fall in broad categories that include: physical, biological, and social economic impacts. The physical impacts may vary from soil erosion due to civil works, air emissions, noise emissions, solid and e-waste generation, etc. The biological impacts may include loss of sensitive habitats through vegetation clearance and sedimentation. The socio-economic issues may range from provision of employment opportunities and loss of access to productive assets.

Impact prediction is therefore fundamental to ESBS as well as ESIAs and should consider direct or primary impacts as a result of the subproject implementation, indirect or secondary impacts, which are knock-on effects in the same project location or other adjacent areas, cumulative impacts that accrue over time and space from many developments, and possible impact interactions between different impacts of a proposed project. In general, impacts may be positive (beneficial) or negative (adverse), short-term or long-term, reversible or irreversible, permanent or temporary.

To be able to make logical impact predictions, a good understanding of the nature of the proposed subproject, similar projects including effectiveness of impact mitigation measures, and other projects that may cause interactive or cumulative impacts, is required. For example, the experience gained in NOFBI project has been used widely as a model case while carrying out ESBS, ESIAs, monitoring and evaluation of impacts of last mile optic fiber cable (OFC) projects across Kenya.

3.5.3.2 Methods of impact prediction and significance evaluation

Impact prediction is not an exact science irrespective of the method used. The uncertainties should therefore be clearly stated in the final EBS document. Direct impacts are often easy to predict unlike indirect or cumulative impacts.

Several standard techniques to aid in impact predictions are available and include: Checklists, Matrices, Networks and Flowcharts, Mathematical/Statistical Models, Maps and Geographical Information System (GIS) and Environmental Risk Assessment (ERA). Checklists and Matrices are commonly used for most of the ESBS conducted during OFC projects.

Statistical weightings of impact magnitude, sensitivity and recoverability of relevant receptor are used to quantitatively derive impact significance.

3.5.3.3 Mitigation and baseline monitoring

The mitigation measures are to avoid, minimize, remedy or compensate for the predicted impacts. Examples:

- Alternative broadband connectivity e.g., Starlink negates the need for excavations and is cost effective, etc.;
- Changes in construction time and methods e.g., avoiding night operations to minimize disturbances due to traffic and noise emissions;
- Off-site disposal of construction and operational waste (waste oil) to minimize both construction and operational impacts;
- Compensation for irreversible or permanent losses e.g., land, sensitive habitats; and
- Enhancement of positive impacts.

Baseline monitoring is necessary for effective feedback for specific environmental aspects e.g. air quality and ambient noise levels. The monitoring program often lasts for many years to be able to establish the natural dynamic variations and not only “snapshots” of the environmental conditions at a particular moment in time.

3.5.3.4 Presentation of EBS Report and findings

The ESBS report should be comprehensive, precise and accurate with uncertainties clearly stated. Impact predictions are critical and should include both potential negative and positive impacts of subproject development. Emphasis needs to be given to positive environmental impacts and ways of enhancement. Use of graphics in presentations is recommended.

4 ANTICIPATED ENVIRONMENTAL AND SOCIAL IMPACTS/RISKS AND MITIGATION

4.1 Overview

The predicted impacts to the physical, biological, and socio-economic environment because of the Project is described in this Chapter. This Chapter also details potential mitigation measures to avoid, minimize, reduce, remedy, or compensate for potentially negative impacts, and enhance potential benefits of the Project. Furthermore, this Chapter provides a prediction of the residual impacts that will remain, assuming that the appropriate mitigation measures are implemented.

The impact assessment laid out in this Chapter is as follows:

- Each section begins with the type of impact being assessed (e.g., Section 4.3.1 – Terrestrial habitat alteration, and Section 4.3.2 – Aquatic habitat alteration, etc.).
- Background information relating to the impact is then provided. This includes a description of the baseline environment that will be affected, the Project aspect or activities that will cause the impact and a description of the effected receptors.
- The significance of the impact pre-mitigation is then assessed and rated through use of a rating table. However, the impact significance assigned in this ESMF is not prescriptive and will vary depending on local baseline conditions.
- Following the pre-mitigation rating tables, a section describing the recommendations and mitigation/management measures are provided.
- Once the recommended mitigation/management measures are provided, a residual impact (post-mitigation) is rated through use of a less detailed rating table.

4.2 Impact Assessment Methodology

4.2.1 Impact Assessment Process

The purpose of impact assessment is to identify and evaluate the significance of potential impacts on identified receptors and resources according to defined assessment criteria and to develop and describe mitigation measures that will be taken to avoid or minimize any potential adverse effects and to enhance potential benefits.

The impacts of the Project were identified based on the findings of stakeholder consultation, the existing baseline conditions, the proposed Project activities, and professional knowledge of the consultants. Impacts are first distinguished as either positive or negative.

4.2.2 Definition of Key Terminology

Project - The features and activities that are a necessary part of the Project Proponent's development plans without which the Project cannot proceed. The Project is also the collection of features and activities for which authorization is being sought.

Project Site - The (future) primary operational area for the Project activities.

Project Footprint - The area that may reasonably be expected to be directly affected by Project activities, across all phases. The Project Footprint includes land used on a temporary basis such as construction lay down areas, materials yards, borrow pits or construction haul roads, as well as disturbed areas in transport corridors, both public and private.

Area of Influence (AOI) - The area where impacts could reasonably be expected.

Project Area - Also referred to as the Study Area (Kenya) is the area that needs to be studied to adequately understand and describe the baseline likely to be affected by the Project. The Project Area encompasses the Project Footprint, Project Site, and the Area of Influence.

4.2.3 Impact Types and Definitions

An impact is any change to a resource or receptor brought about by the presence of a Project component or by the execution of a Project related activity. The evaluation of baseline data provides crucial information for the process of evaluating and describing how the Project could affect the bio- physical and socio-economic environment.

Impacts are described according to their nature or type, as summarized in Table 4- 1.

Table 4- 1 Impact Nature and Type

Nature or Type	Definition
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.
Direct impact	An impact that results from a direct interaction between a planned project activity and the receiving environment/receptors (e.g., between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect impact	An impact that results from other activities that are encouraged to happen because of the Project (e.g., in-migration for employment placing a demand on resources).
Induced impact	An impact that results from other activities (which are not part of the Project) that happen because of the Project (e.g., influx of camp followers resulting from the importation of a large Project workforce).
Cumulative impact	An impact that acts together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project.

4.2.4 Assessing Significance

Impacts are described in terms of 'significance'. Significance is a function of the magnitude of the impact and the sensitivity/vulnerability/importance of resource/receptor.

4.2.4.1 Determining Impact Magnitude

Impact magnitude (sometimes termed severity) is a function of the type, extent, duration, scale, and frequency of the impact. These characteristics apply to both planned and unplanned events/impacts and are briefly described in Table 4- 2.
An additional characteristic that pertains only to unplanned events is likelihood. The likelihood of an unplanned event occurring is designated using a qualitative scale, as described in Table 4- 3.

Table 4- 2 Impact Characteristics Methodology

Characteristic	Definition	Designations
Type	A descriptor indicating the relationship of the impact to the Project (in terms of cause and effect) as explained in Table 4-1.	• Direct • Indirect • Induced
Extent	The "reach" of the impact (e.g., confined to a small area around the Project Footprint, projected for several kilometers, etc.).	• Local - impacts that affect an area in a radius of 20km around the development site. • Regional - impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem. • International - impacts that cross national borders, affect nationally important environmental resources or affect an area that is nationally important/or have macro-economic consequences.
Duration	The time over which a resource / receptor is affected.	• Temporary - impacts are predicted to be of short duration and intermittent/occasional. • Short-term - impacts that are predicted to last only for the duration of the construction period. • Long-term - impacts that will continue for the life of the Project but ceases when the Project stops operating. • Permanent - impacts that cause a permanent change in the affected receptor or resource (e.g., removal or destruction of ecological habitat) that endures substantially beyond the Project lifetime.
Scale	The size of the impact (e.g., the size of the area damaged or impacted, the fraction of a resource that is lost or affected, etc.)	[no fixed designations; intended to be a numerical value or a qualitative description of "intensity"]
Frequency	A measure of the constancy or periodicity of the impact.	[no fixed designations; intended to be a numerical value or a qualitative description]

Table 4- 3 Definition for Likelihood Designations

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions.
Possible	The event is likely to occur at some time during normal operating conditions.
Likely	The event will occur during normal operating conditions (i.e., it is essentially inevitable).

The overall magnitude of an impact is a combination of the above characteristics. The universal magnitude designations are:

- Negligible;
- Small;
- Medium; and
- Large.

4.2.4.2 Determining sensitivity/vulnerability/ importance of resource/receptor

There are a range of factors to be considered when defining the sensitivity/vulnerability/ importance of the resource/receptor, which may be physical, biological, cultural, or human. Other factors may also be considered when characterizing sensitivity/vulnerability/ importance, such as legal protection, government policy, stakeholder views and economic value.

As for the case of magnitude, the sensitivity/vulnerability/importance designations themselves are universally consistent, but the definitions for these designations vary on a resource/receptor basis. The sensitivity/vulnerability/importance designations used herein for all resources/receptors are:

- Low;
- Medium; and
- High.

Table 4- 4 presents an illustrative example of the sensitivity/vulnerability/importance of the resource/receptor.

Table 4- 4 Illustrative Example of Sensitivity/Vulnerability/Importance of the Resource/Receptor

Designation	Receiving environment	
	Biophysical environment	**Socio-economic environment**
Low	The impact affects the environment in such a way that natural functions and processes are not affected.	People/communities can adapt with relative ease and maintain pre-impact livelihoods.
Medium	Where the affected environment is altered but natural functions and processes continue, albeit in a modified way.	People/communities can adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support.
High	Where natural functions or processes are altered to the extent that they will temporarily or permanently cease	Affected people/communities will not be able to adapt to changes or continue to maintain-pre impact livelihoods.

4.2.4.3 Determining Impact Significance

As stated above, Impact Significance is a function of the magnitude of the impact and the sensitivity/vulnerability/importance of resource/receptor. This is the ultimate impact classification. As presented in *Table 4- 5* below, the impact significance can be Negligible, Minor, Moderate or Major.

Table 4- 5 Impact Significance

		Sensitivity/Vulnerability/Importance of Resource/Receptor		
Magnitude		**Low**	**Medium**	**High**
	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	High	Moderate	Major	Major

Table 4- 6 below presents a brief description of the different categories of Impact Significance.

Table 4- 6 Significance Definitions

Significance Level	**Definition**
Negligible	An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible' or 'imperceptible' or is indistinguishable from natural background variations.
Minor	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value.
Moderate	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that 'moderate' impacts must be reduced to 'minor' impacts, but that moderate impacts are being managed effectively and efficiently.
Major	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. A goal of the ESIA process is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects, there may be major residual impacts after all practicable mitigation options have been exhausted (i.e., ALARP has been applied). An example might be the visual impact of a development. It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors such as employment, in coming to a decision on the Project.

4.2.4.4 *Identification of Mitigation and Enhancement Measures*

For activities with significant impacts, the ESIA process is required to identify, in collaboration with the ICTA/Proponent, suitable and practical mitigation measures that can be implemented. Mitigation that can be incorporated into the Project design, to avoid or reduce the negative impacts or enhance the positive impacts, have been defined and require final agreement with the ICTA/Project Proponent as these are likely to form the basis for any conditions of approval by NEMA. The implementation of the mitigation is ensured through compliance with the Environmental and Social Management and Monitoring Plan (ESMMP).

4.2.4.5 *Residual Impact Evaluation*

After first assigning significance in the absence of mitigation, each impact is re-evaluated assuming the appropriate mitigation measure(s) is/are effectively applied, and this results in a significance rating for the residual impact.

Note: It is important to note that positive impacts are not rated, they are merely stated. It is considered sufficient for the purpose of the Impact Assessment to indicate that the Project is expected to result in a positive impact, without characterizing the exact degree of positive change likely to occur.

4.3 Construction Related Impacts

4.3.1 Terrestrial Habitat Alteration

Terrestrial habitats may be altered primarily during the construction [Extending the Reach of the Backbone Networks (middle mile) and Increasing Last Mile Connectivity for Education] depending on the type of infrastructure component and proposed location. Potential adverse impacts may result from several activities such as vegetation clearing, trenching, and increased human traffic along previously undeveloped land.

The main sensitive receptors to this impact are fauna, flora, and life support systems at the subproject sites across the country.

Based on the analysis provided above, the impact on terrestrial habitats will be "**Moderate Negative Impact**" pre-mitigation as summarized below.

Type of impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The impacts on habitats are expected to be restricted to the Project footprint.
Duration	Short-term	Adverse effects will cease after the construction phase.
Scale	Medium	This impact will be manifested within the Project footprint (approximately 100,000 km).
Frequency	Continuous	Impact will be manifested throughout the construction phase.
Magnitude		
Medium		

Sensitivity/Vulnerability/Importance of the Resource/Receptor
High sensitivity
Some subproject sites may hold conservation value.
Significant Rating Before Mitigation
Moderate Negative Impact

Recommended Mitigation/Management Measures:

- Site fixed line infrastructure (e.g., fiber optic cable) and other types of linear infrastructure rights-of-way, access roads, lines, and towers to avoid critical habitat through use of existing utility and transport corridors (road reserves), whenever possible;
- Avoidance of construction activities during the breeding season and other sensitive seasons or times of day;
- Develop biodiversity management plan (BMP) for protected areas; and
- Revegetation of disturbed areas with native plant species.

Based on the implementation of the proposed mitigation measures, the significance of the impacts on terrestrial habitats will be "**Minor Negative Impact**" post-mitigation as per the summary below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The impacts on habitats are expected to be restricted to the Project footprint.
Duration	Short-term	Adverse effects will cease shortly after construction phase.
Scale	Minor	With adequate management measures in place, the extent of this impact will be reduced to low levels.
Frequency	Rare	Impact will be avoided or occur rarely.
Magnitude		
Small		
Significant Rating Before Mitigation		
Minor Negative Impact		

4.3.2 Aquatic Habitat Alteration

Aquatic habitats may also be altered when constructing corridors crossing aquatic habitats with the potential to disrupt watercourses, wetlands, and riparian vegetation. Another negative impact on aquatic habitats may be due to sedimentation by eroded soils. Loose soils occasioned by vegetation clearing, trenching, and increased human traffic along previously undeveloped land.

Based on the analysis provided above, the impact on aquatic habitats will be "**Moderate Negative Impact**" pre-mitigation as summarized below.

Type of impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The impacts on aquatic habitats are expected to be restricted to those within the Project footprint.
Duration	Permanent	Adverse effects will last the entire project cycle
Scale	Medium	This impact will be manifested within the Project footprint.
Frequency	Continuous	Impact will be manifested throughout the construction phase.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium sensitivity. Some aquatic habitats may never recover from adverse impact.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

Recommended Mitigation/Management Measures:

- Develop BMP for areas where significant impacts are expected (based on screening results);
- Site project infrastructure to avoid critical aquatic habitat such as watercourses, wetlands, and riparian areas, as well as fish spawning habitat, whenever possible;
- Maintaining fish access when road crossings of watercourses are unavoidable by utilizing clearspan bridges, open-bottom culverts, or other approved methods;
- Minimizing clearing and disruption to riparian vegetation;
- Careful planning of timing of works (overall duration and seasonality, specially avoiding works during the rainy season if possible); and
- Minimization of cleared areas and soil disturbance, with revegetation as soon as feasible with species adapted to local conditions when applicable.
- Management of construction site activities as described in the relevant sections of the General EHS Guidelines.

Based on the implementation of the proposed mitigation measures, the significance of the impacts on aquatic habitat will be "**Minor Negative Impact**" post-mitigation as per the summary below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The impacts on habitats are expected to be restricted to the Project footprint.
Duration	Short-term	Adverse effects will cease shortly after construction phase.
Scale	Minor	With adequate management measures in place, the extent of this impact will be small.

Frequency	Rare	Impact will be avoided or occur rarely.
Magnitude		
Small		
Significant Rating Before Mitigation		
Minor Negative Impact		

4.3.3 Water and Soil Pollution and Landscape Degradation

Trenching and vegetation clearing may create exposed sites. Sediment-laden runoff from cleared areas could impact water quality of downstream watercourses. Release of hazardous substances associated with construction and maintenance activities or with transport of materials (e.g., accidental spills and leaks), may lead to soil, surface, or groundwater contamination. Inefficient waste management during construction and maintenance activities may lead to inadequate disposal of solid (domestic and construction) and liquid wastes that may pollute soils and watercourses, and visually degrade natural and man-made landscapes.

The sensitive receptors to these impacts are soil and water resources that may be used by the local communities for agricultural production and consumption respectively.

Based on the analysis provided above, the impact on water, soil and landscapes will be "**Moderate Negative Impact**" pre-mitigation as summarized below.

Type of impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Regional	The adverse impact will go beyond the Project footprint.
Duration	Medium-term	Adverse effects will occur beyond the construction phase.
Scale	Medium	This impact will be manifested within the Project footprint.
Frequency	Continuous	Impact will be continuously felt beyond the construction phase.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Communities will be highly sensitive to any pollution and soil contamination in their area.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

Recommended Mitigation/Management Measures:

- Train workers on waste handling and segregation;
- Segregated waste storage containers with appropriate signs (hazardous or non-hazardous) shall be provided throughout construction phase;

- No garbage, refuse, oily waste, fuel, waste oil or removed/excess materials (e.g., asphalt, sidewalks, metal scrap, etc.) shall be discharged into drains, onto site grounds, natural areas, or watercourses;
- If feasible, reuse of removed/demolished materials (e.g., asphalt, sidewalks, metal scrap, etc.) or donate to local community. In addition, careful selection of adequate sites for final disposal of removed/excess materials not reused or donated;
- Implementation of appropriate storage and containment areas (e.g., bunded area with impervious —polyliner or similar) for both new and waste fuel, oil, and hazardous materials to prevent and contain any spillage and leaks;
- Prompt removal and safe disposal of soil contaminated with hydrocarbons;
- Hazardous and oil waste shall be collected and disposed by NEMA licensed waste handlers;
- Implementation of hazardous materials handling and control procedures (e.g., identify chemical products and store in storage area with restricted access, keep track of movement of each chemical, etc.);
- Keep records of waste generation (i.e., type of waste; hazardous or non-hazardous; weight or volume; properties; destination; date; etc.);
- Maintenance and cleaning of vehicles, trucks and equipment should take place offsite, and prohibition of vehicle washing in watercourses; and
- Toilet facilities shall be provided for construction workers to avoid indiscriminate defecation in nearby bushes. **See soil erosion above** for control of water pollution due to released sediments from disturbed construction sites.

With implementation of the above measures, the impact on water, soil and landscapes will be "**Minor Negative Impact**" post-mitigation as summarized below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The adverse impact will be restricted to Project footprint.
Duration	Short-term	Adverse effects will be restricted to the construction phase.
Scale	Small	This impact will be manifested at specific sites within the Project footprint.
Frequency	Rare	Impact will be avoided or occur rarely.
Magnitude		
Small		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Significant Rating Before Mitigation		
Minor Negative Impact		

4.3.4 Biosecurity Risk

The fiber optic cables will need to be imported as they are not locally manufactured in Kenya. Imported cables and equipment can harbor plant and animal species (invasive species) which may pose a threat to Kenya's biodiversity and ecosystems.

The Convention on Biological Diversity (CBD) defines an invasive alien species (IAS) as one that is established outside of its natural past or present distribution, and whose introduction and/or spread threatens biological diversity[74]. The IUCN Red List of Threatened Species[75] rates the presence of invasive alien species globally as the second most significant threat to biodiversity[76], and there is a growing global awareness of the problems associated with alien and invasive species. Alien species can be introduced either accidentally or intentionally. Although only a small percentage of alien species have the potential to become invasive, their impact is marked and usually is irreversible, displacing native species and leading to degradation of habitats. However, given that the Project activities will mostly be conducted on road reserves with no conservation concern, the threat of IAS is low if Project materials and equipment are not transported to and stored in conservation areas.

Mitigation measure: All materials and equipment must be fumigated, and official certificates issued prior to arrival at the port to ensure no plant or animal pests are accidently introduced. On arrival at the port of entry, the materials and equipment must be inspected by Kenya Plant Health Inspectorate Service (KEPHIS) to protect from pests, weeds, and invasive species[77].

4.3.5 Impact on Employment, Procurement, and the Economy

The Project will create both direct and indirect employment opportunities across different skills levels (unskilled, semi-skilled and skilled). The Project, during construction, among others, will employ skilled drivers with relevant defensive driving training, engineers, environmentalists and sociologists, surveyors, and ICT compliance teams. Unskilled labourers, during construction, will mainly be community members and shall ensure safe offloading activities, trenching, backfilling, laying of ducts, warning tape installation, cable pulling, pole installation, traffic management along routes of interest. As such, Project impacts include:

- Creation of temporary jobs during the laying of optical fiber cable, and the installation and upgrade of ICT equipment and services. To enhance this positive impact, unskilled labor will be recruited exclusively from local communities, and semi-skilled labor will be recruited preferentially from such communities, if they have the requisite qualification, competence, and desired experience; and
- Temporary enhancement of local economic activity along the routes where the optical fiber will be laid, and ICT equipment and services will be installed, because of increased demand of materials, supplies, and goods from Contractors (e.g., aggregates, fuel, etc.) and workers (e.g., food, clothing, etc.). To enhance this positive impact, the Project will promote local procurement where technically and commercially reasonable and feasible. In addition, Contractors shall procure aggregates (sand, gravel, crushed stone, etc.) from licensed sources to avoid environmental degradation.

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[74] Convention for Biological Diversity, invasive species page. Available at: *https://www.cbd.int/invasive/WhatareIAS.shtml*

[75] IUCN Red List of Threatened Species. Available at *http://www.iucnredlist.org/*

[76] IUCN Website, invasive species page. Available at: *https://www.iucn.org/theme/species/our-work/invasive-species*

[77] *http://www.kephis.org/index.php/about-us/about-kephis*

These impacts support Kenya government, UN, and World Bank goals of reducing poverty, increasing economic development and opportunity for all, and enabling social changes through universal internet access.

Type of Impact
Positive Impact
Direct and indirect employment opportunities and the procurement of construction materials, goods and services, and combined multiplier effect of this economic growth will result in increased incomes for successful candidates and their local communities; promoting some degree of an increase in standards of living.

To enhance this positive impact, the following management measures will be implemented:

- Implement the labour management procedure (LMP) for the Project;
- ICTA/contractors should prioritize the recruitment of workers (unskilled, semi-skilled) from the local communities, where available;
- ICTA/Contractors should notify identified representatives of the County Government and local administration (i.e., the Area Chief) of the specific jobs and the skills required for the Project, during the recruitment process;
- Advertisements on the employment and procurement opportunities during the construction phase should be placed at the Chief's Office notice board. If the position cannot be filled from within the Subproject Area, it will be advertised further country-wide then nationally;
- No recruitment is to take place on the Subproject site. This is particularly important with respect to casuals and managing labour influx; and
- ICTA/Contractor should aim at procuring locally available materials where feasible and use local suppliers where appropriate.

4.3.6 Impacts on Local Air Quality

Several construction activities such as vegetation clearing, trenching, backfilling, and increased human traffic along previously undeveloped land have the potential to generate dust. Again, transportation of Project materials on unpaved roads and other access roads will likely lead to a rise in nuisance and particulate dust.

In addition, exhaust emissions from construction equipment and machinery are expected to include CO2, NO2, SO2 and Volatile Organic Compounds (VOCs) from diesel/ petrol engines.

The main sensitive receptors are communities next to subproject sites and construction workers.

Based on the analysis provided above, impacts on local air quality during the construction phase will be **"Moderate Negative Impact"** pre-mitigation as per the assessment below.

Type of impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The emissions to air will be localized within the project footprint.
Duration	Short-term	Effects will cease shortly after construction.

Scale	Medium	This impact will be manifested within the Project footprint. However, if the emissions exceed the maximum levels permitted in the EMCA (Air Quality) Regulations, 2014 and IFC guidelines (Chapter 3) at source, this will pose health concerns to receptors, and will result in a breach of relevant legal requirements.
Frequency	Continuous	This impact will be manifested throughout the construction phase
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Local communities and construction workers will be affected by any non-compliance		
Significant Rating Before Mitigation		
Moderate Negative Impact		

Recommended Mitigation/Management Measures:

- Whenever dust generation at construction sites becomes a problem:
  - Water spraying to suppress dust shall be undertaken; and
  - Truck drivers should be sensitized on and ensure they observe speed limits on earth roads to reduce dust generation.
- Contractor should only operate well-maintained construction machinery, vehicles, and trucks, and implement a routine maintenance program for all vehicles and trucks; and
- Engines of vehicles, trucks and earth-moving machinery shall be switched off when not in use;
- The smallest possible area for cleared ground required for construction work should be exposed;
- Issue all project workers with appropriate Personal Protective Equipment (PPE) including dust masks where required;
- Develop and implement an appropriate Traffic Management Plan (TMP) throughout the construction phase; and
- Keep local communities up to date with the construction programme and activities.

With the implementation of the above mitigation measures, the significance of the impact on local air quality will be **"Negligible Negative Impact"** post-mitigation per the assessment below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The emissions to air will be localized to civil works sites.
Duration	Short-term	Effects will cease shortly after construction phase.
Scale	Small	The concentration of emissions will be kept below the maximum levels permitted in the EMCA (Air Quality) Regulations, 2014 and IFC guidelines (Chapter 3).
Frequency	Continuous	This impact will be manifested throughout the construction phase
Magnitude		

Negligible Magnitude
Significant Rating After Mitigation
Negligible Negative Impact

4.3.7 Impact on Sexual Exploitation and Abuse, and Sexual Harassment (SEA/SH) and Gender-Based Violence (GBV)

One (1) in three (3) Kenyan females has experienced sexual violence before attaining the age of 18, and between 39% and 47% of Kenyan women experience GBV in their lifetime. The project is expected to have civil works across Kenya (the SEA/SH risk is high for work sites within schools and hospitals).

ICTA is currently Implementing two World Bank-financed projects with similar activities to KDEAP. These are: Eastern Africa Regional Transport and Trade Development Facilitation Project (EARTTDFP, P145583) and the Horn of Africa Gateway Development Project (HoAGDP, P161305) where ICTA is a key implementing agency. Both projects are implementing the WBG GBV Good Practice Note. During the last six years of implementation of these projects, the WBG has continuously provided targeted training to ICTA staff as well as associated contractors and supervising engineers. Under the EARTTDFP for the last six years there have not been any SEA/SH cases reported involving ICTA-related works. Further, ICTA has a Gender and Sexual Exploitation and Abuse Policy and a separate Gender Mainstreaming Policy. In the institution, there exists a Gender Committee and a Gender Focal Point responsible for the management of SEA/SH risks for the Authority.

Moreover, KDEAP has developed a SEA/SH Action Plan which provides the following mitigation measures for SEA/SH:

- Contractors' workforce on all sites including schools will be lean, trained and well supervised minimizing the SEA/SH risks for the project;
- All supervision consultants and contractor's workers will include full-time social and gender experts and community liaison officers;
- All workers will sign a code of conduct;
- SEA/SH training for ICTA staff, supervision consultants staff and the contractor's workers will continue throughout project implementation;
- SEA/SH mitigation measures will be incorporated into the Environmental and Social Management Plans (ESMPs);
- Stakeholders' consultations will properly inform communities and stakeholders of the project on SEA/SH risks;
- The project GRM will provide multiple channels to initiate complaints, including specific procedures for SEA/SH related complaints including confidential reporting with safe and ethical documentation of SEA/SH; and
- The project will maintain SEA/SH staff for PIU, Supervision Consultants and Contractors.

4.3.8 Impact on Noise Environment and Vibration

Supproject sites will mostly be in rural areas where potential sources of noise and vibrations may include markets, schools, health facilities, judicial bodies, and other government offices noise, and light motor traffic along access roads. The ambient noise at subproject sites is, therefore, influenced by educational, health, and light commercial activities across the country.

The main source of noise and vibrations will be attributed to construction machinery and construction vehicles that will be used during the construction phase.

The main sensitive receptors are local communities, schools, health facilities, judicial bodies, and construction workers.

Based on the above analysis, the impact on noise environment and vibration during construction phase will be "**Moderate Negative Impact**" pre-mitigation as per the below table:

Type of impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The noise and vibrations will be localized and limited to subproject sites.
Duration	Short-term	Negative effects will cease after construction phase.
Scale	Small	The noise and vibrations generated not exceed the maximum levels permitted in the EMCA (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 and IFC guidelines.
Frequency	Continuous	Noise and vibrations will be generated throughout the construction phase (daytime); however, no noise will be generated at night since construction activities are expected to be limited to daytime activities only.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Significant Rating Before Mitigation		
Moderate Negative Impact		

Recommended Mitigation/Management Measures:

- The Contractor shall implement best driving practices when approaching and leaving construction sites to minimize noise generation created through activities such as unnecessary acceleration and breaking;
- Strict control of timing of activities within authorized working hours, including banning work at night;
- Minimize noise levels and vibrations (e.g., sound insulation, select equipment with lower sound power levels, install acoustic enclosures for equipment, install suitable mufflers on engine exhausts and compressors components); and
- Issue all project workers with appropriate Personal Protective Equipment (PPE) including earmuffs where required.

With implementation of the recommended mitigation measures, the significance of the impact on noise environment and vibration will be a **"Minor Negative Impact"** post-mitigation per the assessment below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The noise and vibrations will be localized within the construction site
Duration	Short-term	Effects will cease shortly after construction phase
Scale	Small	The noise and vibration levels is likely to be less than 55 dB(A) – to be confirmed by monitoring, and in conformance to the EMCA (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 and IFC guidelines.
Frequency	Intermittent	Noise and vibrations will only be generated when Project equipment and machinery are being operated. No Project associated noise will be generated at night.
Magnitude		
Small		
Significant Rating After Mitigation		
Minor Negative		

4.3.9 Solid and e-Waste Generation

The Project activities will be associated with several wastes ranging from general construction packaging waste including pallets and plastics from construction materials, electrical and mechanical equipment, earth material from excavations, hazardous waste such as paint residues and any fuel or oil leakages) and domestic waste that will be generated during the construction process.

In addition, effluent waste will be generated in the form of both grey and black water by the construction workforce. If the generated waste is not well managed, it will cause a nuisance and become of a hygiene concern at subproject sites.

The sensitive receptors to poor solid waste and e-waste management will be local communities within the subproject sites, construction workers as well as nearest water bodies.

Based on the analysis provided above, the impacts on biodiversity will be a "**Moderate Negative Impact**" pre-mitigation as summarized below.

Type of impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	This impact will only be manifested within the Project footprint.
Duration	Medium-term	If appropriate waste management measures are not put in place, the impacts of poor waste management will continue to be manifested even after the construction phase.
Scale	Medium	The scale of this impact refers to the amount of waste that is likely to be generated.

Frequency	Continuous	Wastes will be generated daily throughout the construction phase.

Magnitude

Medium

Sensitivity/Vulnerability/Importance of the Resource/Receptor

Medium

Any poor waste management practices will be of a major concern within the Project footprint.

Significant Rating Before Mitigation

Moderate Negative

Recommended Mitigation/Management Measures:

- Ensure implementation of sub-component 2.2 that deals with e-waste management;
- Use the Environmental Code of Practice for e-Waste Management included in this ESMF, *Annex E* to develop and implement waste management plans that provide temporary storage on site for both non-hazardous and hazardous or toxic substances in safe containers labelled with details of composition, properties and handling information. The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching. The wastes shall be transported by reputable licensed vendors, disposed in a licensed facility (ies) and as per statutory requirements;
- Waste generated by the project from excavation shall be reused for backfilling and landscaping; and
- Solid wastes that cannot be recycled or reused shall be segregated at source into e-waste, hazardous and non-hazardous waste then disposal conducted through NEMA licensed solid waste handlers.

With implementation of mitigation measures, the significance of the project's impacts on solid waste and e-waste will be a "**Minor Negative Impact**" post-mitigation as per the summary below.

Rating of Impact

Characteristic	Designation	Justification of Choice
Extent	Local	This impact will only be manifested within the Project footprint.
Duration	Short-term	With application of appropriate waste management measures, the impact of poor waste management will cease to manifest shortly after the construction phase.
Scale	Small	The scale of this impact refers to the amount of waste that is likely to be generated. With the application of appropriate waste management measures including the application of the waste management hierarchy, less waste will be generated.
Frequency	Daily	Wastes will be generated daily throughout the construction phase.

Magnitude

Small

Significant Rating After Mitigation

Minor Negative Impact

4.3.10 Labour and Working Conditions [Including Occupational Health and Safety (OHS)]

The Project will create both direct and indirect employment opportunities across different skills levels (unskilled, semi-skilled and skilled) across the country. The Project, during construction, among others, will employ skilled drivers with relevant defensive driving training, engineers, environmentalists and sociologists, surveyors, and ICT compliance teams. Unskilled labourers, during construction, will mainly be community members and shall ensure safe offloading activities, trenching, backfilling, laying of ducts, warning tape installation, cable pulling, pole installation, traffic management along routes of interest.

Sensitive receptors will be Project employees. Given the wide Project footprint, and the fact that some of these workers will have previously worked at already completed ICT infrastructure projects by ICTA or private telcos, these workers will at least have a fair understanding of general construction conditions and common construction related OHS risks and how they can be minimised.

Labour and working conditions, including occupational health and safety, will need to be considered to avoid any occupational incidents and/or injuries. Issues that need to be considered include: fair treatment of workers, non-discrimination, equal opportunities, as well as the provision of a safe and healthy working environment. These issues should be considered not only for those employed directly by the ICTA/Proponent, but also employees of the Contractor and any other sub-contractors during the construction phase.

Without careful OHS management, the workforce employed may be exposed to OHS risks, potentially resulting in occupational accidents and injury or death. Some of this OHS risks are:

- **Electrical Safety –** Telecommunications workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities;
- **Optical Fiber Safety –** Workers involved in fiber optic cable installation or repair may be at risk of permanent eye damage due to exposure to laser light during cable connection and inspection activities;
- **Elevated and Overhead Work –** The assembly of towers and installation of antennae can pose a physical hazard to workers using lifts and elevated platforms and those located below due to the potential for falling objects;
- **Fall Protection –** Workers may be exposed to occupational hazards when working at elevation during construction, maintenance, and operation activities;
- **Confined Spaces and Excavations –** The type of confined spaces encountered in telecommunications projects varies but may include underground fixed line infrastructure co-located with other underground infrastructure in urban areas. Ditches and trenches may also be considered a confined space when access or egress is limited; and
- **Motor vehicle safety –** The geographically dispersed nature of the infrastructure of some telecommunications operators may require the frequent use of ground transportation for maintenance activities.

Labour laws in Kenya are aligned with international labour laws, and Kenya has ratified seven of the eight core ILO conventions, including:

- Right to Organise and Collective Bargaining Convention, 1949 (No. 98);
- Forced Labour Convention, 1930 (No 29);
- Abolition of Forced Labour Convention, 1957 (Mo 105);
- Minimum Age Convention, 1973 (No 138);
- Worst Forms of Child Labour Convention, 1999 (No 182);

- Equal Remuneration Convention, 1951 (No 100); and
- Discrimination (Employment and Occupation) Convention, 1958 (No 111).

It is important to note that while the labour laws exist, there are issues with regards to their implementation. Also due to the lack of employment in Kenya, workers are willing to sacrifice their rights to secure employment. There is therefore the risk that the Contractor and sub- contractors will not operate in line with international best practice if measures to manage such risks are not enforced.

With regards to on-site worker welfare, the Contractor will be required to adhere to WBG ESS 2: Labour and Working Conditions, Kenyan Labour Law and the ratified ILO conventions.

Based on the analysis provided above, impacts to exposure of the workforce to poor labour and working conditions will be a **"Moderate Negative Impact"** pre-mitigation as per the assessment below.

Type of impact		
Direct Negative		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The impact is only relevant for the workforce (including direct, third party and supply chain workers) all of whom are at a subproject level (although a few of them may come from elsewhere in Kenya or globally).
Duration	Medium-term	Generally, the implications of inadequate labour and working conditions will cease to manifest after the construction phase; however, some of the effects such as major injuries will continue to affect the concerned individuals.
Scale	Large	This impact will affect a proportion of over 500 workers estimated to be employed at the Project during the peak of the construction phase. Some of the emanating impacts such as major injuries can be severe including loss of life which can significantly affect households and communities' ability to maintain their quality of life and livelihoods.
Frequency	Intermittent	Impact is likely to occur/recur intermittently throughout the construction phase.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium sensitivity		
Project workers will be sensitive to any inadequate labour and working conditions at the Project.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

Recommended Mitigation/Management Measures:

The Project will ensure adequate and appropriate measures are put in place for Contracted workers including establishing and maintaining safe working environment, carrying out OHS hazards risks assessments for the different tasks,

Management System

- Implement the Project's Labour Management Procedure (LMP) annexed to this ESMF;
- All contractors should develop and implement an Occupational Health and Safety Management System (OHSMS) in line with good industry practice, including the requirements of the WBG ESS 2, and in accordance with Kenya's Occupational Health and Safety Act (OSHA). This OHSMS will need to consider hazard identification, OHS risk assessment and control for different tasks (identify OHS control measures that include the mitigation hierarchy: (i) elimination/substitutions; (ii) engineering controls; (iii) administrative controls; and (iv) OHS training and supervision at the field level), use of Personal Protection Equipment (PPE), incident investigation and reporting, reporting and tracking of near misses, incidents, etc. The management system will also include emergency response plans that tie in with existing emergency response procedures of the ICTA. Roles and responsibilities for the implementation of the OHS Plan should be clearly defined;
- All contractors should have a Human Resources Policy in place that adheres to the requirements of the WBG ESS 2, Kenyan Law and the ILO Core Labour Conventions, to which Kenya is a signatory. The HR policy will include a Labour and Employment Plan, conditions of employment and Worker Grievance Mechanism. These requirements will also be passed on to any sub-contractors. Key aspects of the HR policy which should be included, are the following:
    - Provision of clear and understandable information regarding rights under national labour and employment law, and any applicable collective agreements, including those related to hours of work, wages, overtime, compensation, etc;
    - Provision of reasonable working conditions and terms of employment;
    - Provision of employment, compensation/remuneration and working conditions, including working hours, based on equal opportunity and fair treatment, avoiding discrimination on any aspects;
    - Provision of adequate welfare facilities on site;
    - Implementation of a grievance mechanism;
    - Adoption and implementation of a sexual exploitation and harassment policy; and
    - Adoption of an open attitude towards freedom of association.

Contractor Management

- In all contracts, explicit reference should be made to the need to abide by Kenyan law, international standards (in particular WBG ESS2), ratified ILO conventions and the Project's LMP;
- As part of the contractor and supplier selection process, the ICTA/PIU will take into consideration performance with regard to worker management, worker rights, and health and safety as outlined in Kenyan law and international standards;
- Regular checks should be undertaken to ensure the relevant labour laws and OHS are adhered to at all times.;
- All workers (including those of contractors and subcontractors) should, as part of their induction, receive training on health and safety and should receive updated training routinely, as well as when undertaking new tasks, such as working at heights or working in confined spaces; and
- Daily toolbox talks will be held with the Project workers to discuss the health and safety risks associated with the tasks at hand.

Workers' Rights

- All Contractors should put in place hiring mechanisms to ensure no employee or job applicant is discriminated against on the basis of his or her gender, marital status, nationality, ethnicity, age, health status, religion or sexual orientation;
- All workers (including those of the contractor and subcontractors) will, as part of their induction, receive training on worker rights in line with Kenyan legislation to ensure that positive benefits around understanding labour rights are enhanced. This process will be formalised within the Code of Conduct that will be provided by the contractor;
- All workers (including those of the contractor and subcontractors) will have contracts which clearly state the terms and conditions of their employment and their legal rights. Contracts will be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts must be in place prior to workers commencing work;
- All contractors should put in place a worker grievance mechanism that will be accessible to all workers, whether permanent or temporary, or directly or indirectly employed. The worker grievance mechanism shall be open to all the Project workers if their grievance is not adequately resolved by their direct employer. Workers will also have access to ICTA's grievance management system, to raise any issues with their employer;
- All workers (including those of the contractor and subcontractors) will have access to training on communicable diseases and STDs and community interactions in general. This training will be developed in collaboration with local health institutions; and
- Surveillance and assurance that no children or forced labour is employed directly by the contractor, and to the extent possible by third parties related to the Project and primary suppliers where any such risk may exist.

Specific OHS risks mitigation measures are included in the LMP.

Based on the implementation of the mitigation measures, the significance of the residual impact related to exposure of the workforce to Occupational Health and Safety (OHS) risks will be a **"Minor Negative Impact"** post-mitigation as per the assessment below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	The impact is only relevant for the workforce (including direct, third party and supply chain workers) all of whom are at a local level (although they may come from elsewhere in Kenya or globally).
Duration	Long-term	The implications of poor health and safety practices can be severe including loss of life which can significantly affect households and communities' ability to maintain their quality of life and livelihoods.
Scale	Small	With the implementation of the management measures, the number of Project workers exposed to OHS risks will be very small.
Frequency	Rare	With the implementation of the management measures, exposure of Project workers to OHS risks will be rare.
Magnitude		
Small		
Significant Rating After Mitigation		
Minor Negative Impact		

4.3.11 Traffic Congestion, Creation of Hazardous Driving Conditions and Obstruction of Access

Potential traffic congestion, creation of hazardous driving conditions and obstruction of access to homes, businesses and community services during trenching and cable laying operations. Various trucks will be expected to deliver materials. These trucks will be using the available local and wider road network and regulated as per the Traffic (Amendment) Act of 2017. Although the existing road network is open to traffic and will thus be serving its purpose, increased traffic due to transportation of the required Project materials and equipment has a potential of slowing down road traffic along the routes that will be used.

The risk of injuries from road traffic accidents are generally low but may increase during civil works (including site mobilization and demobilization) associated with the movement of equipment and people by road.

The increase in traffic could also create dust, noise, and safety (including injury or even death due to accidents) impacts for other road users and people living or working within proximity to the roads on the selected transport routes. Traffic impacts will be further exacerbated if the selected equipment and/or delivery routes are through busy roads.

The receptors for traffic impacts will be the existing users of the roads that will also be used during the transportation of Project materials, equipment, machinery, and workers.

Based on the analysis provided above, traffic impacts during the construction phase will be **"Moderate Negative Impact"** pre-mitigation as per the assessment below.

Type of impact		
Direct Negative		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	Traffic impacts will be limited to the Project footprint and its environs; however, it is understood that some of the required Project components such as electrical, mechanical equipment and fiber optic cables will be imported from overseas. Increased traffic attributed to transportation of project equipment along major in-country highways will be negligible since such highways are already approved and continuously used for transportation of large volumes of goods in addition to general transport services.
Duration	Short-term	This impact will cease to be manifested after the completion of the construction phase.
Scale	Large	Given the national nature of the Project, a big number of people will be potentially affected; however, this will be largely dependent on the selected subprojects.
Frequency	Continuous	This impact will be continuously felt throughout the construction phase.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		

Traffic impacts will inconvenience the current road users and businesses along them.
Significant Rating Before Mitigation
Moderate Negative Impact

Recommended Mitigation/Management Measures:

- All contractors to develop and implement a Traffic Management Plan (TMP) that inter alia, includes the following conditions:
    - No work should commence on a public road without first obtaining a wayleave from the road authority concerned;
    - It is the responsibility of the contractor's supervisor/s to ensure that each member of his crew wears the required PPE and to ensure that the work area is protected by the use of the various signs, cones, flashing lights, traffic control personnel, etc;
    - Traffic movement shall be inhibited as little as possible. Should this be unavoidable, alternative access to routes must be made available;
    - Work carried out on busy roads, should be restricted to outside the following periods; from 06:30 to 09:00 and 15:30 to 18:00, to ensure the free flow of traffic during peak hours;
    - Roads shall be kept free of debris or equipment;
    - Where cyclists and/or pedestrians are likely to be present, their need for safe and convenient passage must be considered and sufficient, safe crossings shall be planned for;
    - Create 'no go' zones around hazardous areas and implement safe work distances;
    - Choose signs with messages clearly indicating the actions drivers or pedestrians are required to take;
    - Where necessary, traffic control persons shall be used to provide positive guidance to motorists; and
    - Remember that the visibility of hazards/workers can be greatly diminished in darkness and/or poor weather conditions.
- Ensure only what can be excavated and backfilled within 24 or 48 hrs is done. contractors must therefore only excavate what they can lay and backfill in 1 or 2 days maximum depending on a risk/hazard assessment for each location.
- Road crossing shall be done using directional drilling or thrust boring and shall meet the following minimum requirements[78]:
    - Bores shall be at a depth of 1.8m across spur subsidiary roads and 2m across the carriage way from the tarmac level;
    - Bores shall exit at a depth of 1.8m; same level as the trench;
    - Bores shall typically span to lengths of 15m-20m but could span to a maximum of 30m if need be;
    - The equipment used shall drill bores spanning to a maximum of up to 30m long;
    - The drilling head shall accommodate rock drilling bits for rocky ground;
    - After making a bore across the road, two (X2) 102 mm diameter galvanized pipes or two 110mm HDPE plastic pipes (one to act as spare for future use) shall be inserted through the bore; and
    - Bores shall be well marked on both ends with marked reinforced concrete;
- Only experienced and trained drivers/operators shall drive/operate construction vehicles, trucks, and machinery.

[78] Fiber Optic-Backbone, Metro and Last Mile Infrastructure Standard, ICTA. 2.001: 2021

- In hilly terrains or areas where distances are too long to cover by underground OFC cable drops, ICTA should plan to accommodate such areas through wireless Point to Multi-Point microwave nodes. This will minimize traffic disruptions as no trenching will be undertaken.
- Trench excavation within a market center or a township shall only be done after verifying that all utility lines (water pipes, electric cables, and sewer lines) in the area are marked and known; and
- All reasonable steps necessary shall be taken and special consideration given to water, electricity and sewer systems within the area that cannot be located accurately.

With implementation of the proposed mitigation measures, the significance of traffic impacts will be a **"Minor Negative"** post-mitigation as per the assessment below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	Traffic impacts will be limited to the Project footprint and its environs; however, it is understood that some of the required Project components such as electrical and mechanical equipment and cables will be imported from overseas. Increased traffic attributed to transportation of project equipment along major in-country highways will be negligible since such highways are already approved and continuously used for transportation of large volumes of goods in addition to general transport services.
Duration	Short-term	This impact will cease to be manifested after the completion of the construction phase.
Scale	Small	With the implementation of the mitigation measures, the number of affected persons will be low.
Frequency	Regular	With the scheduling of the Project Activities, noticeable traffic impacts will occur regularly; only during scheduled transportation of Project materials and equipment.
Magnitude		
Small		
Significant Rating After Mitigation		
Minor Negative Impact		

4.3.12 Loss of Access to Productive Assets

There are some ongoing commercial activities being undertaken along the cable route nationally.

Excavation and backfilling operations required to install underground optical fiber cable may temporarily impede access to commercial establishments and residential buildings. The civil works may also involve removal of trees, shrubs, fences, and other landscape items adjacent to or within the work area.

The receptors for partial loss of productive assets will be traders and local communities along the cable routes throughout the project footprint.

Based on the analysis provided above, the impact on access to productive assets during the construction phase will be **"Moderate Negative"** pre-mitigation as per the assessment below.

Type of impact		
Direct Negative		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	Loss of access productive assets will be limited to the Project footprint and its environs. However, any civil works will be restricted to the road reserves owned by KeNHA, KURA and KERRA.
Duration	Medium-term	Adverse impacts on livelihoods may go beyond the construction phase.
Scale	Medium	Traders, local communities, and their dependents will be affected.
Frequency	Continuous	This impact will be throughout the construction phase.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Affected persons may not be able to resume access to their productive assets.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

Recommend Mitigation/Management Measures:

- Use the Project's Resettlement Policy Framework (RPF) to guide any resettlement and loss of access to productive assets;
- Businesses/property owners shall be informed one week (7-days) in advance of any construction activities commencing in the vicinity of their properties;
- These notices will announce upcoming work tasks and potential impacts, such as traffic, parking, and access changes, noise, utility interruptions, vibration, etc;
- If a private driveway or footway constructed with non-standard materials is to be excavated, the owner of the property concerned must be informed in advance and in writing of the intended work;
- Where possible, excavations on private property shall not be left open outside normal working hours (08:00 to 17:00). Where unavoidable, the Contractor must take adequate precautions to safeguard such excavations;
- The Contractor shall be responsible for the protection of all trees, shrubs, fences, and other landscape items adjacent to or within the work area;
- The occupants of the properties must be kept informed at all times of how their access will be affected;
- When trenching through entrances to properties, access must be maintained by using steel plates or other temporary bridges of ample strength and, it must be well secured against movement;
- Surfaces shall always be reinstated to the original state or better;

- Where a Contractor must undertake tree and bush cutting and/or shrub clearing he must prior to undertaking such work, obtain approval in writing from the relevant authority and/or property owner;
- The Contractor shall dispose of all cuttings and cleared material;
- The Contractor shall be solely responsible and accountable to remedy any damages and/or claims, arising due to his activities;
- All drainage systems must be cleared daily;
- In residential areas the reinstatement of paving, grass or landscaping must be done to the property owner's satisfaction; and
- Remove all material and equipment not needed onsite, as soon as possible.

Based on the implementation of the proposed mitigation measures, the significance of access to productive assets impact will be a **"Minor Negative Impact"** post-mitigation as per the assessment below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	Loss of access to productive assets will be limited to the Project footprint, its environs, and sensitive receptors therein;
Duration	Medium-term	Adverse impacts on livelihoods may be manifested throughout the project lifecycle.
Scale	Small	With the implementation of the mitigation measures, the sensitive receptors will be able to cope with temporary loss of productive assets.
Frequency	Intermittent	Among cases not involved in original negotiations.
Magnitude		
Small		
Significant Rating After Mitigation		
Minor Negative Impact		

4.3.13 Impact on Disease Transmission

Construction of the proposed Project may lead to an increase in communicable and sexually transmitted diseases including HIV/AIDS, mainly because of interactions between Project workers as well as those between Project workers and the local community members. However, for the proposed Project, most of the workers will be recruited from the local communities thus limiting labour influx which would exacerbate this issue.

In addition to increases in disease prevalence related to direct interactions with the workforce, absence of adequate sanitation could contribute to an increased incidence of infectious disease, in particular, water borne diseases. Construction activities, if resulting in increased dust levels, may exacerbate respiratory illnesses which is already a challenge in the Country.

The receptors of increased disease transmission will be the local communities at subproject sites as well as Project workers.

Based on the above analysis, impacts on disease transmission during the construction phase will be **"Moderate Negative Impact"** pre-mitigation as per the assessment below.

Type of impact		
Direct Negative		
Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	It is anticipated that the potential impacts of increased disease transmission will be limited to the Project footprint.
Duration	Long-term	Adverse effects of e.g., HIV/AIDS, etc. may manifest throughout the project cycle.
Scale	Medium	Any increase in disease transmission will result in negative impacts to the health system e.g., exert pressure on limited resources, etc.
Frequency	Intermittent	The incidence of communicable disease is likely to recur in the absence of mitigation and monitoring measures.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Vulnerability of receptors is dictated by the local people not having adequate access to healthcare services including sexual and reproductive health.		
Significant Rating Before Mitigation		
Moderate Negative		

Recommended Mitigation/Management Measures:

- Follow the Project LMP guidelines;
- Project workers to sign a code of conduct;
- Conduct awareness campaigns on HIV/AIDS among the workers and the locals. This can be undertaken by the various NGOs and government agencies in the Counties;
- Erect billboards to sensitize locals on the need to practice safe sex to help in the fight against HIV/AIDS; and
- Provision of free condoms to the workers.

With implementation of the recommended mitigation measures, the significance of the impact on disease transmission will be a **"Minor Negative"** post-mitigation as per the assessment below.

Rating of Impact		
Characteristic	**Designation**	**Justification of Choice**
Extent	Local	This impact will be limited to the Project footprint.
Duration	Short-term	With the implementation of the mitigation measures, community and worker exposure to diseases attributed to the Project will be avoided or effectively controlled within a short period of time.
Scale	Small	With the implementation of the mitigation measures, the increase in disease prevalence attributable to the Project will be avoided.

Frequency	Rare	The incidence of communicable diseases and other diseases attributable to the Project will be avoided or only occur rarely.
Magnitude		
Small		
Significant Rating After Mitigation		
Minor Negative Impact		

4.3.14 Conflicts with Local Communities

Projects of such magnitude usually attract public uproar especially from the local community if they are not involved in its implementation. Conflicts usually arise due to inadequate consultations with the local community, importation of unskilled labourers, loss of access to productive assets including displacement of people, ineffective grievance redress mechanism (GRM), incidences of SEA/SH, GBV, and non-provision of equal opportunities to women.

Recommended Mitigation/Management Measures:

- Consultation with the host community and relevant stakeholders on the mitigation measures proposed for the negative impacts;
- Utilize area Chiefs and Ward administrators in the recruitment of local unskilled labour;
- Ensure the Project implements the developed grievance redress mechanism, in which potential project beneficiaries/project affected communities have reasonable representation;
- Ensure multiple entries to grievance mechanism and publicise GRM including through media, training, and meetings and through communication using local languages.
- Enhance the capacity of individuals who will be involved in grievance handling processes through appropriate trainings;
- Follow the guidance of the SEP, VMGF;
- Minimize the risk by making use of and follow up the strict observation of the government policy on gender and other forms of social inclusion, as stated in policy and legal frameworks of this ESMF;
- Reduce the risk through conducting periodic and specific field identification of key issues of exclusion, discrimination and marginalization of women and other vulnerable groups through social inclusion analysis and impact assessment;
- Adopt the risk minimization measure of utilizing community structures and local administration to mobilize minority groups to participate in meetings and consultations;
- Provide as risk reduction measure local language interpreters to ensure understanding and ability to give feedback during engagement;
- Target women and youth in project consultations and activities for their meaningful inclusion in project decisions; and
- Minimize the risk by ensuring involvement of women in the design of mechanisms for proactive risk communication and event-based surveillance activities.

4.3.15 Impact on Local Security

Security risks will involve the theft of contractor equipment in low-risk security areas in Kenya. However, some areas like northeastern Kenya including Wajir, Garissa, Mandera, and Lamu Counties experience security instability for decades, related to cattle rustling, community conflict over access to natural resource and in recent years the conflict in Somalia has produced cross-border effects in terms of

displaced populations and incidents of insecurity, the security risks in these areas could range from moderate to high. The project contractors will hire or contract public or private security personnel to protect their employees, facilities, assets, and operations. In low-risk environments, security arrangements will simply consist of fencing, signposting, and perhaps a night watchman. In higher-risk environments, like the northeast counties of Wajir, Mandera, Lamu and Garissa, contractors may need a greater level of security, requiring them to engage private security contractors or even work directly with public security forces in the area. In determining security needs, the project will prepare a security management plan that will assess the types and likelihood of security threats posed by the project's operating environment. The SMP will also consider the impacts their security arrangements might have on local communities and provide mitigation measures.

4.3.16 Impact on Cultural Heritage

The Project will finance the expansion and upgrading of NOFBI and the last mile FOC connections to selected school and MCDAs. The Project will involve excavation works along the road reserves. It is not anticipated that tangible and non-tangible cultural material will be encountered. This ESMF includes *'Chance Finds Procedure'* to be included on all contracts undertaking the civil works. Contractors must ensure that provisions are put in place so that any "chance finds" encountered in excavation or construction are noted and registered, and responsible authorities contacted, and works activities delayed or modified to account for such finds. In addition, the ESMF will include an exclusion list for avoidance of significant impacts and risks, such as opening new paths/access roads that will potentially impact cultural heritage sites.

4.4 Operations Related Impacts

During operation it is expected that the cable will have no significant negative environmental or social impacts. During the operational phase there will be no routine maintenance of the cable and the cable will have a passive influence on the environment.

4.4.1 Impact on Employment, Procurement, and the Economy

The proposed Project will create both direct and indirect employment opportunities across different skills levels (unskilled, semi-skilled and skilled) during the operations phase. A workforce of approximately 15 people is expected to be directly employed at the PIU during the operations phase. Other direct jobs will be created in operation and maintenance of broadband infrastructure and associate facilities, in automating and digitizing selected government services, developing the critical enablers for digital government, enhancing regional data governance, and supporting digital literacy. Indirect employment is also expected from customers, and induced employment related to jobs ensuing from the expenditure of incomes associated with direct and indirect Project related jobs.

Another positive impact on the economy because of this Project, is digital skills training, which will result in more Kenyans participating in the digital economy. This will result ultimately in increased revenues for individuals and taxes for the government.

Kenyan residents will be able to make the most of the direct and indirect employment opportunities offered by the Project as beneficiaries are expected to come from across Kenya.

Type of Impact
Positive Impact
Direct and indirect employment opportunities, and combined multiplier effect of this economic growth will result in increased incomes; promoting some degree of an increase in standards of living for all beneficiaries.

To enhance this positive impact, the following management measures will be implemented:

- The Project will prioritise the recruitment of workers (unskilled, semi-skilled and skilled) from the local communities around subprojects where available, and in accordance with KDEAP's LMP and SEP;
- The Project will develop a fair and transparent employment and procurement policy, and will implement processes, that prevents any form of nepotism and favouritism;
- Advertisements on the employment and procurement opportunities during the operations phase will be placed at the Chief's Office notice board. If the position cannot be filled from within the subproject sites, it will be advertised county-wide, and only then, nationally; and
- ICTA/Contractors should aim at procuring locally available materials where feasible and use local suppliers where appropriate.

4.4.2 Impacts on Local Air Quality

Emissions from telecommunications projects may be primarily associated with the operation of vehicle fleets, the use of backup power generators, and the use of cooling and fire suppression systems. Recommended management actions to minimize emissions include:

- Implementation of vehicle fleet and power generator emissions management strategies as described in the **General EHS Guidelines** and avoiding the use of backup power generators as a permanent power source, if feasible; and
- Substitution in use of chlorofluorocarbons (CFCs) in cooling and fire-suppression systems, using contractors who are properly trained or certified in the management of CFCs.

4.4.3 Impact on Noise Environment and Vibration

The principal source of noise in telecommunications facilities is associated with the operation of backup power generators. Recommended noise management action includes the use of noise suppression shields and mufflers, as well as the location of noise generating sources away from residential or other noise-sensitive receptors to meet the noise emission levels provided in the **General EHS Guidelines**.

4.4.4 Hazardous Materials and Waste

Telecommunications processes do not normally require the use of significant amounts of hazardous materials. However, the operation of certain types of switching and transmitting equipment may require the use backup power systems consisting of a combination of batteries (typically lead-acid batteries) and diesel-fueled backup generators for electricity.

Operations and maintenance activities may also result in the generation of electronic wastes (e.g., nickel-cadmium batteries and printed circuit boards from computer and other electronic equipment as well as backup power batteries, etc.). The operation of backup generators and service vehicles may also result in the generation of used tires, and waste oils and used filters. Transformer equipment may potentially contain Polychlorinated Biphenyls (PCBs) while cooling equipment may contain refrigerants (potential Ozone Depleting Substances [ODSs]).

Recommended hazardous materials management actions include:

- Implementing fuel delivery procedures and spill prevention and control plans applicable to the delivery and storage of fuel for backup electric power systems, preferably providing secondary containment and overfill prevention for fuel storage tanks;
- Implementing procedures for the management of lead acid batteries, including temporary storage, transport and final recycling by a licensed facility;
- Ensuring that new support equipment does not contain PCBs or ODSs. PCBs from old equipment should be managed as a hazardous waste;
- Purchasing electronic equipment that meets international phase out requirements for hazardous materials contents and implementing procedures for the management of waste from existing equipment according to the hazardous waste guidance in the **General EHS Guidelines**;
- Considering the implementation of a take-back program for consumer equipment such as cellular telephones and their batteries;
- Sub-component 3.1, *Supporting Digital Literacy and Skills for the Creative Economy,* includes equipping underserved public secondary schools with access to digital devices, ICT equipment and digital content.[79] Again, Subcomponent 3.2, *Device Affordability Program*, targeted specifically at female students and entrepreneurs will also provide laptops and tablets. As such, there is a likelihood of an increase in e-waste, when these digital devices and ICT equipment reach the end of their useful lives (3-5years). The generated e-waste needs to be recycled or disposed safely and properly; and
- To mitigate and manage the generated e-waste, ICTA and contractor(s) should adopt and implement the prepared, *E-Waste Management Environmental Codes of Practice.*

4.4.5 Labour and Working Conditions [Including Occupational Health and Safety (OHS)]

OHS risks during the operations phase will include:

- **Electrical Safety –** Telecommunications workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities;
- **Optical Fiber Safety –** Workers involved in fiber optic cable installation or repair may be at risk of permanent eye damage due to exposure to laser light during cable connection and inspection activities;
- **Elevated and Overhead Work –** The assembly of towers and installation of antennae can pose a physical hazard to workers using lifts and elevated platforms and those located below due to the potential for falling objects;
- **Fall Protection –** Workers may be exposed to occupational hazards when working at elevation during construction, maintenance, and operation activities;
- **Confined Spaces and Excavations –** The type of confined spaces encountered in telecommunications projects varies but may include underground fixed line infrastructure co-located with other underground infrastructure in urban areas. Ditches and trenches may also be considered a confined space when access or egress is limited; and
- **Motor vehicle safety –** The geographically dispersed nature of the infrastructure of some telecommunications operators may require the frequent use of ground transportation for maintenance activities.
- **Increased Workload –** Adoption of new digital services often requires deploying new types of infrastructure, like software-defined networking (or SDN) and multi-cloud environments. Those modern technologies extend the reach of services and allow for rapid scalability. But they also extend the potential attack surface of Ministries, Counties, Departments and Agencies (MCDAs)

[79] P170941

and other institutions. With cloud and SDN, workloads expand beyond the confines of the data center. That taxes security and IT professionals – who now must monitor a greater sprawl of services to maintain visibility and track potential threats. Recommended mitigation measures:
    - Develop curriculum and training officers in the public service in high-end ICT specialized areas; and
    - Recruit more highly skilled ICT officers for MCDAs.
- **Electromagnetic fields (EMF) –** Telecommunications workers typically have a higher exposure to EMF than the public due to working in proximity to transmitting antennas emitting radio waves and microwaves. Radio wave strength is generally much greater from radio and television broadcast stations than from cellular phone communication base transceiver stations. Microwave and satellite system antennas transmit and receive highly concentrated directional beams at even higher power levels.

Although there is public and scientific concern over the potential health effects associated with exposure to EMF (not only high- voltage power lines and substations or radio frequency transmissions systems, but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and equipment[80].

Table 4- 7 below lists exposure limits for public exposure to EMF published by the ICNIRP.

Table 4- 7 ICNIRP exposure guidelines for public exposure to electric and magnetic fields

Frequency	Electric Field (v/m)	Magnetic Field (µT)
3-150 kHz	87	6.25
10-400 kHz	28	0.092
2-300 gHz	61	0.20

Additional indicators specifically applicable to telecommunications activities include the ICNIRP exposure limits for occupational exposure to EMF listed in Table 4- 8.

Table 4- 8 ICNIRP exposure guidelines for occupational exposure to electric and magnetic fields

Frequency	Electric Field (v/m)	Magnetic Field (µT)
0.2-65 kHz	610	30.7
10-400 kHz	61	0.2
2-300 gHz	137	0.45

Occupational EMF exposure should be prevented or minimized through the preparation and implementation of an EMF safety program including the following components:

- Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities;
- Training of workers in the identification of occupational EMF levels and hazards;

[80] International Commission on Non-Ionizing Radiation Protection (ICNIRP) (2001); International Agency for Research on Cancer (2002); US National Institute of Health (2002); Advisory Group to the United Kingdom National Radiation Protection Board (2001), and US National Institute of Environmental Health Sciences (1999).

- Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers;
- Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE).x
- Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels (e.g., 50 percent);
- Action plans to address occupational exposure may include deactivation of transmission equipment during maintenance activities, limiting exposure time through work rotation, increasing the distance between the source and the worker, when feasible, use of shielding materials; or installation of ladders or other climbing devices inside the mast or towers, and behind the transmission beams.

4.4.6 Impact on Community Health and Safety (CHS)

4.4.6.1 Structural and site access issues

Communities may be exposed to structural safety issues in the event of structural failure of masts or towers. These same sites may also attract unauthorized persons interested in climbing these structures, also representing a risk to their safety. Recommendations to manage site safety issues include:

- Design and installation of tower structures and components according to good international industry practice, taking into account the potential frequency and magnitude of natural hazards;
- Erection of fences in combination with other institutional controls and management approaches, such as the posting of signs forbidding entry and placement of guards to protect the premises surrounding the site;
- Equipping masts or towers with anti-climbing devices to preclude unauthorized climbing.

4.4.6.2 Driver Safety and Cellular Phones

Telecommunications companies who provide cellular phone service have little or no influence over the safe use of these devises by their clients. However, to the extent feasible, companies should promote the safe use of cellular telephones through such methods as customer information campaigns which may include distribution of information at the time of customer service sign-up or by mail with billing information, or through public advertising campaigns.

4.4.6.3 Air Emissions such as Dust

Air emissions will mostly emanate from trenching activities and the transportation of construction materials (e.g., cement, concrete, wire, machinery, equipment, etc.). The emissions may comprise particulate matter (dust) and exhaust emissions from vehicle movements are expected to include CO_2, NO_2, SO_2 and Volatile Organic Compounds (VOCs) since most of them are powered by diesel/petrol engines. Again, emissions from telecommunications projects may be primarily associated with the use of backup power generators, and the use of cooling and fire suppression systems.

There is a likelihood that generated dust and exhaust emissions may affect the workers and the surrounding community members' health. Recommended mitigation measures:

- Whenever dust generation at construction sites becomes a problem:
    - Water spraying to suppress dust shall be undertaken; and
    - Truck drivers should be sensitized on and ensure they observe speed limits on earth roads to reduce dust generation.

- Contractor should only operate well-maintained construction machinery, vehicles, and trucks, and implement a routine maintenance program for all vehicles and trucks; and
- Engines of vehicles, trucks and earth-moving machinery shall be switched off when not in use.
- Issue all project workers with appropriate Personal Protective Equipment (PPE) including dust masks where required.

4.4.6.4 Cybersecurity Risks

Cybersecurity risks, for example, from data breaches, lack of privacy, etc., will be addressed through systematic management and reporting of incidents, at a regional level, while the risk of furthering the digital divide would be countered by following an inclusive approach in design. Other recommended mitigation measures are:

- Recruit information technology experts and use ticketing software to keep government tech issues organized;
- Create great IT workflows paired with expert information technology employees will ensure that the government technology is up to speed, computer systems remain functional across departments, and the cyber secure;
- Encourage all departments to switch to cloud-based government infrastructure. The cloud is substantially more secure and difficult for hackers to break into, and automatically backs up government data on a frequent basis;
- Implement security controls in line with the GoK information security standards. For instance, Identification: All authorized users of the Network Equipment (NE) shall be uniquely identified to support individual accountability. The requirements for Identification are:
    - Within a specific NE, the NE shall enforce unambiguous User-IDs to identify its users;
    - All NE interfaces and ports that accept user command inputs shall require unambiguous User-IDs before performing any actions;
    - The NE shall internally maintain the identity of all current active users;
    - The NE shall restrict a User-ID to only one active session;
    - All operations-related processes running on the NE shall be associated with the User-ID of the invoking user;
    - If a user-ID has not been used for a period of 3 months, the NE shall be capable of disabling that User-ID;
    - In addition, the security administrator shall have a choice of automatic or manual disabling of these User-IDs;
    - The NE shall log all activities carried out by the user during each session. All logs must include timestamps and activity or system accessed; and
    - All building sites and equipment (and all information and software contained therein)

4.4.6.5 Social Exclusion

- Female students, especially those following STEM subjects and PWDs are prioritized recipients of digital devices.
- The project places a strong emphasis on ‘digital inclusion’, bridging the digital divide, by empowering women and girls, PWDs, and vulnerable communities in rural and underserved areas. Digital access initiatives will be geared toward encouraging adoption in rural and underserved areas, where uptake of broadband and access to digital services is lagging.
- All community connectivity access schemes, including public Wi-Fi hotspots, connected schools, universities and TVETs, as well as ICT equipment and software funded through the project, will be designed to ensure access for women and PWDs (for example, through ramps to public offices, women-friendly opening hours, gender-appropriate locations, accessible websites etc.).

- Gender- and PWD-sensitive approaches to all digital skills programs will be adopted (for example, leveraging female trainers and access-enabled devices). Data on connectivity disaggregated by gender, age, and location, will also be recorded to monitor and track progress on key parameters of digital inclusion.

4.4.6.6 Digital Gender-Based Violence (DGBV)

This is gender-based violence enabled by digital technology. While the magnitude of the phenomenon is unknown, a FRA (EU's Rights Agency) survey on violence against women asked respondents about their experience of online gender-based violence. While 14% of women who had experienced such harassment could not identify the perpetrator, 9% were harassed by someone from their work context (FRA, 2014b)[81].

While digital technology can bring huge advantages, there is no doubt it can also facilitate violence. Women and girls are more likely to be targets of online violence, such as physical threats, sexual harassment, bullying, stalking, *sex trolling* and exploitation[82].

Online abuse is likely for women participating in the creative economy as espoused by the Project as one is required to maintain a strong online presence. In this context, insults, defamation, threats and hate speech are enabled and facilitated by digital technologies. The volume of abuse and increased anonymity are strong enabling factors. Such abuse disproportionately affects women ….., while abuse directed at men from the dominant group is more often based on their opinions or status in society (FRA, 2017).

There's a far-reaching impact of abuse on women's professional and personal lives, with many affected women choosing to opt out of certain social networks despite their usefulness in their profession, to write only anonymously, to avoid disseminating their work and to withdraw from an exposed profession altogether.

Mitigation measures[83]:

- Center the safety and privacy of survivors;
- Align with the government's priorities and use these dialogues as a way to raise awareness about gender-based violence;
- Think carefully about the role of each stakeholder;
- Develop modular approaches that can be adapted to various ecosystems; and
- Consider inclusive solutions that consider digital divides.

4.5 Unplanned Events

Unplanned events are activities that are not expected to occur during a project's normal activities, such as accidental leaks and spills. The significance of impacts associated with unplanned events cannot be determined using the framework described in *Section 4.2* because:

- The range of possible effects of a single event is highly variable (i.e. the impact intensity is almost infinitely variable); and

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[81] See *https://eige.europa.eu/publications/gender-equality-index-2020-report/gender-based-violence-enabled-digital-technology-new-occupational-hazard*

[82] See *https://www.google.com/url?client=internal-element-cse&cx=0903a1a109a46b6e5&q=https://www.unicef.org/eap/blog/six-ways-tech-can-help-end-gender-based-violence&sa=U&ved=2ahUKEwjQ4Jqk0YX8AhWCQUEAHfjZCu0QFnoECAUQAg&usg=AOvVaw281gb-8dGqT2KCMSXlnngw*

[83] *https://blogs.worldbank.org/voices/thinking-about-using-technology-address-gender-based-violence-five-recommendations-experts*

- The kind of unplanned event that may result in a severe environmental impact is, by definition, undesirable, and the Project has substantial built-in controls to avoid such occurrences. Therefore, the probability of such an event occurring should always be very low, whereas the framework described in *Section 4.2* is designed for the assessment of impacts that are considered reasonably likely to happen.

Therefore, while consideration is given in this ESMF Project Report to some of the Project design measures designed to prevent undesirable events, the assessment of potential impacts resulting from unplanned events is restricted to comments regarding the relative sensitivity of the receiving environment should such an event occur and potential levels of consequence. The management measures included in this section are to be in-built in the Project design to further minimise the possibility of occurrence of the unplanned events. In addition, Emergency Management Plans (EMPs) are recommended for the management of impacts from unplanned events if they occur.

4.5.1 Accidental Leaks and Spills

Accidental leaks and spills by their nature are undesirable and unplanned since their effects are largely unpredictable depending on the extent of the leak or spill. Therefore, the Contractor (during construction phase) and ICTA (throughout the project life cycle) will incorporate best industry standard controls to minimise the possibility of having an accidental leak or spill.

Despite the above, accidental leaks and spills can potentially occur in areas where liquids (including condensed gases) are stored or used. In reference to the proposed Project, the Project equipment and machinery may use fuel (diesel and/or petrol) as well as oil for lubrication during both the construction and operations phase. If there are any unnoticed leaks on the fuel or oil tanks, the fuel and/or oil will flow to the ground thus contaminating the soils and can potentially flow in stormwater to the nearby dam thus reducing its water quality.

Sensitive receptors are same as those described for the construction phase under *Section 1.3.8* and *Section 1.4.4*. In addition, Project workers are another category of sensitive receptors for this impact.

Recommended Mitigation/Management Measures:

- Use renewable energy e.g., solar to power project infrastructure;
- All Project equipment and machinery will be properly maintained as per the manufacturer's recommendations. In particular, the status of fuel and oil tanks will be checked;
- At the start of every workday, Project vehicles and equipment will be checked for spills and leakages;
- Project equipment and machinery will be serviced off site;
- Fuel, oil and used oil storage areas will be contained in bunds of 110 percent capacity of the stored material. Fuels will be stored in above-ground storage tanks; and
- Spill containment and clean up kits will be available onsite and clean-up from any leakage or spill will be appropriately contained and disposed of.

4.5.2 Flooding Risk

Extreme climatic events have long posed a significant risk to regions in Kenya, and they have contributed to making it one of the most disaster-prone countries in the world.[84] Of particular concern are floods and droughts, with major droughts occurring about every 10 years, and moderate droughts or floods every three to four years. Historically, these extreme climatic events have caused significant loss of life and

[84] Ministry of State for Special Programmes (MOSSP). (n.d.). *Strategic plan 2008–2012*. Retrieved from http://www.sprogrammes.go.ke/images/plan2.pdf

adversely affected the national economy. Droughts have affected most people and had the greatest economic impact (Earth Institute, n.d.); it is estimated that droughts cost about 8.0 per cent of GDP every five years. [85] While usually more localized, floods have led to the greatest loss of human lives[86]. Critical national infrastructures (are the physical backbone of modern societies, as they are essential for the continued delivery of goods and services and maintaining economic and social well-being), including energy, transport, **digital communications** and water, are prone to flood damage. Their geographical extent is a determinant of, and is determined by, patterns of human development, which is often concentrated in floodplains[87].

Recommended mitigation/management measures:

- Conduct flood risk assessment for the project and incorporate findings into project design;
- Repair stormwater drainages (affected during civil works) during project implemented;
- Build infrastructure resilience to flooding via emergency planning and response; and
- Consider implementing nature-based solutions (NBS) such as reforestation and afforestation, wetland restoration, and green infrastructure (e.g., solar energy, permeable pavements, etc.), to mitigate flooding risk.

4.5.3 Fire Hazards

The operation of ICT equipment and machinery may lead to fire outbreaks including poor handling of electricity systems, faulty electrical equipment, carelessness, etc. The project design should provide firefighting measures and control facilities. These include the following:

- Installation of an automatic fire alarm system for the equipment building and the main operations building;
- Provision of firefighting equipment and hydrant points;
- Display of fire evacuation procedures and emergency response plan at all buildings;
- Regular maintenance of fire electrical and first aid equipment; and
- Provision of sufficient emergency exit points and marked fire assembly points.

4.6 Cumulative Impacts

4.6.1 Overview

Cumulative impacts are a result of effects that act together (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project under consideration (e.g., the combined effect of other similar projects in the general area).

An effect to a resource may not be considered significant but may become significant when added to the existing and potential effects eventuating from similar or diverse developments in the area.

In practice, effective design and implementation of complete Cumulative Impact Assessment (CIA) processes is often beyond the technical and financial capacity of a single developer as recognized in

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[85] AEA Group. (2008b). *Kenya: Climate screening and information exchange*. Retrieved from http://www.dewpoint.org.uk/ Asset%20Library/Climate%20Risk%20Assemment%20Flier%20-%20Kenya.pdf

[86] Earth Institute at Columbia University. (n.d.). *Kenya natural disaster profile*. Retrieved from http://www.ldeo.columbia. edu/chrr/research/profiles/pdfs/kenya_profile1.pdf

[87] See *https://ora.ox.ac.uk/objects/uuid:713262bb-63fd-4d54-856f-2d75409b3237/download_file?file_format=application%2Fpdf&safe_filename=Pant%2Bet%2Bal%2C%2BCritical%2Binfrastructure%2Bimpact%2Bassessment%2Bdue%2Bto%2Bflood%2Bexposure.pdf&type_of_work=Journal+article*

WBG's Good Practice Handbook for CIA. CIA thus transcends the responsibility of a single project developer. However, it may be in the best interest of KDEAP to lead the CIA process, but the management measures that will be recommended because of the process may ultimately be effective only if other relevant institutions are involved.

4.6.2 CIA Principles

CIA is guided by the following principles:

- Assesses the ecological and social impacts that determine the status of environmental components and affected communities (VECs);
- Requires consideration of past, present, and future projects and natural drivers that affect them; and
- Assessment reflects the geographical and temporal context in which the effects are aggregating and interacting (e.g., river catchment, town, landscape).

4.6.3 Rapid CIA

This Good Practice Handbook proposes as a useful preliminary approach for conducting a rapid cumulative impact assessment (RCIA). The RCIA can be an integral component of the subproject ESIA or a separate process. It entails a desk review that, in consultation with the affected communities and other stakeholders, enables the developer to determine whether its activities are likely to significantly affect the viability or sustainability of selected Valued Environmental and Social Components (VECs). The proposed approach recognizes that many challenges associated with managing a good CIA process include lack of basic baseline data, uncertainty associated with anticipated developments, limited government capacity, and absence of strategic regional, sectoral, or integrated resource planning schemes. Given the many challenges, the handbook recommends that developers:

- follow a six-step RCIA process,
- engage stakeholders as early as possible and throughout the decision-making process, and
- clearly record the fundamental reasoning behind each important decision made, supporting it with as much technical evidence as possible.

4.6.4 Six-step RCIA Process/Methodology

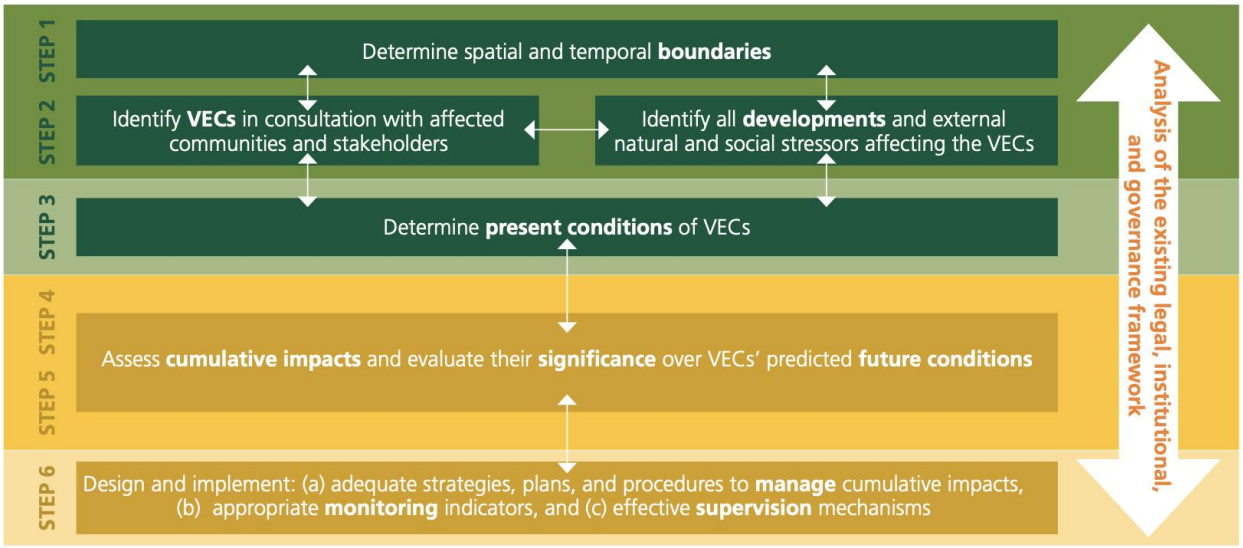

Figure 4- 1 RCIA: Six-Step Process

4.6.5 CIA Key Stakeholders in Kenya

Depending on the scenario, the RCIA may evolve into a more robust and comprehensive CIA, which requires the participation of many parties and is best led by county and national governments. Some of the key stakeholders and institutions which may have a part to play in implementing recommendations of a CIA in Kenya at national and sub-project level are:

- Ministry of Environment, Forestry and Climate Change;
- MICDE;
- Ministry of Labour and Social Services;
- County governments;
- NEMA;
- WRA;
- KFS;
- KWS;
  DOSHS; and
- CA, etc.

4.7 Decommissioning Phase Impacts

The Project infrastructure will have a lifespan of more than 30 years and digitalization of select government services and digital economy will only grow during this period in Kenya. As such, two options are considered for decommissioning:

1. Components that have a shorter lifespan such as the power back up system and vehicles will be replaced, and the facilities and cable will continue to function. It is likely that the power back up system, at least in part, will need to be replaced after between 5-8 years and this provision should be made in the design of the facilities; and
2. On the basis that the facilities and cable is no longer required it will be dismantled and the subproject sites returned to their original state.

Should option 2 materialise then the decommissioning phase will be like the construction phase in terms of environmental and social impacts. Given that the lifespan is over 30 years, the exact practical measures at the time of decommission cannot be ascertained, therefore, the following general recommendation is made:

- Prepare an appropriate decommissioning plan at least one year in advance. The decommissioning plan should put into consideration advances in technology and development.

4.8 Summary of Impacts and Residual Impacts

4.8.1 Summary of Construction Impacts and Residual Impacts

Table 4- 9 Summary of Construction/Installation Impacts and Residual Impacts

Impact	Significance (Pre-mitigation)	Residual Impact
Terrestrial habitat alteration	Moderate Negative	Minor Negative
Aquatic habitat alteration	Moderate Negative	Minor Negative
Water pollution and soil contamination	Moderate Negative	Minor Negative
Biosecurity risk	Negative	Not rated
Impacts on local air quality	Moderate Negative	Negligible

Impact	Significance (Pre-mitigation)	Residual Impact
Impact on SEA/SH & GBV	Moderate Negative	Minor
Impacts on employment, procurement, and economy	Positive Impact	Positive Impact
Impact on noise environment and vibration	Moderate Negative	Minor Negative
Solid and e-waste generation	Moderate Negative	Minor Negative
Labour and working conditions including OSH	Moderate Negative	Minor Negative
Traffic congestion impact	Moderate Negative	Minor Negative
Loss of access to productive assets	Moderate Negative	Minor Negative
Impact on disease transmission	Moderate Negative	Minor Negative
Conflicts with local community	Negative	Not rated
Impact on local security	Negative	Not rated
Impact on cultural heritage	Negative	Not rated

4.8.2 Summary of Operation Impacts

Table 4- 10 Summary of Operation Impacts

Impact	Significance (Pre-mitigation)	Residual Impact
Impacts on employment, procurement, and economy	Positive Impact	Positive Impact
Impacts on local air quality	Negative	Not rated
Impact on noise environment and vibration	Negative	Not rated
Hazardous Materials and Waste	Negative	Not rated
Labour and working conditions including OSH	Negative	Not rated

5 PROCEDURES TO ADDRESS ENVIRONMENTAL AND SOCIAL ISSUES

5.1 Overview

Chapter Four shows KDEAP's environmental and social risks and impacts. This chapter carries recommendations on systematic integration of environmental and social considerations in the planning, approval, and implementation of KDEAP's sub-projects. It includes all the actions to be undertaken to limit, reduce or eliminate the identified potential negative risks and impacts. These actions concern the mitigation measures, control, and monitoring measures to be applied as well as the necessary support measures for awareness raising and capacity building.

It is anticipated that most *Component 1* sub-projects such as the expansion of broadband access (optic fiber cable laying) throughout the country will be implemented through procured contractors but supervised by ICTA.

The E&S management process will involve the following steps and procedures:

5.2 Step 1 – Screening of Project Activities / Sub-Projects

The objectives of environmental and social screening are: i) determine whether activities are eligible to be financed; ii) to evaluate the environmental, social, occupational safety and health (OHS) risks associated with the proposed activity/subproject; iii) to determine the depth and breadth of Environmental Assessment (EA); and iv) to recommend an appropriate choice of EA instrument(s) suitable for a given subproject. Criteria for classification include type, location, sensitivity, and scale of the project, as well as the nature and magnitude of its potential environmental and social impacts. The initial screening for the selection of the sub-projects will be conducted based on the exclusion criteria in the ESCP and summarized below:

1. Activities/subprojects that are classified high and substantial risk according to WBG ESF;
2. Activities that contravene Kenya's obligations under its international agreements;
3. Activities that may cause long term, permanent and/or irreversible adverse impacts to natural, critical habitats and biodiversity;
4. Activities that have a high probability of causing serious adverse effects to human health and/or the environment e.g., construction of major civil structure covering ecologically sensitive area;
5. Activities that may reduce forest cover through loss of trees;
6. Activities that may involve generating large volume of e-waste causing significant irreversible adverse impacts to human health and natural resources;
7. Activities that may affect lands or rights of indigenous people or other vulnerable minorities;
8. Activities that may involve significant permanent resettlement or large land acquisition or adverse impacts on cultural heritage;
9. Activities in "disputed areas"; and
10. Activities that limit access for women and PWDs to project benefits (e.g., public offices with no ramps to, inaccessible websites, etc.).

Additionally, screening would be done purposely for identification of other instruments that need preparation such as VMGP, RAP, etc.

The screening will be guided by an *environmental and social screening form (ESSF)*. PIU's environmental and social safeguards specialists will perform this process when reviewing and evaluating sub-projects, and inform the Unit on E&S requirements, to enable implementation in an environmentally and socially acceptable manner.

5.3 Step 2 – Subproject Categorization

5.3.1 WBG Environmental and Social Risk Classification

WBG's ESF uses four classifications for E&S risks: *High Risk*; *Substantial Risk*; *Moderate Risk; and Low Risk.*

In determining the appropriate risk classification, the Bank takes into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential E&S 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 E&S risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of E&S mitigation measures and outcomes, depending on the specific project and the context in which it is being developed. These could include legal and institutional considerations; the nature of the mitigation and technology being proposed; governance structures and legislation; and considerations relating to stability, conflict, or security.

The Bank discloses the project's classification and the basis for that classification on its website and in project appraisal document. The Bank requires the Borrower to carry out appropriate E&S assessment of Projects, and prepare and implement such Projects, as follows:

a. *High Risk* projects, in accordance with the ESSs;
b. *Substantial Risk, Moderate Risk* and *Low Risk* projects, in accordance with national law and any requirement of the ESSs that the Bank deems relevant to such projects.[88] As indicated in Section5.2, all subprojects classified high and substantial risk will not be supported by KDEAP.

The overall E&S risks classification for KDEAP is ***Moderate****, therefore,* appropriate E&S assessment for the project should be carried in accordance with GOK legal frameworks and WBG ESF.

5.3.2 GoK Environmental and Social Risk Classification

Environmental Management and Coordination Act (EMCA) No. 8 of 1999 defines Environment Impact Assessment (EIA) as "a systematic examination conducted to determine whether or not a program, activity or project will have any adverse impacts on the environment". As such, any project that is likely to have a significant negative impact on the environment requires an EIA study.

The Second Schedule of EMCA amended in 2019 by a regulation (Legal Notice No. 31) adopts a risk-based reclassification of projects and facilities. *Low, medium,* and *high-risk* categories are adopted. For instance, an *activity out of character with its surrounding; and Any structure of a scale not in keeping with its surrounding* are categorized **High Risk.** Limited scale projects such as *Business premises including shops, stores, urban market sheds* are categorized **Low Risk**.

The Act and its subsidiary regulations require project proponents to carry out tiered E&S assessments:

1. *High Risk* subprojects – prepare and submit to NEMA headquarters, an ESIA full study report – takes approximately 45 days to be approved or rejected;
2. *Medium Risk* subprojects – prepare and submit to NEMA county offices, a comprehensive ESIA project report (CPR) – takes approximately 21 days to be approved or rejected; and
3. *Low Risk* subprojects – prepare and submit to NEMA county offices, a summary ESIA project report (SPR) – records of decision (ROD) issued within 7 days (approved or upgrade to CPR).

All telecommunication infrastructure projects are automatically classified **'Medium Risk'**, therefore, require CPR.

[88] Where subprojects are likely to have minimal or no adverse environmental or social risks and impacts, such subprojects do not require further environmental and social assessment following the initial screening.

5.4 Step 3 – Carrying out Environmental and Social Assessment

After analyzing data contained in the sub-project Environmental and Social Screening Form (ESSF) and having identified the right environmental and social risk rating and hence scope of the environmental assessment required, the PIU E&S specialists will make a recommendation to the PIU as to whether: (a) no environmental assessment will be required; or (b) an ESIA/ESMP will be carried out.

The ESIA CPR will be conducted by a NEMA licensed Lead Expert/Firm of Experts hired by the PIU. The ESIA's ESMP will constitute an integral part of the bidding documents for contractors carrying out civil works under the project, in addition some Environmental, Social and Health and Safety (ESHS) clauses will be included in the project bid/contract documents. Kenya ESIA procedures are summarized in Figure 0- 1 ESIA Procedures in Kenya, *Annex B* of this ESMF. A generic ESMP for subprojects involving civil works is provided in *Annex G1 & Annex G2* of this ESMF. The ESMP, however, is a guideline, and actual aspects to be considered may be in addition to those highlighted, and dependent on the nature of works and baseline conditions.

Other required safeguard instruments e.g., VMGP, RAP, SEP, GBVAP, etc., will also be prepared by qualified personnel as part of the ESIA. However, their preparation will be guided by Step 1, screening outcomes.

5.5 Step 4 – Review and Approval

The prepared E&S instruments e.g., ESSFs, ESIAs, etc., will be submitted to the World Bank for prior review and no objection. To streamline the review/approval process, and depending on the number of subprojects, the Bank could review a representative sample of instruments. Sampling techniques should be risk-based and adaptive so that, if sampling reviews identify any issues in the quality/compliance of instruments, it would be possible to increase sampling in the relevant areas/regions, type of projects, etc.

Thereafter the World Bank and the implementing ICTA's PIU will reassess whether prior review is needed for activities exceeding a certain budget, or for certain types of activities). For an ESIA, once World Bank has cleared, it will be submitted to NEMA for approval and licensing.

ICTA will also complete the documentation, permits and clearances required under the government's environmental regulation before any project activities begin.

At this stage, staff who will be working on the various subproject activities should be trained in the environmental and social management plans relevant to the activities they work on. PIU's E&S safeguards specialists should provide such training to field staff.

The PIU should also ensure that all selected contractors, subcontractors, and vendors understand and incorporate E&S mitigation measures relevant to them as standard operating procedures (SOPs) for civil works. The PIU should provide training to selected contractors to ensure that they understand and incorporate E&S mitigation measures; and plan for cascading training to be delivered by contractors to subcontractors and vendors. The PIU should further ensure that the entities or communities responsible for ongoing operation and maintenance of the project investments have received training on operations stage E&S management measures as applicable.

5.6 Step 5 – Public Consultations and Disclosure

In carrying out ESIA, evidence of comprehensive public consultation including duly signed minutes of consultation meetings with project affected persons and key stakeholders, attendance lists and filled

questionnaires are required[89]. These public consultations will take place during the E&S screening process and during validation of the draft ESIA report, with outcomes from the public consultations reflected in the design of the mitigation and monitoring measures.

World Bank requires disclosure of the environmental assessment report both in-country by the client (ICTA), in a manner accessible to all project stakeholders, and at World Bank website.

5.7 Step 6 – Monitoring, Supervision and Reporting

During implementation, the PIU will conduct regular monitoring visits. Subproject contractors will be responsible for implementing the mitigation measures in the E&S safeguard instruments with PIU oversight.

The PIU working to implement the project will ensure that monitoring practices include the E&S risks identified in the ESMF and will monitor the implementation of E&S risk management mitigation plans as part of regular project monitoring.

At a minimum, the reporting will include (i) the overall implementation of E&S safeguard 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, (viii) preparation and implementation of RAPs, where required, (ix) progress on LMP implementation, and (x) summary of grievances/feedback received, actions taken, and complaints closed out, in line with the SEP. Monitoring reports from all subprojects will be submitted to the PIU at the national level on a monthly basis, where they will be aggregated and submitted to the World Bank on a quarterly basis.

Throughout the Project implementation stage, the PIU will continue to provide training and awareness raising to relevant stakeholders, such as staff, selected contractors, and communities, to support the implementation of the E&S risk management mitigation measures. An initial list of training needs is proposed in *Section 7.3*.

The PIU will also track grievances/feedback (in line with the SEP) during project implementation to use as a monitoring tool for implementation of project activities and environmental and social mitigation measures.

Last, 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 labor, abuses of community members by project workers (including gender-based violence incidents), violent community protests, or kidnappings. PIU should ensure that the incident report is in line with the Bank's Environmental and Social Incident Reporting Toolkit (ESIRT). The Bank should then process the incident report in accordance with the ESIRT. Moreover, a fatality should be reported to DOSHS within 24 hours of occurrence.

[89] World Bank requires public consultations to be conducted for all EA type documents prepared under WB-financed projects (World Bank, ESS1, 2017), while NEMA requires public consultations to be conducted for Medium and High-Risk projects (NEMA, 2020).

5.8 Step 7 – Review and Evaluation – E&S Completion

Upon completion of Project activities, the PIU will review and evaluate progress and completion of project activities, and all required environmental and social mitigation measures. Especially for civil works, the PIU will monitor activities regarding site restoration and landscaping in the affected areas to ensure that the activities are done to an appropriate and acceptable standard before closing the contracts, in accordance with measures identified in the C-ESMPs and other plans. The sites must be restored to at least the same condition and standard that existed prior to commencement of works. Any pending issues must be resolved before a subproject is considered fully completed. The PIU will prepare the completion report describing the final status of compliance with the E&S risk management measures and submit it to the World Bank.

5.9 Technical Assistance Activities

The PIU will ensure that the 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 Bank, that are consistent with the ESSs.

5.10 Contingency Emergency Response Component

The Contingency Emergency Response Components (CERC) Manual to be prepared for the Project will include a description of the E&S risk assessment and management arrangements if the CERC component becomes activated. This may include a CERC ESMF or an Addendum to this ESMF based on the subproject activities that will be funded under the CERC component. If such additional documentation or revision to documentation is needed, the PIU will prepare, consult, adopt, and disclose these in accordance with the CERC Manual, and implement the measures and actions as necessary.

6 STAKEHOLDER CONSULTATION AND DISCLOSURE

This Chapter presents a summary of the stakeholder engagement undertaken as part of the ESMF and other safeguard instruments preparation process. It also serves as a summary of a more detailed Stakeholder Engagement Plan (SEP), which presents the engagement approach and identifies stakeholders and the mechanisms through which stakeholders have been engaged. The complete SEP is *Annexed I*. The SEP is a living document which can be updated through the course of the project to incorporate changes and updates in the stakeholders.

The engagement process has been designed to meet both Kenyan legal requirements for public participation, and international requirements for engagement as outlined in the WBG ESS 10.

6.1 Objectives of Stakeholder Consultation

The objectives of engaging key stakeholders during the ESMF and other safeguard instruments preparation process included:

1. **Ensure understanding** – inform stakeholders about the project through disclosure of pertinent information (e.g., components, activities, beneficiaries, inputs, outputs, outcomes, etc.);
2. **Involve stakeholders in the assessment** – include stakeholders in the scoping of issues, the assessment of impacts, the generation of mitigation measures and the finalization of the ESMF. They also play an important role in providing local knowledge and information for the baseline to inform the impact assessment;
3. **Build relationships** – Through supporting open dialogue, engagements help establish and maintain a productive relationship between the Project and stakeholders. This supports not only an effective ESMF, subsequent ESMPs/ESIAs, but also strengthens the existing relationships and build new relationships between the ICTA and stakeholders;
4. **Engage vulnerable people** – An open and inclusive approach to consultation increases the opportunity of stakeholders to provide comment on the Project and to voice their concerns. Some stakeholders, however, need special attention in such a process due to their vulnerability. Special measures are to be considered to ensure that the perspectives of Vulnerable and Marginalized Groups (VMGs) are heard and considered;
5. **Manage expectations** – It is important to ensure that the Project does not create or allow unrealistic expectations to develop amongst stakeholders about Project benefits. The engagement process serves as one of the mechanisms for understanding and then managing stakeholder and community expectations, where the latter is achieved by disseminating accurate information in an accessible way; and
6. **Ensure compliance** – engagement process was designed to ensure compliance with both local regulatory requirements (EMCA) and international best practice (WBG ESS 10).

6.2 Project Stakeholders

A stakeholder is defined as any **individual or group** which is **potentially affected by the Project** or **who has an interest in the Project and its potential impacts**. Different issues are likely to concern different stakeholders as such stakeholders have been grouped based on their connections to the Project.

Below is a range of stakeholder groups that have been identified and included within the stakeholder engagement process to date:

1. Ministry of Information communication and the Digital Economy
2. Ministry of Education
3. Ministry of Health
4. Communications Authority (CA)

5. Ministry of Youth and Sports
6. National Gender Equality Commission (NGEC)
7. Ministry of Roads and Transport
8. National Environment Management Authority (NEMA)
9. Directorate of Occupational Safety and Health Services (DOSHS)
10. Kenya Power and Lighting Company (KPLC)
11. Kenya Electricity Transmission Company (KETRACO)
12. Kenya Urban Roads Authority (KURA)
13. Kenya National Highways Authority (KeNHA)
14. Kenya Rural Roads Authority (KeRRA)
15. Postal Corporation of Kenya (PCK)
16. All 47 county governments and Council of Governors' ICT & Knowledge Committee
17. Telecommunication companies – Safaricom, Airtel and Telkom
18. ICT Service Providers such as ZUKU, Liquid Telkom, Huawei, Sapashe Group, and Jamii Telecom among others
19. Academia e.g., Moi University, JKUAT, etc.
20. Sub-Saharan Africa Historically Underserved Traditional Local Communities in Kenya (Ogiek, Masai, Samburu, Turkana, etc.)
21. Relevant NGOs & CSOs e.g., KENET, Digital Humanitarian, etc.
22. National Government Administration Officers (NGAO) across the project footprint
23. Women's groups
24. Youth Groups (National Youth Council at the national level)
25. National smart agriculture initiatives e.g., KAAA, KCEP-CRAL, KCSAP, etc.
26. Pastoralists in relevant areas
27. Business organizations e.g., KNCCI, KEPSA, KMA, etc.
28. Refugees and refugee groups
29. Religious Organizations
30. People Living with Disabilities (PWDs)
31. E-Waste managers e.g., WEEE Centre, EWIK, etc.

6.3 Approach to Stakeholder Consultation

Stakeholder consultation for KDEAP safeguard instruments was undertaken using a staged approach in line with the various phases of its development as follows:

- ESMF and safeguard instruments preparation process consultation; and
- Post-ESMF safeguard instruments consultation.

6.3.1 ESMF Process Consultation

The objectives of the ESMF process consultation were to:

- To meet/communicate with key stakeholders and introduce them to the Project and ESMF process;
- To discuss the Project with the stakeholders including identified impacts and the plans in place to manage them through various safeguard instruments;
- To obtain stakeholders' view and concerns on the Project;
- To understand stakeholders' expectation from the Project; and
- To notify stakeholders of the next steps of the Project development.

Table 6.1 presents a summary of the stakeholder consultations conducted during the ESMF and safeguard instruments preparation process.

A summary of the key issues raised/comments by the different stakeholders is presented *Section 6.3.2*. The results of the stakeholder consultations have been incorporated into the baseline information as well as into the impact assessment Chapter (*Chapter 4* of this ESMF).

Table 6- 1 Details of ESMF Process Consultation

Stakeholder	Mode of Engagement	Engagement Date	Venue
Various i.e., WBG, ICTA, Private Sector, NGOs/CSOs[90]	Workshop	December 13 2022	Sarova Stanley, Nairobi
Various i.e., WBG, ICTA, Counties[91].	Workshop	December 13-14 2022	Sarova Stanley, Nairobi
E-Waste Initiative Kenya (EWIK) – George Thuo, EWIK Chairperson	KII & Observation	December 21 2022	Nyayo Market, Ngara, Nairobi
Ogiek	Focused Group Discussed (FGD)	December 19 2022	Nassuit, Marioshoni, Molo Sub-county of Nakuru County
Masai	FGD	December 21 2022	Mai Mahiu, Naivasha Sub-county of Nakuru County
Masai, Samburu and Turkana	FGD	December 20 2022	Kongasis, Ol Jorai, Gilgil Sub-county of Nakuru County

6.3.2 Outcomes of Stakeholder Consultations to Date

As indicated in Table 6.1 stakeholder consultation meetings were held during the preparation of the ESMF and other safeguard instruments for the Project.

Some of key questions and concerns raised by stakeholders during this process are outlined in Table 6.2.

Table 6- 2 ESMF Consultation Process Outcomes

Main theme raised by stakeholders	Key stakeholder issues/comments
KDEAP sustainability	What measures has the project designed to ensure sustainability of the Project? *KDEAP sustainability is assured through a greater focus on mobilizing private capital in existing markets, creating new markets in underserved areas, and optimizing long-term use of public infrastructure.*
Stakeholder engagement	Need to change approach from information sharing to communication integration since it's the outreach to the community. Its critical to ensure there is communication exchange to build a strong relationship

[90] A full list of participants is contained in Annex I.

[91] List of all consulted counties is contained in Annex I.

Main theme raised by stakeholders	Key stakeholder issues/comments
	with the community and other stakeholders. Community sensitization and awareness to be done during all project phases.
Key expert recruitment	Recruitment of the key experts sometimes leads to creation of a parallel organization. *A consideration should be done to instead upskill and build capacity of current staff through training.*
Knowledge management	It is important to document lessons learnt and other experiences of similar projects and any interventions required.
Political Interference	How will the Project handle political interference issues to avoid the delays in implementation? *Resolve through stakeholder engagement and obtaining political goodwill.*
On positive impacts/ opportunities	• Increased access to information to a wider group • Job creation (temporary construction and creative economy) • Device affordability • Reduced environmental pollution. • Increased e-resources to institutions • Infrastructure sharing • Liberalization to allow competition. • Efficiency through improved service delivery • Standardization • Data management • Bridging of the digital divide • Visibility in government • Increased digital skills
On negative impacts/risks	• Misinformation • E-waste generation • Social Media addiction • Exposure to fraud • Cyber security risks • Marginalization of people with disability • Erosion of culture
Negative impacts from repeated trenching	The number of times fiber cables trenches are being dug is a lot: Why are we digging so many trenches? *The methodology for public works involves the use of locals to dig the trenches and some cases involve use of machinery. In some areas, locals demand digging jobs, and machines are used especially in areas with hard rocks.* *It was agreed that there is need for standardization to avoid many trenches being dug by different agencies. Unification of ducts* *Best practices of laying fiber globally* • *The ICT Authority has laid down standards on best practices, as well as ITU*

Main theme raised by stakeholders	Key stakeholder issues/comments
	standards. • *Public and civil works 1.5m/0.3m uses machinery for areas where its rocky and gravel.* • *The blowing & pulling of the cable is based on ITU standards.*
GBV – children sired by project workers	Number of children born along the way from Kakuma to Lodwar is high! *The gender-based violence action plan (GBVAP) covers sexual exploitation issues.* *If there are issues around children, cases should be reported to the ICTA. The Authority has laid down various mechanisms for reporting and handling such cases. In addition, the Authority holds quarterly meetings with governors where grievances can be heard.*
Family breakdowns	Family breakdowns due to people receiving a lot of money and becoming drunkards, spreading HIV/AIDS. Issue of re-compensation/lives that will be infringed by the project. *Creation of awareness is key before dissemination of huge monies to the beneficiaries to avoid cases of mismanagement of funds amongst beneficiaries*
Network redundancies	How well will ICTA partner with other agencies for redundancies? *ICTA has laid down mechanisms for ensuring redundancies where in some cases Safaricom is offering ICTA with secondary links. In addition, there is an integrated infrastructure-building policy, that focuses on ensuring that when an agency is building infrastructure it incorporates other agencies to avoid multiple trenches being dug on the same areas as well as unified cabling.*
E-waste management	*E-Waste environmental code of practice has been prepared as part of ESMF. The E-Waste ECOP reviews relevant legal frameworks, identifies capacity building needs as well as awareness creation among MCDAs staff.*
E-waste management II	E-Waste Initiative Kenya (EWIK), an NGO of e-waste managers A lot of e-waste is produced daily in Nairobi. EWIK is supported by GIZ and are piloting a training school in Kiambu/Limuru. There are opportunities in e-waste management in Kenya e.g., refurbishing, repurposing (creating new products e.g., solar inverters from UPS and laptop batteries), mining precious metals, etc. Some challenges: poor working conditions (no PPE), lack of the right tools or equipment to recover precious metals which are a crucial component of most PCBs (printed circuit boards), with gold, silver, platinum, and palladium all present and all becoming difficult to find, fire risk could lead to air pollution.
Public WIFI	Who caters for budget equipment & how is public WIFI requested for, is it through the letter(s)? *Government plans to roll out 25,000 public WIFI hotspots nationally. Counties are encouraged to partner with ICTA on the creation public hot spots for fiber, but*

Main theme raised by stakeholders	Key stakeholder issues/comments	
	standards must be adhered to. All counties will receive public hotspots equally.	
Potential positive impacts on VMGs	• Cheaper and faster internet connections. The VMG participants in meetings said that this was going to benefits their businesses including meat and livestock, honey, and agricultural produce, as this will open online market opportunities. • Online education and training. The VMG participants in the meetings said that the project will benefit their teachers to deliver better online and college students to access education and training. • Jobs for the youth. The VMG participants said that once internet access becomes cheaper, and speeds improve youth will access online job opportunities and support their families and communities. • Online Business opportunities. The VMG participants in the meetings averred that cheaper and easier internet access is likely to spur online business opportunities including meat, livestock, and honey sales as well as imports of goods and services required locally. • Online meetings for local groups including church and community groups. The VMG participants in the meetings said that they conducted some of their group activities such collecting funds from group members on WhatsApp. However, they reckoned this was expensive and inaccessible to some members. They averred that when the KDEAP is implemented, and internet access becomes cheaper they will intensify group activities online and safe time for other productive activities. • Entertainment and news. The VMG participants in the meetings said that they were aware that internet platforms had a lot of news and entertainment programs that they will enjoy when internet becomes cheaper and more accessible. • Reduced carbon emissions because with stable and affordable internet connections fewer people will travel for meetings or classes away from home or even to visit cyber cafes in towns.	
Potential negative risks and impacts on VMGs	**Impacts and Risks**	**Recommended Mitigation**
	Livelihood disruptions. The VMG participants in the meetings indicated that their fences, kiosks, and other temporary business structures along the roads where fiber optic cables will be laid are likely to be affected.	The ICTA will compensate the VMG members whose structures, trees, crops, and fences will be affected during trenching to lay the fiber optic cable.
	Exclusion of the VMGs from the project. This is likely to result from the VMGs' current limited access to ICT equipment and internet services, inadequate	The KDEAP will make specific effort to enhance awareness of and training in computing for VMG members especially the youth, provision of IT

Main theme raised by stakeholders	Key stakeholder issues/comments	
	awareness on computing and the digital economy.	equipment and gadgets to them, and set up community ICT labs for VMGs at appropriate places.
	During construction the labor influx will lead to the spread of diseases such as COVID-19, HIV/AIDS, and other Sexually Transmitted Diseases (STDs) in VMG territories.	Adoption of COVID-19 Ministry of Health Protocols during design and construction phases HIV/AIDS and STD education and awareness campaigns in VMG areas Specific partnership with schools in VMG areas to create project and labor influx awareness and sensitization to attendant social and health risk management
	The labor influx during construction may also disrupt the social lives of the VMGs especially their languages, taboos, and norms. Workers from outside may bring in new ways of life including diets and relationships with people of the opposite or same sex that may be offensive to VMG social organization.	Induction of workers from outside VMG areas and sensitization to the culture of various VMGs. Preparation of Codes of Conduct to protect VMG interests and culture to be signed and adhered to by contractor's workers.
	Labor influx will also be a threat to the safety of children, girls, and women. Gender-based Violence will likely increase in the VMG territories as transactional sex set in.	Preparation of GBV Prevention Plans and their judicious implementation. Child Protection through labor practices compliant to the Children's Act Laws of Kenya.
	Increased crime. If internet connections improve through the KDEAP there is a likelihood that small businesses such as cyber cafes and online jobs will flourish in those isolated VMG areas and crime may set in due emerging inequality.	ICTA will inform the security sector in VMG areas to anticipate and link crime increases to ICT development trends and grow security installations accordingly.

All stakeholder comments were noted and were considered in the assessment of the Project at all phases. Where necessary, responses were given by both the safeguards team and ICTA present in the various meetings (refer to separate Stakeholder Engagement Plan (SEP) for detailed minutes of the stakeholder consultation workshops).

6.3.3 Post-ESMF Engagement

The Project is committed to continuous engagement with stakeholders throughout the life of the Project, from the current stages of planning and design, through construction into operation, and eventually to closure and decommissioning.

Plans and activities implemented during the next stages of Project planning and development will therefore feed into and inform on-going stakeholder engagement as the Project moves into these stages, ensuring that two-way dialogue with those affected, both positively and negatively by the proposed Project is maintained.

The aim will be to ensure that the Project remains in contact with all interested parties and cognizant of their concerns, and that these are addressed in an effective and timely manner. At each stage, a detailed schedule of activities and events will be developed and widely disseminated so that people know how to interact with and participate in the Project.

Post-ESMF stakeholder engagement is expected at the following Project stages:

- **ESIA process**: As indicated in *Section 5.4,* ESIAs will be commissioned once exact locations of specific Project infrastructure and detailed construction schedule is known. In this process, information regarding the Project i.e., activities in each component, inputs, outputs, benefits, adverse impacts, will be shared with stakeholders;
- **Mobilization phase**: At this stage, information regarding the exact locations of specific Project infrastructure, detailed construction schedule, contractor(s) (including employment opportunities) will be shared with the Project stakeholders;
- **Construction phase:** Periodic Project updates as well as any changes in planning will be shared with Project stakeholders. The WBG ESS 2 and 10 also requires consultation with stakeholders and the implementation of a LMP that includes a worker and community GRM (see *Annex J*);
- **Demobilization phase**: Notifying the stakeholders at the end of the construction activities and close- out of outstanding construction phase related grievances. This is also expected to mark the start of the operation phase;
- **Operations Phase**: Periodic updates to Project stakeholders on the operations issues, share operation information where required or deemed necessary and communicate any changes in operation plans. The WBG ESS 2 and 10 also requires consultation with stakeholders and the implementation of an LMP that includes a worker and community GRM (see *Annex J*); and
- **Decommissioning Phase**: Inform stakeholders when the Project comes to an end as well as future for the Project Sites.

6.4 Disclosure

This ESMF and other project safeguard instruments will be disclosed on MICDE/ICTA website and the World Bank's Info Shop.

7 IMPLEMENTATION ARRANGEMENTS, RESPONSIBILITY & CAPACITY BUILDING

This section describes the institutional arrangements to implement the ESMF including the screening of subprojects for E&S risks and impacts, preparation, and consultation in relation to the assessment and identification of mitigation measures for subprojects, review, clearance and disclosure of documentation and instruments, and monitoring the implementation of the ESMPs. A clear delineation of responsibilities has been spelled out as well.

7.1 Implementation Arrangements

7.1.1 Project Implementation Unit (PIU)

ICTA through a Project Implementing Unit (PIU) will be the main implementing agency for the Project. ICTA is a specialized agency of MICDE and has hosted a PIU to implement World Bank-financed projects for almost two decades, dating back to the *Kenya Transparency and Communications Infrastructure Project* (KTCIP) (P094103). The existing PIU in ICTA, which will be expanded to take on the implementation responsibility of KDEAP, supports several World Bank-financed projects including the Horn of Africa Gateway Development Project (P161305), currently rated *Moderately Satisfactory*. To implement the KDEAP, that PIU's staffing would be expanded through redeployment of Government staff, project-financed recruitment of specialists where capacity is missing, and cost sharing of existing positions. The PIU will oversee all project-related fiduciary functions, including managing financial management (FM) and procurement, as well as implementation of project-related E&S standards commitments. It will be responsible for orchestrating project planning, delivery, and M&E, leveraging key project management tools such as annual work plans and budgets (AWPBs). The PIU will be initially staffed (by project effectiveness), at the onset, with a project coordinator, procurement, FM, environmental, health and safety specialist and social specialist. Other experts such as SEA/SH and SH advisors will also be engaged later on a part-time basis.

Figure 7.1 shows KDEAP implementation arrangements.

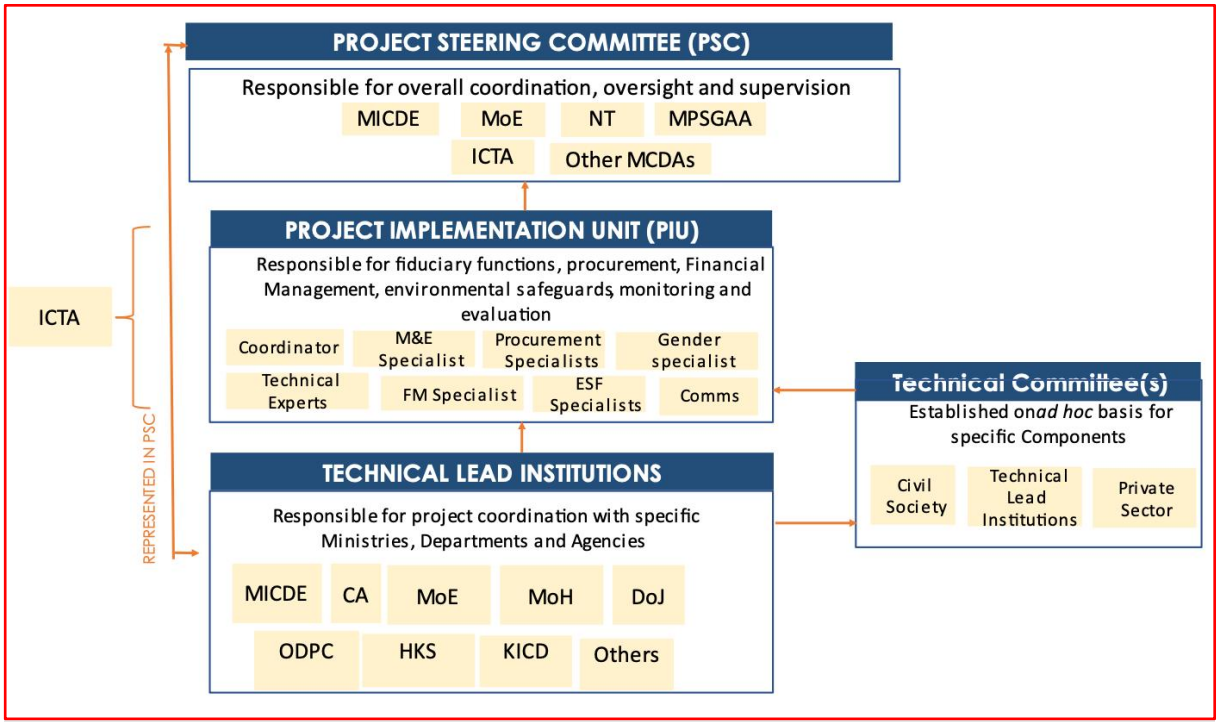

Figure 7- 1 Project Implementation Arrangements

The PIU will be responsible for monitoring achievement toward the PDO and intermediate indicators**.** It will do so by ensuring that the PIU is staffed with a part-time M&E expert, tasked with coordinating M&E centrally, and by ensuring that an adequate M&E system is established, including systems for correct reporting by other stakeholders that are expected to provide inputs based on the M&E plan detailed in the results framework. The status of project implementation will be documented in progress reports prepared on a quarterly basis, typically just ahead of an implementation support mission, and submitted to the World Bank for review. These reports will include updates on results, disbursements, FM, procurement, and social and environmental policies and guidelines, as well as an updated work plan. In the results framework, four indicators are used for monitoring gender-related issues, two for citizen engagement, two for climate and two for the regional dimension.

7.1.2 Project Steering Committee (PSC)

A PSC will be set up to provide strategic oversight and governance for the project. The PSC will be chaired by the Principal Secretary (State Department for ICT and Digital Economy), and comprising, amongst others, CEO of ICTA, director general of CA and representatives of MOE, MPSGAA, and the National Treasury (NT), as well as the KDEAP Project Coordinator as secretary and - with mandate, powers and resources satisfactory to the Association.

7.1.3 Technical Committees (TCs)

The project will form technical committee(s) (TC) with representatives from relevant Ministries, Counties, Departments, and Agencies (MCDAs) – MoE, MPSGAA, Ministry of Health (MoH) and Department of Justice (DoJ), CA, the Office of the Data Protection Commissioner (ODPC), the Huduma Kenya Secretariat (HKS), Kenya Institute for Curriculum Development (KICD) – to inform the technical aspects of the project activities and their implementation are well coordination across the MCDAs. The terms of reference (TORs) of these TC(s) are detailed in the Project Implementation Manual (PIM).

7.2 Monitoring Roles & Responsibilities during Planning, Design, Construction and Operational Phase

7.2.1 ICTA PIU

ICTA, at the project onset, will hire one environmental, health and safety (EHS) specialist and one social safeguards specialist. Other experts such as SEA/SH and SH advisors will also be engaged on part-time basis. However, Contractors and Supervision Consultant (s) will be required to have experienced and qualified EHS staff and social safeguards staff respectively.

There will be public technical officers to monitor project civil works. They will work closely with the project E&S specialists as well as the relevant MCDAs key personnel. Hired ICTA's E&S specialists' technical capacity will be enhanced by induction training at the beginning of project implementation to appreciate the new WBG ESF. This will facilitate a better understanding and appreciation of safeguard requirements through discussion of modalities for implementation of the project ESMF and safeguard instruments provisions. Financial facilitation would however be necessary for their effective participation.

7.2.1.1 Environmental, Health and Safety (EHS) Specialist Roles and Responsibilities

- Oversee the implementation of the ESMF, subproject ESMPs, and other safeguard instruments e.g., ESCP, etc.;
- Closely help and deliver capacity building training to contractors, suppliers, MCDAs, etc., to close knowledge/skill gaps and minimize the likelihood of risks to happen to subprojects;
- Together with the social specialist, complete subproject ESSF and make recommendations;
- Ensure EHS assessment requirement are included in the Subproject ESIA TORs;

- Support subproject ESIA consultant in their studies;
- Ensure the Subproject ESIAs include EHS risks and impacts and recommended mitigation;
- Review the subproject ESIAs and submit to WB for review and clearance;
- Ensure all contracts include EHS provisions and contractors have C-ESMPs;
- Undertake follow up monitoring to ensure that proposed mitigation measures are implemented according to the C-ESMPs;
- Oversee the implementation of C-ESMP provisions through contractor EHS officers;
- Lead on developing and delivering a series of spot checks to ensure environmental safeguards instruments are properly implemented by both the contractor and beneficiary MCDAs;
- Receive environmental complaints relating to KDEAP activities and ensuring that they are addressed in accordance with the GRM;
- Undertake monitoring visits to subprojects sites according to E&S issues therein;
- Review monthly progress reports from subprojects and prepare reports covering all environmental safeguard aspects of the project; and
- Carrying out any other duties as assigned by the PIU Project Manager that contribute to achieving the objectives of the KDEAP.

7.2.1.2 Social Specialist Role and Responsibilities

- Provide leadership on core social development themes under the KDEAP project. Oversee the updating of the SEP, VMGP, RPF, SMP, LMP and subproject specific ESMPs. Together with the EHS specialist, complete subproject ESSF and make recommendations;
- Serve as lead person on social issues including, stakeholder engagement, grievance management, vulnerable and marginalized groups who may be affected by KDEAP, and work closely with other PIU members to address any challenges;
- Oversee and guide the production and implementation of RAPs;
- Ensure implementation of LMP;
- Advice and/or provide quality leadership on major or sensitive matters relating to social impacts and risks associated with KDEAP project activities;
- Support the set up and operationalization of project's Grievances Redress Mechanisms (GRMs);
- Integrate social inclusion (with respect to gender, age, marginalised groups or any other relevant factors) into KDEAP activities;
- Ensure social clauses are incorporated in all agreements signed between ICTA/PIU and Contractors, Suppliers, etc.;
- Ensure that relevant stakeholders are informed about issues relating to implementation of KDEAP social safeguards and providing the required support for timely implementation;
- Develop and implement capacity building and training plans on social safeguards for KDEAP stakeholders;
- Maintain records on the social safeguard's performance of subprojects and MCDAs in accordance with the KDEAP social safeguard instruments provisions;
- Act as a link between PIU and other stakeholders on social matters;
- Be responsible for management of social risks associated with the subproject's KDEAP, as stipulated in the contracts to be signed between the KDEAP and contractors, suppliers, or MCDAs;

- Receive social complaints relating to KDEAP activities and ensuring that they are addressed in accordance with the GRM;
- Undertake monitoring visits to subprojects (at least quarterly) to assess compliance and propose necessary remedies;
- Review monthly progress reports from sub-projects and prepare reports covering all social safeguards aspects of the project; and
- Carrying out any other duties as assigned by the PIU Project Manager that contribute to achieving the objectives of the KDEAP.

7.2.2 County Governments

County governments will play the following roles:

- Supervise project roll out within respective counties to ensure no activity being implemented shall not become a source of danger, discomfort or annoyance to the local community;
- Issue requisite licenses and permits, e.g., development approvals expeditiously, etc.;
- Review submitted subproject ESIAs as lead agencies;
- Ensure stakeholder engagement (includes VMGs, if any) is done both at the county and community levels for subprojects involving civil works; and
- Authorize waste management plans.

7.2.3 Contractors for Civil Works

Contractors will be required to comply with the Project's E&S risk management plans and procedures, including the ESMF, ESCP, LMP, VMGF, SMP, GBVAP, RPF, and local legislation. ESIAs/ESMPs to be developed before commencement the procurement process. RAPs will be produced and implemented fully before civil works take place. This provision will be specified in the contractor's agreements. Contractors will be expected to disseminate and create awareness within their workforce on E&S risk management compliance for their effective implementation. Contractors for civil works have the following responsibilities:

- The contractors will be responsible for planning, implementation, and reporting on implementation of mitigation measures during the execution of civil works. The contractor will also be required to apply standard quality assurance procedures in full compliance with the approved sub-project specific ESMP;
- Have full time E&S officers for the day-to-day guidance of the project on matters of E&S compliance;
- Construction supervision will include monitoring of, and reporting on, E&S aspects, daily;
- Develop a Contractor's ESMP (C-ESMP) guided by the sub-project's ESMP. C-ESMP should include the following at a minimum:
    - Occupational Safety and Health Plan;
    - HIV/AIDS management Plan;
    - Waste Management Plan;
    - SEA/SH Management Plan;
    - Labour management Plan;
    - Emergency Response Plan;
    - Procedures for implementation of RAPs in line with the RPF in case they are required during construction; and
    - Provisions for stakeholder consultations and implementation of the GRM.

- The contractor will be responsible for the relevant training of staff and ensuring that they are fully qualified, sufficiently experienced and certified in accordance with contractual requirements for the work contracted to undertake;
- Contractor(s) will be required to prepare Waste Management Plans (WMP) that provide temporary storage on site for both non-hazardous and hazardous or toxic substances in safe containers labelled with details of composition, properties and handling information;
- The project's Monthly Progress Reports shall contain a section referring to E&S matters, which summarizes the results of site monitoring, remedial actions, which had been initiated from the previous months, and whether resultant action is having the desired outcome. The report will also identify any unforeseen E&S related challenges and will recommend a suitable additional action;
- Promptly notify the ICTA and World Bank of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers. Major issues (fatal accidents, injuries) will be reported to the PIU within 24 hours of occurrence and Bank within 48 hours. Provide incident or accident detail as ESIRT procedure, indicating immediate measures taken or that are planned to be taken to address it, and any information provided by any contractor and supervising entity, as appropriate. Subsequently, as per the ICTA request, prepare a report on the incident or accident and propose any measures to prevent its recurrence;
- Progress site meetings with the contractor will also include a review of E&S safeguards and a section will be presented on the progress of implementation of safeguards in the monthly site meetings;
- The Contractor's E&S officers or Community Liaison Officer shall also be in constant engagement with local leaders and community and ensure that any arising environment and social grievances are addressed; and
- Ensure contractor's E&S monitoring report will be prepared monthly over the construction period. Detailed monthly monitoring reports with clear illustrations of implementation of mitigation measures shall be compiled by the contractor under the supervision of ICTA. These detailed reports with evidence of compliance will be prepared and appended to summary monthly site meeting reports.

Other entities responsible for operating project related aspects:

7.2.4 Heads of MCDAs

Roles of heads of MCDAs under the project include:

- Provide supervision and guidance to the contractors on site during construction phase;
- Train contractors on respective MCDA emergency response plan (risks and escape routes in case of emergency);
- Reporting to the PIU on project related progress, challenges, incidents and accidents at the institutions;
- Ensure adequate training for staff and designate the staff responsible for coordinating and implementing training courses on OSH, safeguard instruments, waste management and emergency response procedures; and
- Establish a team to oversee the preparation, implementation and monitoring of the subproject.

7.2.5 External Supervision and Support Implementation

7.2.5.1 National Environment Management Authority

The responsibility of the NEMA is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of government in the implementation of policies relating to the environment. NEMA will provide approvals of subprojects and ESIA licenses to all the subprojects based on the environmental assessment reports submitted. NEMA will also undertake periodic monitoring of the subprojects by making regular site inspection visits to determine compliance of subprojects with the approved ESIA and will further rely on the submitted annual audit reports submitted for each subproject annually as required by EMCA as a way of monitoring. All monitoring reports as well as annual environmental audit report will be submitted to NEMA as specified by the environmental assessment and audit regulations, 2003.

7.2.5.2 DOSHS

DOSHS will be responsible for the following during project implementation:

- Monitor the implementation of health and safety plans for construction and operation workers and members of public encountering project activities;
- Rely on submitted annual health and safety and fire inspection audit reports for project facilities as required by OSHA for monitoring;
- Register all project sites as workplaces annually;
- Enforce WIBA policy for all project workers.

7.2.5.3 Road Authorities

Component 1, broadband access, and expansion will utilize existing road reserves for the middle and last mile connectivity. Road authorities such as KeNHA, KURA and KeRRA will issue approvals to ICTA to utilize respective road reserves. Beyond the approvals, the road authorities should also monitor project implementation to ensure compliance with approval conditions.

7.2.5.4 World Bank Group

World Bank implementation support mission shall be periodically done to ascertain the level of implementation in line with the ESCP and other E&S instruments prepared for the project.

WBG will also approve ESSFs and ESIAs.

Other key institution's role in project implementation is summarized in Table 2.1.

7.3 Capacity Building and Training

7.3.1 Capacity Strengthening Areas

For the institutions highlighted in *Section 7.2* to carry out their E&S management responsibilities during project implementation, institutional strengthening or capacity building is required at several levels. It must be noted that ICTA does not have dedicated trained professionals serving as the focal points for E&S issues. However, there are advanced plans to onboard fulltime E&S safeguards specialists. Other experts such as SEA/SH and SH advisors will also be engaged on part-time basis. The roles and responsibilities of the E&S safeguards specialists is summarized in *Section 7.2.1*.

Capacity building will thus encompass PIU, MCDAs, Contractors and Local community. Proposed capacity strengthening measures are presented in Table 7.1.

Table 7- 1 Institutional Capacity Strengthening Programme

Target Audience	Description	Application	Duration
PIU staff	Training may be required for PIU staff on: • Environmental and Social Management Framework (ESMF) including Labor Management Procedures (LMP) consisting of Code of Conduct for project workers in relevant languages and Labor Specific GRM • Environmental and Social Management Plans (ESMPs) • GBV Action Plan • Vulnerable and Marginalized Groups Plan • Stakeholder Engagement Plan • Project wide GRM • Occupational Health and Safety (OHS) Plan • RPF	The target audience will be responsible for ESIA/ESMP review and for preparing TORs for ESIA consultants as well as monitoring consultants' work and final approval of ESIAs. Target audience will also be responsible for conducting environmental and social audits on selected sub-projects and for periodic monitoring of project implementation to ensure compliance. Target audience is responsible for implementing and monitoring the ESMF and related safeguard instruments.	Three days
	Training on requirements of applicable WBG EHS Guidelines		One day
MCDAs staff (e.g., MoE, National Treasury, MPSGAA, CA, Counties, CA, MoH, DoJ, ODPC, HKS, KICD, etc.)	Training on management of contractors, and monitoring and evaluation General environmental and social awareness seminar that will include: • Environmental and social requirements; • ESIA methodology and process; • Environmental and social impact determination (tools and methods); • Mitigation hierarchy (Avoid, Minimize, Restore & Offset (AMRO); • Stakeholder mapping and engagement; • ESMP preparation and monitoring techniques; and • Preparation of ESIAs TORs, and other. • Code of Conduct (COC) to prevent SEA/SH;	Personnel requires appreciation of WBG ESSs and EHS Guidelines, GoK environmental and social policies, as well as an appreciation for the need to support environmentally and socially sustainable development.	Three days

Target Audience	Description	Application	Duration
	• Resettlement planning and implementation; • Training on the GRMs (project level, ESS2, and handling of GBV/SEA/SH reports when received through those GRMs);		
Contractors	• E&S training on project implementation • Training on labour management and monitoring/reporting requirements • Code of Conduct (COC) to prevent SEA/SH; • Resettlement planning and implementation; and • SEA/SH mitigation.	There's need to sustain E&S efforts throughout project implementation, taking fully into account the key roles of contractors.	Half-day
Local community	Creation of awareness on environmental and social issues related broadband access during construction.	Community needs to understand what the project is about and the various anticipated environmental and social impacts/risks.	1-hour at all project sites.

7.3.2 Capacity Building Costs

The cost estimates for capacity building cannot be estimated at this stage of the project, however, it is assumed that all PIU and MCDAs trainees are based in Nairobi thus require no travel allowances. Local community awareness creation sessions will be done at their local areas thus no travelling and per diem. Moreover, it is proposed that the training programme be implemented once for PIU and MCDAs in respective clusters. However, community awareness sessions will be ad hoc or depend on locations selected for sub-projects.

7.4 ESMF Implementation Budget

The estimated cost for the ESMF implementation is a combination of the cost of mitigation measures detailed in respective subproject ESMPs, ESIA Consultant Costs, NEMA Fees (0.1% of total sub-project cost), and the capacity building costs. This budget will form part of the US$15 million project management allocation.

8 GRIEVANCE REDRESS MECHANISM (GRM)

In line with the ESS10, ICTA is required to establish and implement a GRM to respond to concerns and grievances of project-affected parties related to the E&S performance of the project/subprojects in a timely manner. The GRM may include: (a) different ways in which users can submit their grievances, including submission in person, by phone, text messages, mail, email or via a web site; (b) a log where grievances are registered in writing and maintained in a database; (c) publicly advertised procedures, setting out the length of time users can expected to wait for acknowledgement, response, and resolution of their grievances; (d) transparency about the grievance procedures, governing structure, and decision makers; and (e) an appeals process (including the natural judiciary) to which unsatisfied grievances may be referred when resolution of grievance has not been achieved. The ICTA may provide mediation as an option where users are not satisfied with the project's resolution. ICTA must establish and implement a GRM to receive and facilitate resolution of such concerns and grievances. Based on ESS 2[92], there must also be a separate GRM for direct and contract workers[93], separate from the main GRM, for those workers to raise workplace related concerns. Those workers will be informed of the GRM upon their recruitment, as well as the measures put in place to protect them against any reprisal for its use.

It is noted that ESS2 prohibits the employment of forced labour and child labour with an age of less than 14 year (the project will not engage anyone under the age of 18) and also requires the application of occupational health and safety (OHS) measures to be designed and implemented to address; (a) identification of potential hazards to protect worker, particularly those that may be life threatening; (b) provision of preventive and protective measure, including modification, substitution, or elimination of hazardous conditions or substances; (c) training of project workers and maintenance of training records; (d) documentation and reporting of occupation accidents, diseases and incidents; (e) emergency prevention and preparedness and response arrangement to emergency situation; and (f) remedies for adverse impact such as occupational injuries, death, disabilities, and disease.

The full overview of the project-level GRM can be found in the *SEP*, and the labour-related GRM within the *LMP*. The GRM for sexual exploitation, abuse, sexual harassment, and/or gender-based violence (GBV) is available within the LMP (see *Annex J*).

[92] Scope of the ESS2 application depends on the type of employment relationship between the project/ subproject owner and the "project workers" which include the "direct workers", the "contracted workers", the "primary supply workers", the "community workers" including full-time, part-time, temporary, seasonal, and migrant workers.

[93] Direct workers are defined as people employed or engaged directly by the project/subproject owners to work specifically in relations to the project/subproject while the contracted workers are people employed or engaged through third parties to perform work related to core functions of the project, regardless of location.

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ANNEXES

Annex A: Subproject Environmental & Social Screening Form (ESSF)

This form will be completed during identification of project activities by the Environment and Social (E&S) Specialists in Project Implementation Unit (PIU) to screen for the potential E&S risks and impacts of a proposed subproject. It will help the PIU in: (i) identifying the relevant E&S Standards (ESS); (ii) establishing an appropriate E&S risk rating for these subprojects; and (iii) specifying the type of E&S social assessment required; including specific instruments/plans. The completed forms will be signed, and the record stored.

This form will allow the PIU to form an initial view of the potential risks and impacts of a subproject**. It is not a substitute for project-specific E&S assessments or specific mitigation plans.**

Screening Date	
Subproject Name	
Subproject Location	
Subproject Proponent	
Estimated Budget	
Start/Completion Date	

Questions	Answer		ESS relevance	If these risks "Yes" are present, Apply	Comment
	Yes	No			
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of facilities?			ESS1	ESMF	
Does the subproject involve long-term, permanent and/or irreversible adverse impacts (e.g., loss of major natural habitat);	*		ESS1	ESMF	
Does the subproject involve significant adverse social impacts and may give rise to significant social conflict.	*		ESS1	SEP, VMGP, SMP	
Does the subproject involve land acquisition and/or restrictions on land use?	*		ESS5	RPF, SEP	
Will the activities affect lands or rights of VMGs or other vulnerable minorities.	*		ESS5	RPF, SEP, VMGP	
Does the subproject involve permanent resettlement or land acquisition?	*		ESS5	RPF, SEP	

Questions	Answer		ESS relevance	If these risks "Yes" are present, Apply	Comment
	Yes	No			
Is the subproject associated with any external e-waste management facilities?			ESS3	ESMF, SEP, LMP	
Is there a sound regulatory framework and institutional capacity in place for e-waste management?			ESS1	ESMF, e-waste ECOP	
Does the subproject have an adequate system in place (capacity, processes, and management) to address waste?			ESS3	ESMF, e-waste ECOP	
Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?			ESS2	LMP, SEP, VMGP, GBVAP	
Does the subproject have appropriate OSH procedures in place, and an adequate supply of PPE (where necessary)?			ESS2	LMP, SEP	
Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?			ESS10	SEP, LMP	
Does the subproject involve use of security or military personnel during construction and/or operation of project infrastructure and related activities?			ESS4	SMP	
Will the activities have high probability of causing serious adverse effects to human health and/or the environment?			ESS4	ESMF, LMP, VMGP	
Is the subproject located within or in the vicinity of any ecologically sensitive areas?			ESS6	ESMF	
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?			ESS7	VMGP	
Does the subproject require Free Prior Informed Consent (FPIC);	*		ESS7	VMGP	
Is the sub-project located within or in the vicinity of any known cultural heritage sites?	*		ESS8	ESMF, Chance finds procedures	
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?			ESS1	LMP, GBVAP	

∗ The exclusion list of the sub-projects. If any of these parameters are “Yes”, the sub-project is excluded from financing under the program.

The Environmental and Social Commitment Plan (ESCP) prepared for the project has clearly outlined the activities considered as ineligible for financing under the project/exclusion list of activities that will not be financed under the project and that will be screen out. These include:

- Activities/subprojects that are classified high and substantial risk according to WBG ESF.
- Activities that contravene Kenya’s obligations under its international agreements.
- Activities that may cause long term, permanent and/or irreversible adverse impacts to natural, critical habitats and biodiversity.
- Activities that have a high probability of causing serious adverse effects to human health and/or the environment e.g., construction of major civil structure covering ecologically sensitive area.
- Activities that may reduce forest cover through loss of trees.
- Activities that may involve generating large volume of e-waste causing significant irreversible adverse impacts to human health and natural resources.
- Activities that may affect lands or rights of indigenous people or other vulnerable minorities. Require Free Prior Informed Consent (FPIC).
- Activities that may involve significant permanent resettlement or large land acquisition or adverse impacts on cultural heritage.
- Activities in “disputed areas”.

Conclusions:

Proposed subproject is eligible for financing under the project criteria: .....

Proposed Environmental and Social Risk Ratings (High, Medium, or Low).

Provide Justification: .....

Proposed E&S Management Instrument(s): .....

Certification:

Reviewed and approved by:			
ICTA Environment Safeguards Specialist **Name:**		**ICTA Social Safeguards Specialist** **Name:**	
Date	**Signature**	**Date**	**Signature**

Annex B: ESIA Procedures in Kenya

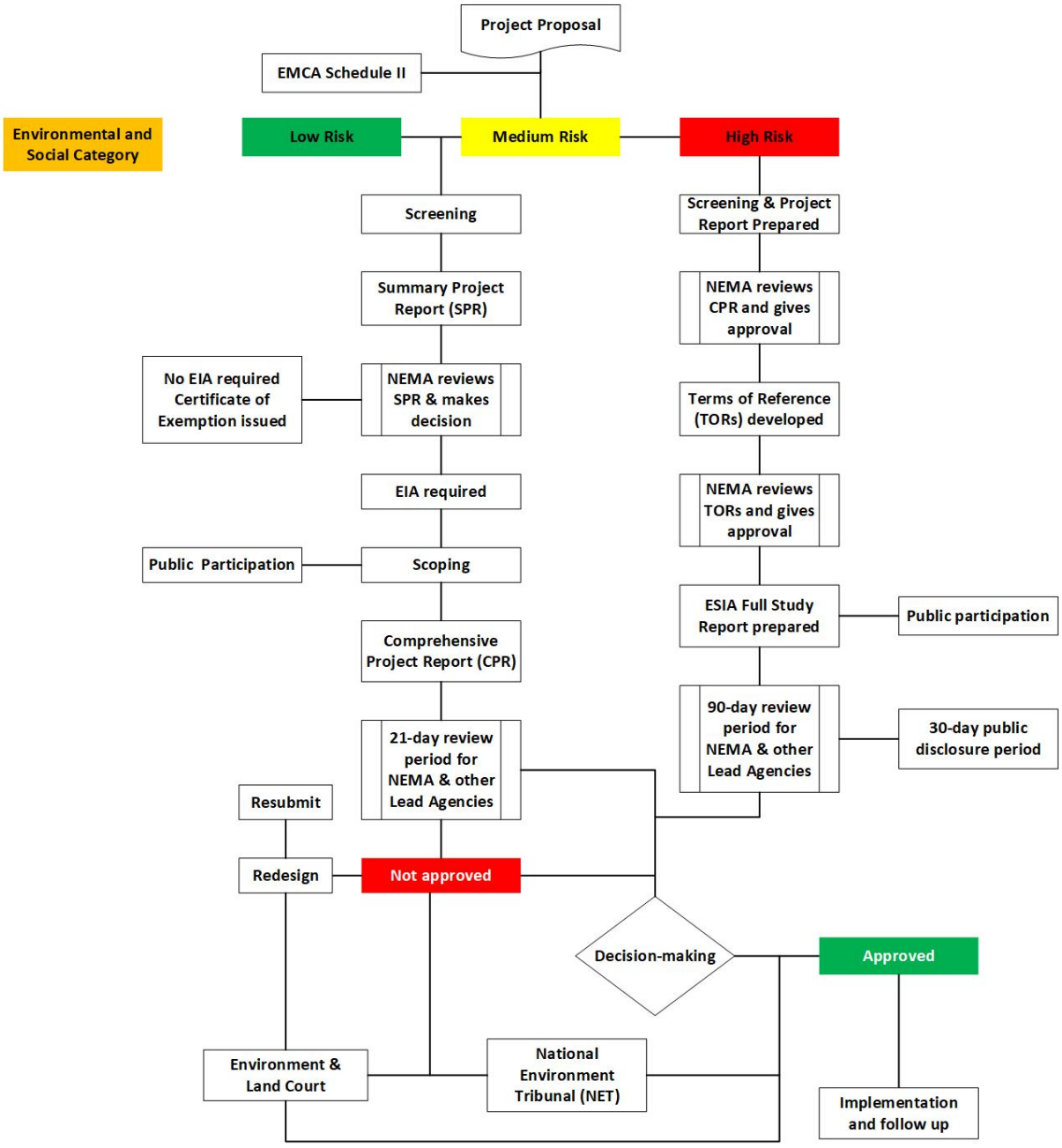

Figure 0- 1 ESIA Procedures in Kenya

Annex C: General Environmental Management Conditions for Construction Contracts

General[94]

1. In addition to these general conditions, the Contractor shall comply with any specific Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself about such an ESMP and prepare his work strategy and plan to fully consider relevant provisions of that ESMP. If the Contractor fails to implement the approved ESMP after written instruction by the Supervising Engineer (SE) to fulfill his obligation within the requested time, the Owner reserves the right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.
2. Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an ESMP. In general, these measures shall include but not be limited to:
    a. Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.
    b. Ensure that noise levels emanating from machinery, vehicles, and noisy construction activities (e.g., excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.
    c. Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
    d. Prevent bitumen, oils, lubricants, and wastewater used or produced during the execution of works from entering rivers, streams, irrigation channels and other natural water bodies/reservoirs, and ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
    e. Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands, local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.
    f. Upon discovery of ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately report such findings to the SE so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.
    g. Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
    h. Implement soil erosion control measures to avoid surface run off and prevents siltation, etc.
    i. Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.
    j. Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long-distance transportation.

[94] These conditions are Good International Industry Practices (GIIPs) on embedding environmental management conditions in construction contracts. As such they become part of the deliverables (KPIs). More elaborate conditions can be found on UNDP website: *https://procurement-notices.undp.org/view_file.cfm?doc_id=198317*

k. Ensure public safety and meet traffic safety requirements for the operation of work to avoid accidents.

3. The Contractor shall indicate the period within which he/she shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.
4. The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan / strategy to ensure effective feedback of monitoring information to project management so that impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.
5. Besides the regular inspection of the sites by the SE for adherence to the contract conditions and specifications, the Owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, as directed by the SE, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

Section 1: Worksite/Campsite Waste Management

6. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bunded to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed of at designated disposal sites in line with applicable government waste management regulations and WBG ESF requirements.
7. All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.
8. Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.
9. Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.
10. Construction waste shall not be left in stockpiles along the road but removed and reused or disposed of on a daily basis.
11. If disposal sites for clean spoil are necessary, they shall be in areas, approved by the SE, of low land use value and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

Material Excavation and Deposit

12. The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.
13. The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.
14. New extraction sites:
    a. Shall not be in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value and shall not be located less than 1km from such areas.
    b. Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites.

c. Shall not be in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
d. Shall not be in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
e. Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.
f. Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

15. Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.
16. Stockpile areas shall be in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.
17. The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable EMP, in areas approved by local authorities and/or the SE.
18. Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the SE and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

Section 2: Rehabilitation and Soil Erosion Prevention

19. To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is like the rate of construction.
20. Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.
21. Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.
22. Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.
23. Locate stockpiles where they will not be disturbed by future construction activities.
24. To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.
25. Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
26. Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.
27. Ensure reshaped land is formed to be inherently stable, adequately drained, and suitable for the desired long-term land use and allow natural regeneration of vegetation.
28. Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
29. Minimize erosion by wind and water both during and after the process of reinstatement.
30. Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
31. Revegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

Water Resources Management

32. The Contractor shall at all costs avoid conflicting with water demands of local communities.
33. Develop hydrogeological water studies for water abstraction following relevant GOK requirements and WBG EHS Guidelines.
34. Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.
35. Abstraction of water from wetlands shall be avoided. Where necessary, authority must be obtained from relevant authorities.
36. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities downstream and maintains the ecological balance of the river system.
37. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
38. Wash water from washing out of equipment shall not be discharged into water courses or road drains.
39. Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

Traffic Management

40. Develop traffic management plans (TMP) for subprojects on road reserves.
41. Location of access roads/detours shall be done in consultation with the local community especially in important or sensitive environments. Access roads shall not traverse wetland areas.
42. Upon the completion of civil works, all access roads shall be ripped and rehabilitated.
43. Access roads shall be sprinkled with water at least five times a day in settled areas, and three times in unsettled areas, to suppress dust emissions.

Blasting

44. Blasting activities shall not take place less than 2km from settlement areas, cultural sites, or wetlands without the permission of the SE.
45. Blasting activities shall be done during working hours, and local communities shall be consulted on the proposed blasting times.
46. Noise levels reaching the communities from blasting activities shall not exceed 90 decibels.
47. Conduct OHS risk assessment in relation to storage and use of explosives.

Disposal of Unusable Elements

48. Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories, and demolished structures will be disposed of in a manner approved by the SE. The Contractor must agree with the SE which elements are to be surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.
49. As far as possible, abandoned pipelines shall remain in place. Where for any reason no alternative alignment for the new pipeline is possible, the old pipes shall be safely removed and stored at a safe place to be agreed upon with the SE and the local authorities concerned.
50. AC-pipes as well as broken parts thereof must be treated as hazardous material and disposed of as specified above.
51. Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

Health and Safety

52. Develop OHS plans for all project activities to assure health and safety.
53. In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and residents shall be sensitized on health risks particularly of AIDS.

54. Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.
55. Construction vehicles shall not exceed maximum speed limit of 40km per hour.

Repair of Public and Private Property

56. Should the Contractor, deliberately or accidentally, damage property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily to indemnify the Client from subsequent claims.
57. In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client must be informed by the Contractor through the SE. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.

Contractor's Health, Safety and Environment Management Plan (HSE-MP)

58. Within 6 weeks of signing the Contract, the Contractor shall prepare an EHS-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an ESMP for the works. No works shall begin without approval of the HSE-MP. The Contractor's EHS-MP will serve two main purposes:
    a. For the Contractor, for internal purposes, to ensure that all measures are in place for adequate HSE management, and as an operational manual for his staff.
    b. For the Client, supported where necessary by a SE, to ensure that the Contractor is fully prepared for the adequate management of the HSE aspects of the project, and as a basis for monitoring of the Contractor's HSE performance.
59. The Contractor's EHS-MP shall provide at least:
    a. a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an ESMP;
    b. a description of specific mitigation measures that will be implemented to minimize adverse impacts;
    c. a description of all planned monitoring activities (e.g., sediment discharges from borrow areas) and the reporting thereof; and
    d. the internal organizational, management and reporting mechanisms put in place for such.
60. The Contractor's EHS-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor's EHS-MP covers all the identified impacts and has defined appropriate measures to counteract any potential impacts.

HSE Reporting

61. The Contractor shall prepare bi-weekly progress reports to the SE on compliance with these general conditions, the project ESMP if any, and his own EHS-MP. An example format for a contractor HSE report is given below. It is expected that the Contractor's reports will include information on:
    a. HSE management actions/measures taken, including approvals sought from local or national authorities;
    b. Problems encountered in relation to HSE aspects (incidents, including delays, cost consequences, etc. as a result thereof);
    c. Lack of compliance with contract requirements on the part of the Contractor;
    d. Changes of assumptions, conditions, measures, designs, and actual works in relation to HSE aspects; and
    e. Observations, concerns raised and/or decisions taken about HSE management during site meetings.

f. Worker grievances x

62. It is advisable that reporting of significant HSE incidents be done "as soon as practicable" and in accordance with the ESIRT procedure.". All incidents should be reported to PIU within 24 hours. Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keep his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the bi-weekly reports. Example formats for an incident notification and detailed report are given below. Details of HSE performance will be reported to the Client through the SE's reports to the Client.

Training of Contractor's Personnel

63. The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any project EMP, and his own EHS-MP, and are able to fulfil their expected roles and functions. Specific training should be provided to those employees that have responsibilities associated with the implementation of the EHS-MP. General topics should be:
    a. HSE in general (working procedures);
    b. emergency procedures; and
    c. social and cultural aspects (awareness raising on social issues).

Cost of Compliance

64. It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item "Compliance with Environmental Management Conditions" in the Bill of Quantities covers these costs. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable HSE impact.

Example Format: HSE Report

Contract:

Period of reporting:

HSE management actions/measures:
Summarize HSE management actions/measures taken during period of reporting, including planning and management activities (e.g., risk and impact assessments), HSE training, specific design and work measures taken, etc.

HSE incidents:
Report on any problems encountered in relation to HSE aspects, including its consequences (delays, costs) and corrective measures taken. Include relevant incident reports.

HSE compliance:
Report on compliance with Contract HSE conditions, including any cases of non-compliance.

Changes:
Report on any changes of assumptions, conditions, measures, designs, and actual works in relation to HSE aspects.

Concerns and observations:
Report on any observations, concerns raised and/or decisions taken regarding HSE management during site meetings and visits.

Signature (Name, Title Date):

Contractor Representative

Example Format: HSE Incident Notification

Provide within 24 hours to the Supervising Engineer

Originators Reference No:

Date of Incident: ***Time:***

Location of incident:

Name of Person(s) involved:

Employing Company:

Type of Incident:

Description of Incident:
Where, when, what, how, who, operation in progress at the time (only factual)

Immediate Action:
Immediate remedial action and actions taken to prevent reoccurrence or escalation.

Signature (Name, Title, Date):
Contractor Representative

Basic project Information	
Implementing Agency	
Name of Contractor	
Name of Supervisor/Manager	
Client's Project Safeguards Specialists:	
Preliminary information of the incident	
Preliminary classification of the incident	
Description of the incident	
Where and when did the incident occur?	
Are the basic facts of the incident clear and uncontested, or are there conflicting versions?	
Is the incident still ongoing or is it contained?	
Is loss of life or severe harm involved?	
Immediate Actions Taken (Contractor)	
Follow Up Actions by PIU	

Annex D: Chance Finds Procedure

Purpose

The purpose of this procedure is to ensure the protection of tangible and intangible cultural heritage within Kenya including potential archaeological finds discovered during the construction phase of KDEAP.

Scope

The "chance finds" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance

The "chance finds" procedure is intended to ensure compliance with relevant provisions of the National Museums and Heritage Act of 2006, especially Section 30 that requires all discoveries of buried artifacts to be reported to the National Museums of Kenya (NMK). The procedure of reporting set out below must be observed so that heritage remains reported to the NMK are correctly identified in the field.

Responsibility

- Operator: To exercise due caution if archaeological remains are found
- Foreman: To secure site and advise management timeously
- PIU Social Specialist: To determine safe working boundary and request inspection.
- Archaeologist: To inspect, identify, advise management, and recover remains/item.

Procedure

Table 0- 1 Chance Finds Procedure

Mitigation/Monitoring Action	Responsibility	Schedule
Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, the "chance finds" procedure should be applied. The details of this procedure are highlighted below:	PIU	Where necessary
• If operating machinery or equipment: stop work. • Identify the site with flag tape. • Determine GPS position if possible. • Report findings to foreman	Person identifying archaeological or heritage material	
• Report findings, site location and actions taken to PIU. • Cease any works in immediate vicinity.	Foreman	
• Visit site and determine whether work can proceed without damage to findings. • Determine and mark exclusion boundary. • Site location and details to be added to project GIS for field confirmation by archaeologist	PIU	
• Inspect site and confirm addition to project GIS. • Advise the NMK and request written permission to	Archaeologist	

Mitigation/Monitoring Action	Responsibility	Schedule
remove findings from work area • Recover, packaging and labelling of findings for transfer to NMK		
Should human remains be found, the following actions will be required: • Apply the chance find procedure as described above. • Schedule a field inspection with an archaeologist to confirm that remains are human. • Advise and liaise with the NMK and Police • Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory or reburied in consultation with the concerned community members.	Archaeologist NMK Police Community elders	

KENYA DIGITAL ECONOMY ACCELERATION PROJECT

(P170941)

E-Waste Management Environmental Codes of Practice

(KDEAP E-Waste ECOP)

July 2023

INTRODUCTION

Project Description

KDEAP (P170941) seeks to enhance digital infrastructure, services, and skills for inclusive participation in the digital economy. As such, it will seek to harness opportunities to develop the Kenyan digital economy as a driver of growth and job creation and leverage digital technologies to improve service delivery and resilience. The project supports efforts to promote digital inclusion and mitigate growing digital-era risks of data protection and cybersecurity to ensure that every individual and business can engage in the digital economy confidently, safely, and securely. KDEAP is complemented by a range of parallel investment and technical assistance support programs that promote private sector innovation and entrepreneurship, education system strengthening and deeper integration of digital markets across the region.

Rationale of this E-Waste ECOP

One of the main environmental risks associated with the project is solid and Waste Electrical and Electronic Equipment (WEEE) or e-waste[95] generation. Implementation of Sub-component 1.1, *Extending the Reach of Backbone Networks*, of the project will result in reduction of e-waste. Again, through Sub-component 2.2, the project will support safe and proper disposal of e-waste in line with recommendation of the ongoing *Africa Environmental Health and Pollution Management Program* (EHPMP[96]). However, Sub-component 3.1, *Supporting Digital Literacy and Skills for the Creative Economy,* includes equipping underserved public secondary schools with access to digital devices, ICT equipment and digital content.[97] There is a likelihood of an increase in e-waste, when these digital devices and ICT equipment reach the end of their useful lives (3-5years). The generated e-waste needs to be recycled or disposed safely and properly.

Kenya's Draft e-waste Regulations streamline the procedures of handling and disposal of e-waste generated by various sectors. The draft e-waste Regulations provide a framework for identification, collection, sorting, recycling, and disposing of e-waste. The guidelines also provide the basis for developing legal instruments to enhance enforcement. Since the process of developing e-waste legal instruments is ongoing, this project specific ECOP has been developed for the collection, transport, storage, and disposal of e-waste from the Project activities. It is anticipated that this project specific ECOP will supplement and accompany more detailed national legislation and regulations for management of e-waste.

ICTA will need to ensure that they have procedures in place to meet the requirements of this ECOP, whether they are through private sector recycler or vendor take back schemes processes.

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[95] UNEP. WEEE or e-waste is one of the fastest growing waste streams in the world. In developed countries, it equals 1% of total solid waste on an average. The increasing "market penetration" in developing countries, "replacement market" in developed countries and "high obsolescence rate" make WEEE/E-waste one of the fastest waste streams. There is a pressing need to address e- waste management particularly in developing countries. The presence of valuable recyclable components attracts informal and unorganised sector. The unsafe and environmentally risky practices adopted by them poses great risks to health and environment.[95]

[96] P167788.

[97] P170941

Legislation	*Key Provisions*	*Relevance to the Project*
The Constitution of Kenya	Guarantees the right to a clean and healthy environment in Article 42 Imposes obligations on every person, to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources. Requires participation in all projects	All project e-waste must be managed as per developed management plans to comply with constitutional requirements. Conduct extensive stakeholder engagement when preparing e-waste management plans.
Environmental Management and Coordination Act, 1999 (Revised 2015)	Require generators of hazardous waste to conduct an environmental and impact assessment (EIA). Prohibits the discharge of hazardous substances or chemicals into any waters or other segments of the environment.	All subproject ESIAs will be conducted in accordance with this Act.
EMCA (Waste Management) Regulations 2006	requires waste generators to segregate waste by separating hazardous waste from non- hazardous waste for appropriate disposal. prohibits any industry from discharging or disposing of any untreated waste in any state into the environment.	e-waste from out-of-use ICT equipment in the Project will require appropriate disposal in line with the regulations
Sustainable Waste Management Act, 2022	Requires preparation of Waste Management Plans (WMPs) by counties, private entities, and individuals. requires each county government to establish a materials recovery facility	Waste from the project will require appropriate disposal in line with prepared WMPs, by licensed waste handlers, and in coordination with respective county governments. The project should work with counties with key towns to establish materials recovery facilities.

ENVIRONMENTAL CODE OF PRACTICE REQUIREMENTS

Electronic Waste and Potential Environmental Impacts

Electronic Waste (e-Waste) comprise of electronic/electrical goods which are not fit for their originally intended use or products that have reached their end-life. E-waste in this Project will comprise computers, monitors, CPUs, tablets, laptops, printers, copiers, accessories such as (speakers, keyboards, cables, etc.), projectors, cell phones, chargers, and other accessories. The e-waste contains hazardous substances present in the items when such wastes are dismantled and processed. E-waste if not managed properly, can be a dangerous threat to human health and the environment including persistent, bio-accumulative, and toxic substances, such as brominated flame retardants, heavy metals (e.g., lead, nickel, chromium, mercury), and persistent organic pollutants (e.g., polychlorinated biphenyls (PCBs). This threat can result from two sources. First, through leaching of hazardous substances, lead, mercury, cadmium, and lithium into the environment from e-waste that is disposed of in normal (non-engineered) landfills and refuse dumps. Second, through improper recycling techniques, which are employed in the informal recycling sector and improper domestic disposal.

Effective management of e-waste in the Project can ensure avoidance/minimization of these potential negative impacts. Indeed, through provision of support for e-waste management and awareness creation activities, it is expected that the project, guided by this ECOP, will have long-term positive impacts on public health.

E-Waste Management Approach

The approach adopted seeks to avoid the potential environmental impacts created by improper management of e-waste. Mitigation measures proposed comprise six fundamental stages or approaches namely: (i) preparing e-waste disposal policies and procedures; (ii) creating awareness and training of ICTA on e-waste; (iii) identifying e-waste for disposal; (iv) segregation of the e-waste; and (v) identification of licensed recycler and delivery of e-waste to the recycling/treatment facility.

i. Preparing e-waste disposal policies and procedures

ICTA will prepare policies and procedures, plans to guide in the disposal of the e-waste that is produced under the Project, the e-waste disposal policies and procedures will lay down guidelines and procedures in disposing end of use electronic and electric assets and equipment.

ii. Creating awareness and training for ICTA staff on e-waste

The project will create awareness among ICTA staff on the importance of e-waste management and, policies and procedures in place for safe disposal of e-waste. The project will ensure that workers handling e-waste are trained on personal protection, handling of hazardous products and handling e-waste. The project will collaborate with national entities such as NEMA, WMC, and electronic vendors to help in improve e-waste management systems in Kenya.

iii. Identifying the e-waste for disposal

This includes such items as computers, monitors, CPUs, tablets, laptops, printers, copiers, accessories such as (speakers, keyboards, cables, etc.), projectors, cell phones and any chargers. E-waste disposal sites must be licensed by authorities as such. We do not have such sites in Kenya and it is unlikely that the project will establish any e-waste disposal sites. Alternatively, KDEAP can create e-waste transfer stations.

iv. Segregation and storage of e-waste

Workers handling e-waste will be trained to segregate e-waste that can be refurbished for re-use, or donated to schools and other institutions and the rest of e-waste that needs to be disposed/recycled. The e-waste due for disposal should be properly stored to avoid leakage and emission of radioactive materials found within end of use electronic and electric products. The following e-waste segregation and storage requirements should be followed:

- E-waste should be stored in a well-ventilated room with impervious surface in a dry atmosphere at room temperature, not exposed to sunlight or rainfall. The equipment should be stored on pallets or shelves.
- Fragile equipment such as computer monitors (Cathode Ray Tube, CRT) and fluorescent lamps should be carefully handled and stored to avoid damages (e.g., put in the original packing).
- E-waste should not be stored together with other waste types.
- Batteries should be disconnected from the products.
- Lithium batteries should be stored in a way that ensures that the battery terminals do not get in contact with any metals or other battery terminals.
- There should be no dismantling of electronic or electrical products.
- E-waste should be stored for as short a period as practicable.

v. Identification of licensed recycler and delivery of e-waste to the recycling facility

The project will identify a NEMA licensed e-waste recycling company(ies) in Kenya and establish partnership or collaboration to ensure generated e-waste is disposed appropriately. Only East African Compliant Recycling (EACRC) in Nairobi, has the capacity to recycle and treat the e-waste at no cost to the waste generator. The EACR 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. Partnerships with other registered e-waste handlers and recyclers in Kenya will also be sought as necessary. The project can also pursue partnerships with the major vendors of electronic and electric equipment for potential 'take back schemes.

Capacity Building and Monitoring of E-Waste ECOP Implementation

As part of the capacity building to be provided for implementation of the proposed operations, ICTA and relevant staff will receive training in the ECOP's application. The World Bank Group will monitor and provide guidance in the implementation of the e-waste ECOP. For this purpose, PIU will establish a monitoring mechanism as part of the project management system.

PUBLIC DISCLOSURE

This e-waste ECOP will be shared with key stakeholders, ICTA, and development partners. Subsequently, it will be disclosed in on ICTA's and WBG websites as part of the ESMF.

Annex F: Guidance on the Preparation of Waste Management Plans (WMPs)[98]

Section 19 of the Sustainable Waste Management Act provides guidance on the preparation of waste management plans by non-county actors. The guidance is elaborated below:

WMP DURATION

Each WMP shall be for a duration of three years.

WMP MONITORING REPORT AND CONTENTS

This monitoring report shall be prepared annually and submitted to NEMA.

The contents of a WMP monitoring report shall be:

a. the actual quantities of waste generated by ICTA;
b. the waste management methods applied by ICTA; and
c. any other information that NEMA may require.

SPECIFIC GUIDANCE ON PREPARATION OF WMPS

ICTA shall:

a. adopt the following cleaner production principles including—
    i. improvement of production processes through conserving raw materials and energy;
    ii. limiting the use of toxic raw materials to safe laws within such time as may be prescribed by the Authority;
    iii. reducing toxic emissions and wastes; and
    iv. monitoring the product cycle from beginning to end by;
b. identify and eliminate potential negative impacts of the product;
c. enable the recovery and reuse of the product where possible;
d. reclaim and recycle;
e. incorporate environmental concerns in the design, process and disposal of the product;
f. collect, segregate and dispose of or cause to be disposed of the waste in accordance with this Act;
g. shall segregate waste by separating hazardous waste from non-hazardous waste and dispose of the waste in a facility provided by the county government or the NEMA;
h. transfer the waste to a person who is licensed to transport and dispose of the waste in accordance with this Act;
i. clean up and restore the site it was using to its natural state;
j. prepare a waste management plan and integrate it in its corporate strategies and plans; and
k. provide waste segregation receptacles at its premises for organic, plastic and general dry waste.

[98] Sustainable Waste Management Act, 2022

Annex G1: Generic Environmental and Social Management Plan (ESMP) – Stand Alone Report

The report should be in English and must be clear and concise. The reports will be in a format acceptable to the World Bank, and ICT Authority. The ESMP report will be expected to include (but not limited to) the following, which are also indicative of the depth of the scope:

- **Executive Summary**: Concisely discuss significant findings and recommended actions
- **Introduction**: This shall include a concise description of the proposed subproject background, project objectives, scope, and objectives of ESMP
- **Description of the Project Activities**: The consultant shall give the proposed project an introduction covering a short description of the project area, project activities (where possible during construction, operations, and maintenance) — including the project execution methodology and technology to be used for the project.
- **Policy, Legal and Administrative/Institutional Framework**: This shall include a detailed description of World Bank Group ESF and the National laws and regulations environment the project will operate. The level of compliance to the applicable laws and regulations shall be clearly stated.
- **Environmental and Social Baseline conditions:** The Consultant is required to collect, and present baseline information on the existing physical, biological, and social cultural environment of, within and around the project sites/area of influence.
- **Environmental and Social Impacts identification and assessment including cumulative impact assessment**; the consultant shall identify and summarize all anticipated significant positive and adverse environmental ICT Authority and social impacts, because of interaction between the proposed project and environment that are likely to bring changes in the baseline environmental conditions.
- **Impact Mitigation Measures**: The consultant shall come up with proposals of feasible and cost-effective mitigation measures, taking into consideration designs and equipment descriptions used for the negative impacts that could result from construction of the fibre optic cables.
- **Environmental and Social Management Plan**:
    - The Consultant shall develop a comprehensive environmental and social management plan comprising of a programme of assessing and managing the impacts during site preparation, construction, operation, and decommissioning phases.
    - This will provide time frames and implementation mechanisms, reporting responsibilities, description and technical details of monitoring measures, assessment of the institutional needs, staffing requirements and cost outlay for implementation. The plan should show how management and mitigation methods are phased with project implementation.
    - The plan shall also include measures to manage occupational health and safety risks and to ensure safety in the working environment for the employees and the communities adjacent to the project sites and project affected people.
- **Institutional Arrangements, Change of Management, Capacity Development and Training**: The consultant is expected to review the institutional arrangements, responsibilities, and procedures within ICT Authority to effectively carry out implementation of environmental project components and mitigation measures and recommend appropriate measures to address capacity gaps identified.
- **Conclusions and Recommendations**.
- **References**: All sources of information shall be clearly documented with clear names and proper locations under references.
- **Appendices**: Design Concepts, record of the public consultations, ToR for the ESMP etc.

Annex G2: Generic Environmental and Social Management Plan (ESMP) – Part of Subproject CPRs

Note: This ESMP is a guideline, and actual aspects to be considered may be in addition to these and be dependent on the nature of works and baseline conditions.

Table 0- 2 Generic Environmental and Social Management Plan

Potential Negative Impact	**Environmental And Social Mitigation Measures**	**Implementing Location**	**Estimated Mitigation Costs**	**Executing Agency**	**Supervising Agency**
Construction Phase					
Terrestrial habitat alteration	• Site fixed line infrastructure (e.g., fiber optic cable) and other types of linear infrastructure rights-of-way, access roads, lines, and towers to avoid critical habitat through use of existing utility and transport corridors (road reserves), whenever possible; • Avoidance of construction activities during the breeding season and other sensitive seasons or times of day; • Develop biodiversity management plan (BMP) for protected areas; and • Revegetation of disturbed areas with native plant species.	All civil works locations	Included in contractor costs	Contractor	PIU
Labour and working conditions including OHS	• Implement the Project's Labour Management Procedure (LMP) annexed to this ESMF; • All contractors should develop and implement an Occupational Health and Safety Management System (OHSMS) in line with good industry practice, including the requirements of the WBG ESS 2, and in accordance with Kenya's Occupational Health and Safety Act (OSHA). • In all contracts, explicit reference should be made to the need	All project locations	Included in contractor costs	Contractor	PIu

Potential Negative Impact	Environmental And Social Mitigation Measures	Implementing Location	Estimated Mitigation Costs	Executing Agency	Supervising Agency
	to abide by Kenyan law, international standards (WBG ESS2), ratified ILO conventions and the Project's LMP; • As part of the contractor and supplier selection process, the ICTA/PIU will take into consideration performance about worker management, worker rights, and health and safety as outlined in Kenyan law and international standards; • All Contractors should put in place hiring mechanisms to ensure no employee or job applicant is discriminated against based on his or her gender, marital status, nationality, ethnicity, age, health status, religion or sexual orientation; • All workers (including those of the contractor and subcontractors) will, as part of their induction, receive training on worker rights in line with Kenyan legislation to ensure that positive benefits around understanding labour rights are enhanced. This process will be formalised within the Code of Conduct that will be provided by the contractor; and • All workers (including those of the contractor and subcontractors) will have contracts which clearly state the terms and conditions of their employment and their legal rights. Contracts will be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts must be in place prior to workers commencing work.				
Operations Phase					

Potential Negative Impact	Environmental And Social Mitigation Measures	Implementing Location	Estimated Mitigation Costs	Executing Agency	Supervising Agency
Hazardous materials and waste	• Implementing fuel delivery procedures and spill prevention and control plans applicable to the delivery and storage of fuel for backup electric power systems, preferably providing secondary containment and overfill prevention for fuel storage tanks; • Implementing procedures for the management of lead acid batteries, including temporary storage, transport and final recycling by a licensed facility; • Ensuring that new support equipment does not contain PCBs or ODSs. PCBs from old equipment should be managed as a hazardous waste; • Purchasing electronic equipment that meets international phase out requirements for hazardous materials contents and implementing procedures for the management of waste from existing equipment according to the hazardous waste guidance in the **General EHS Guidelines**; • Considering the implementation of a take-back program for consumer equipment such as cellular telephones and their batteries; • Sub-component 3.1, *Supporting Digital Literacy and Skills for the Creative Economy,* includes equipping underserved public secondary schools with access to digital devices, ICT equipment and digital content.[99] Again, Subcomponent 3.2, *Device Affordability Program*, targeted specifically at female students and entrepreneurs will also provide laptops and	All activities with ICT infrastructure and devices	Part of the project management and coordination budget	Contractor	PIU

[99] P170941

Potential Negative Impact	Environmental And Social Mitigation Measures	Implementing Location	Estimated Mitigation Costs	Executing Agency	Supervising Agency
	tablets. As such, there is a likelihood of an increase in e-waste, when these digital devices and ICT equipment reach the end of their useful lives (3-5years). The generated e-waste needs to be recycled or disposed safely and properly; and • To mitigate and manage the generated e-waste, ICTA and contractor(s) should adopt and implement the prepared, *E-Waste Management Environmental Codes of Practice.*				
Optical Fiber Safety	• Worker training on specific hazards associated with laser lights, including the various classes of low and high-power laser lights, and fiber management; • Preparation and implementation of laser light safety and fiber management procedures which include: ○ Switching off laser lights prior to work initiation, when feasible ○ Use of laser safety glasses during live optical fiber systems installation ○ Prohibition of intentionally looking into the laser of fiber end or pointing it at another person ○ Restricting access to the work area, placing warning signs and labeling of areas with potential for exposure to laser radiation, and providing adequate background lighting to account for loss of visibility with the use of protective eyewear ○ Inspecting the work area for the presence of flammable materials prior to the installation of high-powered laser lights • Implementation of a medical surveillance program with initial and periodic eye examinations;	All locations with fiber cable needing repairs	Part of the project management and coordination budget	Contractor	PIU

Potential Negative Impact	Environmental And Social Mitigation Measures	Implementing Location	Estimated Mitigation Costs	Executing Agency	Supervising Agency
	• Avoiding exposure to fibers through use of protective clothing and separation of work and eating areas.				

Annex H: Generic ESIA TOR for a Subproject

Introduction and context

This section will be completed at the appropriate time and will provide the necessary information with respect to the context and methodological approaches to be undertaken.

Objectives of the study

This section will (i) outline the objectives and particular activities of the planned activity; and (ii) indicate which activities are likely to have environmental and social impacts that will require appropriate mitigation (Adapted to specific activities).

Terms of Reference

1. To undertake an Environmental and Social Impact Assessment (ESIA) for proposed project to meet the requirements of the WBG Environmental and Social standards (ESSs) and Environmental Health and Safety Guidelines (EHSGs) and the Kenya legal requirements;
2. To provide relevant environment and social baseline conditions on the proposed project area,
3. Review the relevant WBG's ESSs triggered for the project, the national legal requirements and guidelines that the project will be implemented;
4. Assess and predict the potential site specific environmental and social impacts of the project during site preparation, construction and operation phase;
5. Develop proposed feasible and cost-effective mitigation measures for the potential adverse environmental and social impacts as well as safety risk associated with the proposed project site activities;
6. Assess safeguards capacity of ICT Authority and recommend appropriate measures to address gaps through capacity building during implementation of the project; and
7. Develop Environmental and Social management and monitoring plans and prepare appropriate budget for Environmental, Social, Health and Safety mitigation measures for the project.

ESIA Report Outline

The ESIA report will be expected to include (but not limited to) the following, which are also indicative of the depth of the scope:

1. **Executive Summary**. Concisely discuss significant findings and recommended actions;
2. **Introduction.** This shall include a concise description of the proposed project background, project objectives, scope and objectives of ESIA;
3. **Description of the Project Activities and identification of associated facilities if any.** The consultant shall give the proposed project an introduction covering a short description of the project area, project activities (where possible during construction, operations and maintenance) – including the project execution methodology and technology to be used for the project;
4. **Policy, Legal and Administrative/Institutional Framework**. This shall include a detailed description of World Bank Group's Environmental and Social standards (ESSs) triggered by the project and the National laws and regulations environment the project will operate. The level of compliance to the applicable laws and regulations shall be clearly stated;

5. **Environmental and Social Baseline Conditions.** The Consultant is required to collect, and present baseline information on the existing physical, biological and social cultural environment of, within and around the project sites/area of influence;
6. **Public/Stakeholder's Consultations:** Public consultation is an integral part of the environmental assessment process, as reflected in the requirements of the World Bank ESS 10 and relevant national legislation. The public consultations should include community meetings, interviews, questionnaires, or a combination of these depending on the stakeholders;
7. **Analysis of Alternatives;** Including a description of the analysis of alternative process aimed at combining technical-financial aspects with socio-environmental considerations for the section of the preferred options and avoiding significant **impacts;**
8. **Environmental and Social Impacts identification and assessment**. The consultant shall identify and summarize all anticipated significant positive and adverse environmental and social impacts, because of interaction between the proposed project and environment that are likely to bring changes in the baseline environmental conditions. Moreover, cumulative impacts should be assessed at this stage;
9. **Impact Mitigation Measures**. The consultant shall come up with proposals of feasible and cost-effective mitigation measures, taking into consideration designs and equipment descriptions used for the negative impacts that could result from construction activities;
10. **Environmental and Social Management Plan**
    a. The Consultant shall develop a comprehensive environmental and social management plan comprising of a programme of assessing and managing the impacts during site preparation, construction, and operation and decommissioning phases.
    b. This will provide time frames and implementation mechanisms, reporting responsibilities, description and technical details of monitoring measures, assessment of the institutional needs, staffing requirements and cost outlay for implementation. The plan should show how management and mitigation methods are phased with project implementation.
    c. The plan shall also include measures to manage occupational health and safety risks and to ensure safety in the working environment for the employees and the communities adjacent to the project sites and project affected people.
    d. ESMP monitoring.
    e. Costs of ESMP implementation and monitoring. **x**
11. **Institutional Arrangements, Capacity Development and Training.** The consultant is expected to review the institutional arrangements, responsibilities, and procedures within ICT Authority to effectively carry out implementation of environmental project components and mitigation measures and recommend appropriate measures to address capacity gaps identified.
12. **Conclusions and Recommendations**;
13. **References**. Documents, whether published or not, that were used to prepare the studies and outputs; list of related reports; and
14. **Appendices**. E.g., Design Concepts, record of the public consultations, ToR for the ESIA, etc.

Qualification of the Consultant

The Consultant will ensure that there will be a sociologist working with him/her in undertaking the ESIA. (Bachelor's Degree in Sociology or related field from recognized university and 5-10 years post-

graduation experience and at least three (3) experience in large scale infrastructure project. The sociologist should be conversant with the WBG's ESSs).

The Consultant will have the following minimum qualifications:

- MSc. Degree in Environmental Sciences or a BSc. Environmental Engineering from a recognized University
- NEMA Registered Lead EIA Expert or equivalent
- Minimum overall experience of 10 years, with at least 5 years' experience on similar projects in Sub-Saharan Africa
- OHS expertise
- Participation in an ESIA for large infrastructure project that met the requirements of an International Financial Institution, such as the World Bank, IFC, AfDB, or EIB.

ESIA Deliverables and Reporting

The ESMP will be prepared in English. The assignment shall be carried out and completed within sixty (60 days) from the contract signing to NEMA licensing.

Table 0- 3 ESIA Deliverables

Report	Description	Submittal date	Copies	
			Hard	Soft
Report 1:	Acceptable inception report including; clear description of understanding the assignment, methodology to be used and work plan	5 days after contract effective date.	2	2
Report 2:	Submission of Draft ESIA Report	30 days after contract effective date.	2	2
Report 3:	Submission of acceptable final ESIA Report to NEMA	40 days after contract effective date	8	1

Annex I: Stakeholder Engagement List of Participants

Table 0- 4 Participants in Safeguards Disclosure Workshop

S. No	NAME	ORGANIZATION
1.	Stanley Kamanguya	ICTA -CEO
2.	Otieno Vincent Odhiambo	Sapashe Group
3.	Tim Kelly	WBG Consultant
4.	Tomno Sylas	ICTA
5.	Moses Kijugu	ICTA
6.	James Wafula	ICTA
7.	Ambuya John	WBG/ICTA Safeguards Consultant
8.	Salma N. Sheba	WBG/ICTA Safeguards Consultant
9.	Vincent Kaweru	ICTA
10.	Koech Jairus	ICTA
11.	Edward Ontita	WBG/ICTA Safeguards Consultant
12.	Victor Ngandi	ICTA
13.	Ephantus Maina	DOSHS
14.	Kibet Langat	JKUAT –IP
15.	Patrick Masika	ICTA
16.	Oliver Pyoko	ICTA
17.	Daniel Kiniti	KPLC
18.	Alex Njihia	ICTA
19.	Anthony Wamalwa	KETRACO
20.	Ashush Malhotra	Airtel
21.	Mathew Chemwei	ICTA
22.	Kebay Wang	Huawei
23.	Albert Plung	Airtel
24.	Samel Andati	CA
25.	Kenneth Matiba	Huawei
26.	Philip Irode	ICTA
27.	Sostanis Okoth	ICTA
28.	Benjamin Langa	MIST - Mozambique
29.	Octavio Zefanias	APIEX
30.	Olive J Jerotich	JTL

S. No	NAME	ORGANIZATION
31.	Samuel Kiacilo	PCK
32.	Judah Opuck	KENET
33.	Joyce Komen	Moi University
34.	Andrew Amutalla	ICTA
35.	Pius M Kaua	MICDE
36.	Anthony Kyengo	Safaricom
37.	Jacquiline Macharia	ICTA
38.	Stanely Kamanguya	ICTA
39.	Thomas Odhiambo	ICTA
40.	Karimi Ruria	Safaricom
41.	Evelyne A Oloo	WBG Consultant
42.	Daniel Gichumbi	NGEC
43.	Happi Adan	NGEC
44.	Sydney Baraza	NGEC
45.	Stephen Wachira	KeNHA
46.	Eng. Joseph Kivanguli	KURA
47.	Joan Mburu	Airtel
48.	Philip Ogola	Digital Humanitarian (Media)
49.	Millah Were	ICTA

Table 0- 5 County Participants – Safeguards Disclosure Workshop

NO.	NAME	ORGANIZATION
1.	Maurine Limashap	Baringo County
2.	Gideon Tirok	Baringo County
3.	Paul Rono	Baringo County
4.	Ben Kosgei	Elgeyo Marakwet County
5.	Emilio M. Kathuri	Embu County
6.	Arnold Muchiri	Embu County
7.	James Mukoma	Garissa County
8.	Emmanuel Athoo	Homa Bay County
9.	Lovinter Onyango	Homa Bay County
10.	Collins Taipau	Kajiado County

NO.	NAME	ORGANIZATION
11.	Felix Muriuki	Kiambu County
12.	Migot Nicholas	Kisumu County
13.	Elvis O Otieno	Kisumu County
14.	Paul Mwero	Kwale County
15.	Benard Matu	Laikipia County
16.	Robert Kivutha	Machakos County
17.	Vainusa Yussuf	Mandera County
18.	Basele Stephen	Marsabit County
19.	Monica Kaithiori	Meru County
20.	Victor Ouya	Migori County
21.	James Gatuna	Muranga County
22.	Frankline Limo	Nandi County
23.	Martha Nadupoi	Narok County
24.	Penina Sarisar	Narok County
25.	Linus Nairimo	Narok County
26.	Saitoti Ntiyani	Narok County
27.	Mary W Kamande	Nyandarua County
28.	Benard Kinyua	Nyandarua County
29.	Okimain Thomas	Samburu County
30.	Sammy Unyasi	Siaya County
31.	Gibran Mwadime	Taita Taveta County
32.	Isaac Ereyae	Turkana County
33.	Titus Kimaiyo	Uasin Gishu County
34.	Josa Garote	Wajir County
35.	Mohabed Shahid	Wajir County
36.	Rotich Kamatia	West Pokot County
37.	Martin Lottee	West Pokot County

Table 0- 6 Ogiek People FGD Participants

MINISTRY OF ICT, COMMUNICATION AND DIGITAL ECONOMY (MICDE)

ICT Authority

KENYA DIGITAL ECONOMY ACCELERATION PROJECT

PREPARATION OF SAFEGUARDS FRAMEWORK INSTRUMENTS

CONSULTATIONS

ATTENDANCE SHEET - LIST OF PARTICIPANTS

PROJECT	Kenya Digital Economy Acceleration Project		
SUBJECT	VMG Consultation	DATE	19/12/2022
COUNTY	Nakuru	SUB-COUNTY	Njoro
VENUE	Neissuit RAG Church	TIME	
STAKEHOLDERS	Members of OGIEK Community		

#	NAME	ORGANIZATION & POSITION	TELEPHONE NUMBER	SIGNATURE
1	Edward Ontita	Consultant - ICTA	0715 766266	[signature]
2	SIMON KONANA KONINI	C.E.O	0715270302	[signature]
3	HASSAN Sangare	C E O	0704050439	[signature]
4	JENIFFER CHELANGAT	Farmer	0794254581	[signature]
5	DANCAN KIPKORIR	Farmer	0745972656	[signature]
6	LUCY SOPHIA KASOI	STUDENT	0724616437	[signature]
7	EMILY CHEBET KARUNA	Teacher	0714408029	[signature]
8	Jumus Bidu Letesha	Chairman Tekee Nasarake	0722167552	[signature]
9	JUSTUS G. PUNYATI	FARMER	0714428848	[signature]

Ogiek - 1

#	NAME	ORGANIZATION & POSITION	TELEPHONE NUMBER	SIGNATURE
10	DAVID F. RANA	PASTOR	0726334703	[signature]
11	JOH K. KISIAMBEI	YOUTH	0758805321	[signature]
12				
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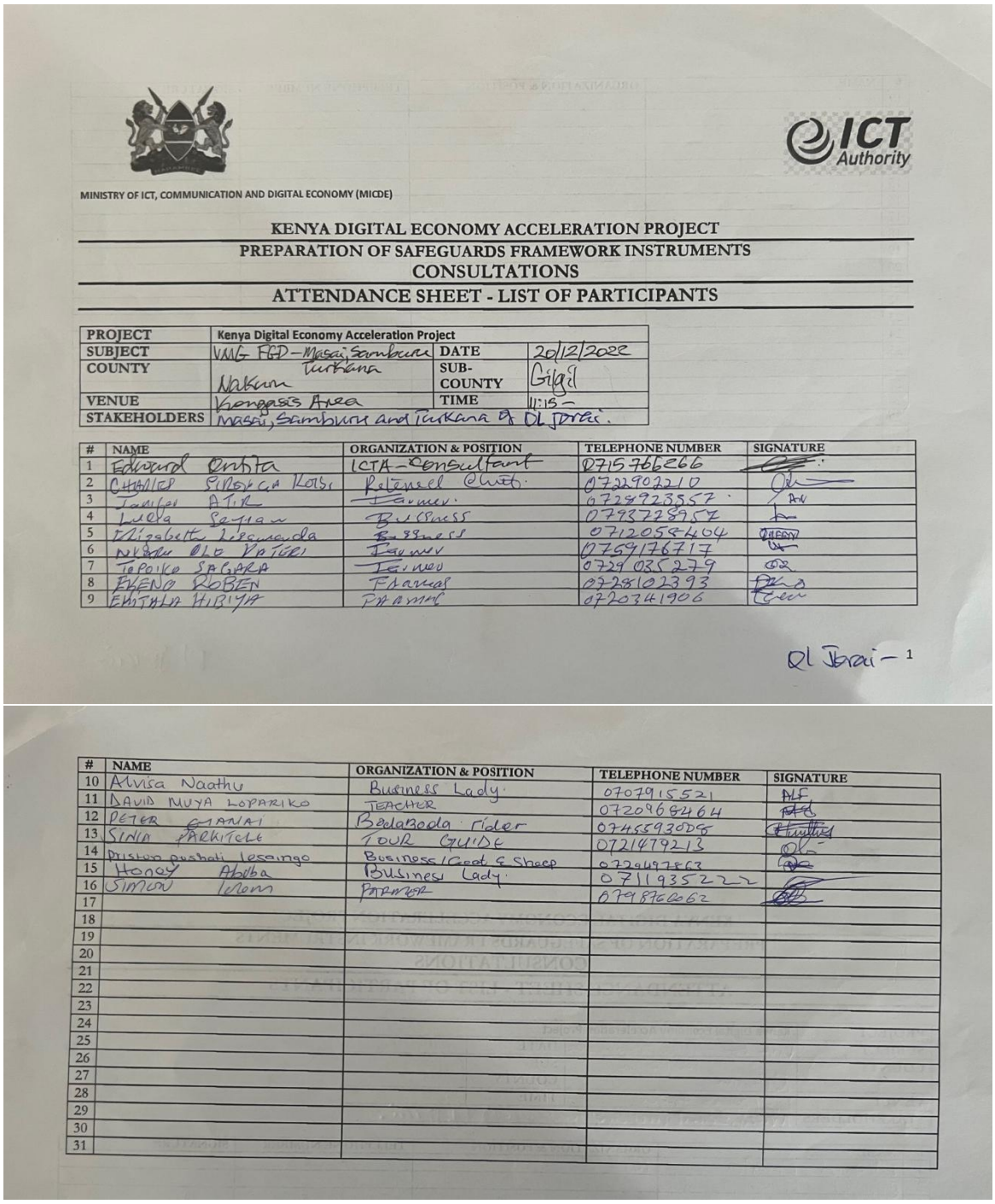
Table 0- 7 Ol Jorai VMGs FGD Participants



MINISTRY OF ICT, COMMUNICATION AND DIGITAL ECONOMY (MICDE)

KENYA DIGITAL ECONOMY ACCELERATION PROJECT
PREPARATION OF SAFEGUARDS FRAMEWORK INSTRUMENTS
CONSULTATIONS
ATTENDANCE SHEET - LIST OF PARTICIPANTS

PROJECT	Kenya Digital Economy Acceleration Project		
SUBJECT	VMG FGD – Masai, Samburu Turkana	DATE	20/12/2022
COUNTY	Nakuru	SUB-COUNTY	Gilgil
VENUE	Kongasis Area	TIME	11:15 –
STAKEHOLDERS	Masai, Samburu and Turkana of Ol Jorai.		

#	NAME	ORGANIZATION & POSITION	TELEPHONE NUMBER	SIGNATURE
1	Edward Ombita	ICTA – Consultant	0715766266	
2	CHARLES SIRSICA KOSS	Retired Chief	0722902210	
3	Jamila ATIR	Farmer	0728923557	
4	Lucia Sapiam	Business	0793728957	
5	Elizabeth Lisamanda	Business	0712058404	
6	NKOSH OLO KOTIERI	Farmer	0759176717	
7	TEPOIKO SAGARA	Farmer	0729 035279	
8	EKENO ROBEN	Farmer	0728102393	
9	EMTHALA HIBIYA	FARMER	0720341906	

Ol Jorai – 1

#	NAME	ORGANIZATION & POSITION	TELEPHONE NUMBER	SIGNATURE
10	Alvisa Naathu	Business Lady	0707915521	
11	DAVID NUYA LOPARIKO	TEACHER	0720968464	
12	PETER GIANAI	Bodaboda Rider	0745593095	
13	SINIA PARKITELE	TOUR GUIDE	0721479213	
14	Priston Ouabati Iesaingo	Business/Goat & Sheep	0729497863	
15	Honey Abiba	Business Lady	0711935222	
16	Simon Ikom	FARMER	0798760662	
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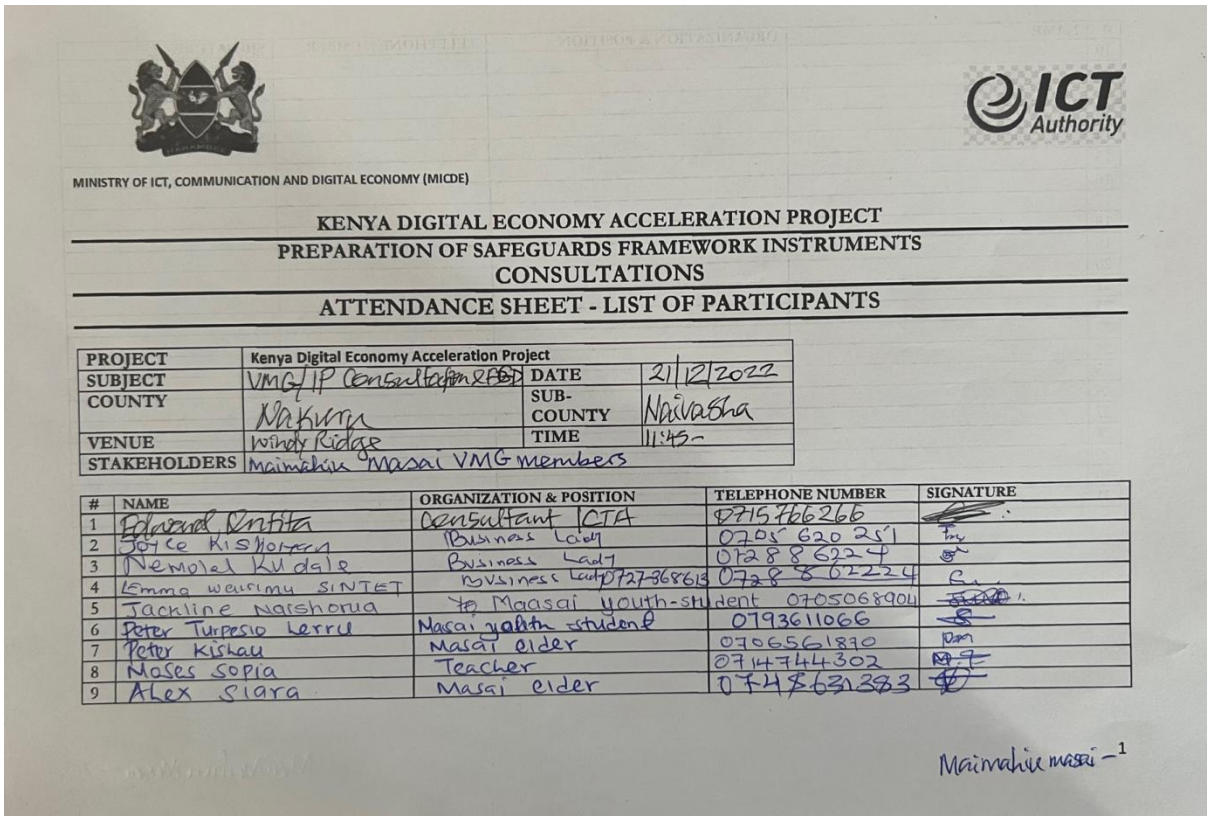
Table 0- 8 Mai Mahiu Masai FGD Participants



MINISTRY OF ICT, COMMUNICATION AND DIGITAL ECONOMY (MICDE)

KENYA DIGITAL ECONOMY ACCELERATION PROJECT

PREPARATION OF SAFEGUARDS FRAMEWORK INSTRUMENTS

CONSULTATIONS

ATTENDANCE SHEET - LIST OF PARTICIPANTS

PROJECT	Kenya Digital Economy Acceleration Project		
SUBJECT	VMG/IP Consultations ~~FGD~~	DATE	21/12/2022
COUNTY	Nakuru	SUB-COUNTY	Naivasha
VENUE	Windy Ridge	TIME	11:45-
STAKEHOLDERS	Maimahiu Masai VMG members		

#	NAME	ORGANIZATION & POSITION	TELEPHONE NUMBER	SIGNATURE
1	Edward Ontita	Consultant ICTA	0715766266	
2	Joyce Kishoyian	Business Lady	0705 620 251	
3	Nemoiel Kudale	Business Lady	0728 8622 4	
4	Emma Wairimu SINTET	Business Lady 0727368613	0728 8 62224	
5	Jackline Naishorua	Yp Maasai youth-student	0705068904	
6	Peter Turpesio Lerrui	Masai youth student	0793611066	
7	Peter Kishau	Masai elder	0706561890	
8	Moses Sopia	Teacher	0714744302	
9	Alex Siara	Masai elder	0745631383	

Maimahiu masai – 1

Annex J: Labour Management Procedure (LMP)

KENYA DIGITAL ECONOMY ACCELERATION PROJECT
(P170941)

LABOR MANAGEMENT PROCEDURE

June 2023

INTRODUCTION

Background

KDEAP seeks to harness opportunities to develop Kenya's digital economy as a driver of growth and job creation and leverage digital technologies to improve service delivery and resilience. It also supports efforts to promote digital inclusion and mitigate growing digital-era risks of data protection and cyber security to ensure that every individual and business can engage in the digital economy confidently, safely, and securely. It is complemented by a range of parallel investment and technical assistance support programs that promote private sector innovation and entrepreneurship, education system strengthening and deeper integration of digital markets across the region.

Project Components

Component 1: Broadband Infrastructure and Access

The aim of this component is to increase access to high-speed internet for individuals, industry and government – the "foundation of the foundations" of a digital economy – under a Private Capital Mobilization (PCM) approach.

Sub-component 1.1: *Extending the Reach of Backbone Networks (middle mile)*

Sub-component 1.2: *Last Mile Connectivity for Public Service Delivery*

Component 2: Digital Government Services and Platforms

This component will invest in the foundational digital institutions, architectures and policies needed to transform the way the government communicates and conducts its internal operations.

Sub-component 2.1: *Digitization of Key Government Services and Platforms*

Subcomponent 2.2: *Creating a Unified Communications System for Government*

Subcomponent 2.3: *Establishing a Shared Service Architecture*

Component 3: Digital Skills in the Creative Economy

This component aims to equip young Kenyans with digital skills and enhance their abilities to compete for job opportunities, enabling greater participation in the digital economy and creative industries.

Subcomponent 3.1: *Supporting Digital Literacy and Skills for the Creative*

Subcomponent 3.2: *Device Affordability Program*

Subcomponent 3.3: *Strengthening the Trust Environment for the Digital*

Component 4: Project Management

Component 5: Contingent Emergency Response Component (CERC)

Objectives of Labour Management Procedure

Labour Management Procedure identifies labour requirements and sets out the procedures for addressing labour conditions and risks associated with KDEAP. The LMP is enshrined within the context of the World Bank Group (WBG) Environmental and Social Standards (ESS) 2: Labor and Working Conditions. The main objective is to document labour requirements and identify the risks associated with the project that together with aspects of welfare in line with legal requirements and good international and industry practices (GIIP). Specifically, an LMP seeks to:

- Ensure the management and control of activities that may pose labour-related risks at workplaces.
- Promote compliance with national employment and labour laws and good international and industry practices
- Promote fair and equitable labour practices for the fair treatment, non-discrimination, and equal opportunity of workers; and
- Protect workers' rights and promote healthy, safe, secure and comfortable accommodation that does not impact negatively on the communities in the surrounding area.

Rationale for KDEAP's LMP

General Justification

This LMP is developed for KDEAP in fulfillment of the requirements of the World Bank Group's ESS2 under the Environmental and Social Framework (ESF). It is developed in line with Environment and Social Management Framework (ESMF) as the main reference document, to provide guidance on how to manage workplace related aspects of the project. The preparation of this LMP provides both an easy access to information to all project workers, monitors and development partners and emphasizes Information and Communication Technology Authority (ICTA) commitment to the welfare and safety of workers. As such, the LMP will:

- Ensure fair treatment, on-discrimination and equal opportunity of project workers at work for all employees in KDEAP led sub-projects to protect or mitigate the risks of potential discrimination in employment, remuneration disparities, Gender Based Violence (GBV) and aspects of Sexual Exploitation, Abuse and Harassment (SEA/SH) at the workplace;
- Provide commitment from project management towards sustainable project execution in compliance with ESS2 and OHS provisions in the WBG EHS Guidelines;
- Ensure safety and health of workers and remind all project teams of the need to adhere to resident worker related legislation, standards and best in duty practice; and
- Provide all project teams with the main legal backings on workers' rights, duties, and employer's duties among others.

The World Bank's ESS 2: Labour and Working Conditions

World Bank's ESS 2 aims at promoting safety and health at work, fair treatment, non-discrimination, and equal opportunity for project workers. These include vulnerable workers such as women and girls, persons with disabilities, children of working age, migrant workers, contracted workers, community workers and primary supply workers. Other objectives include prevention of the use of all forms of forced labor and child labour, supporting the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. It presents an opportunity for project workers with accessible means to raise workplace concerns. As such, this Standard obliges the Borrower/MICDE/ICTA to develop and implement written labor management procedures applicable to the project. These procedures will set out the way in which project workers will be managed, in accordance with the requirements of national laws.

ESS4 Environment and Social Framework on Community Health and Safety

The Standard puts emphasis on community exposure to risks and impacts of project and includes road safety risks; risks associated with security personnel as well as addressing water-related, communicable, and non-communicable diseases.

OVERVIEW OF LABOUR USE ON THE PROJECT

The WBG's ESS 2 categorizes project workers into four broad categories: (i) direct workers; (ii) contractor workers; (iii) primary suppliers; and (iv) community workers. This project will engage direct workers who will primarily be government employees and consultants who will be hired by the PIU and contractors to deliver on specific tasks. As such, the project workers will be those employees assigned to the PIU and those hired by project contactors. Other civil servants could be seconded from other MDAs to serve on the PIU but they will remain subject to the terms and conditions of their existing public service terms of employment. While the civil servants are governed by the Employment Act of 2007 and a set of public service regulations and Human Resources Manuals, the consultants will be governed by a set of mutually agreed contracts between them and the PIU and/or contracting agency. This project will also engage contractors' workers, primary suppliers, and community workers.

Project Specific Labour Categories

Generally, successful implementation of the project will depend on skilled, semi-skilled and unskilled labour. Among workers at the project will be personnel from ICT Authority; those contracted by various contractors and sub-contractors.

Project Skilled Labour

These are competent labour with formal education or skills acquired through experience and qualification. In this category all personnel utilized shall be skilled and include primary supply workers like experienced drivers with relevant defensive driving training, engineering teams, monitoring and evaluation teams, surveying teams and E&S compliance teams. They shall also include - working at height certified personnel.

Project Unskilled Labour

Unskilled labour has basic awareness necessary to provide manual handling and other in-house awareness sessions. They are mainly community members and shall ensure safe offloading activities, trenching, backfilling, laying of ducts, warning tape installation, cable pulling, pole installation, traffic management along routes of interest.

Generally, the unskilled and semi-skilled labour force shall earn daily wages but still hold workman's compensation during project works execution. As many workers are expected to uniformly work for eight hours daily, employment terms may vary depending on whether one is permanent or contracted.

ESS2 Conditions for Workers Management

Each category of workers under ESS2 conditions for management shall include the following;

1. Project workers will be provided with information and documentation that is clear and understandable regarding their terms and conditions of employment.
2. Project workers will be paid on a regular basis as required by national law and labour management procedures.
3. Where required by national law or the labour management procedures, project workers will receive written notice of termination of employment and details of severance payments in a timely manner.
4. The employment of project workers will be based on the principle of equal opportunity and fair treatment, and there will be no discrimination with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, or disciplinary practices.
5. The project will provide appropriate measures of protection and assistance to address the vulnerabilities of project workers, including specific groups of workers, such as women, people with disabilities, migrant workers, and children.

ASSESSMENT OF KEY POTENTIAL LABOUR RISKS

KDEAP involves several activities including; conducting field surveys, development of designs and trenching for connectivity sub-component, ground trothing for selected routes after design completion, delivery and installation of hardware sub-systems in accordance with the approved design plan, integration of all network elements in the Network Management System for central monitoring and management at the Network Operations Center, conducting standard security verification for all network sub-systems, including configuration, testing and commissioning of all network elements as per approved design. Site teams shall carry out section specific assessment during daily toolbox talks and pre-job planning meetings with reference to the ESMF and the generic risk assessment subsequently provided:

Table 0- 9 Labour Risks and Mitigation Measures

Impact and Risk Description	Mitigation Measures
Construction Phase	
Electrical Safety	• Only allowing trained and certified workers to install, maintain, or repair electrical equipment; • Deactivating and properly grounding live power distribution lines before work is performed on, or near, the lines; • Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following: ○ Distinguish live parts from other parts of the electrical system ○ Determine the voltage of live part ○ Understand the minimum approach distances outlined for specific live

Impact and Risk Description	Mitigation Measures
	line voltages. o Ensure proper use of special safety equipment and procedures when working near, or on, exposed energized parts of an electrical system • Workers should not approach an exposed, energized or conductive part even if properly trained unless: o The worker is properly insulated from the energized part with gloves or other approved insulation; or o The energized part is properly insulated from the worker and any other conductive object; or o The worker is properly isolated and insulated from any other conductive object (live-line work) • Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan14; Recommendations to prevent, minimize, and control injuries related to electric shock include: o All electrical installations should be performed by certified personnel and supervised by an accredited person. Certification for such work should include theoretical as well as practical education and experience; o Strict procedures for de-energizing and checking of electrical equipment should be in place before any maintenance work is conducted. If de-energizing is not possible, electrical installations should be moved or insulated to minimize the hazardous effects; o Prior to excavation works, all existing underground cable installations should be identified and marked. Drawings and plans should indicate such installations; o All electrical installations or steel structures, such as masts or towers, should be grounded to provide safety as the electrical current chooses the grounded path for electrical discharge. In cases where maintenance work must be performed on energized equipment, a strict safety procedure should be in place and work should be performed under constant supervision; o Personnel training should be provided in revival techniques for victims of electric shock.
Confined Spaces and Excavations	• Controlling site-specific factors which may contribute to excavation slope instability including, for example, the use of excavation dewatering, side-walls support, and slope gradient adjustments that eliminate or minimize the risk of collapse, entrapment, or drowning • Providing safe means of access and egress from excavations, such as graded slopes, graded access route, or stairs and ladders • Avoiding the operation of combustion equipment for prolonged periods inside excavations areas where other workers are required to enter unless the area is actively ventilated
Optical Fiber	• Worker training on specific hazards associated with laser lights, including the various classes of low and high-power laser lights, and fiber management;

Impact and Risk Description	Mitigation Measures

Safety	• Preparation and implementation of laser light safety and fiber management procedures which include:
	  ○ Switching off laser lights prior to work initiation, when feasible
	  ○ Use of laser safety glasses during live optical fiber systems installation
	  ○ Prohibition of intentionally looking into the laser of fiber end or pointing it at another person
	  ○ Restricting access to the work area, placing warning signs and labeling of areas with potential for exposure to laser radiation, and providing adequate background lighting to account for loss of visibility with the use of protective eyewear
	  ○ Inspecting the work area for the presence of flammable materials prior to the installation of high- powered laser lights
	• Implementation of a medical surveillance program with initial and periodic eye examinations;
	• Avoiding exposure to fibers through use of protective clothing and separation of work and eating areas.

Elevated and Overhead Work	• The area around which elevated work is taking place should be barricaded to prevent unauthorized access. Working under other personnel should be avoided; • Hoisting and lifting equipment should be rated and maintained and operators trained in their use. Elevating platforms should be maintained and operated according to established safety procedures that include such aspects as equipment and use of fall protection measures (e.g., railings), movement of location only when the lift is in a retracted position, repair by qualified individuals, and the use of effective locks to avoid unauthorized use by untrained individuals; • Ladders should be used according to pre-established safety procedures including proper placement, climbing, standing, and the use of extensions.
Fall Protection	Prevention and control measures for working at height include: • Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others; • Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters (m) above the working surface, but sometimes extended to 7m, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point; • Installation of fixtures on tower components to facilitate the use of fall protection systems; • Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be compatible with the tower components to which they are attached; • Safety belts should be of not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident;

Impact and Risk Description	Mitigation Measures
	• When operating power tools at height, workers should use a second (backup) safety strap.
Sexual Exploitation and Harassment and Gender-Based Violence	• contractors' workforce on all sites including schools will be lean, trained and well supervised minimizing the SEA/SH risks for the project; • all supervision consultants and contractor's workers will include full time social and gender experts and community liaison officers; • all workers will sign a code of conduct; • SEA/SH training for ICTA staff, supervision consultants' staff and the contractor's workers will continue throughout project implementation; • SEA/SH mitigation measures will be incorporated into the Environmental and Social Management Plans (ESMPs); • stakeholders' consultations will properly inform communities and stakeholders of the project on SEA/SH risks; • the project grievance redress mechanism will provide multiple channels to initiate complaints, including specific procedures for SEA/SH related complaints including confidential reporting with safe and ethical documentation of SEA/SH; and • the project will maintain SEA/SH staff for PIU, Supervision Consultants and Contractors.
Operations Phase	
Electromagnetic fields (EMF)	• Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities; • Training of workers in the identification of occupational EMF levels and hazards; • Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers; • Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE).
Motor vehicle safety	Road safety initiatives proportional to the scope and nature of project activities should include: • Adoption of best transport safety practices across all aspects of project operations with the goal of preventing traffic accidents and minimizing injuries suffered by project personnel and the public. Measures should include: o Emphasizing safety aspects among drivers o Improving driving skills and requiring licensing of drivers o Adopting limits for trip duration and arranging driver rosters to avoid

Impact and Risk Description	Mitigation Measures
	overtiredness. o Avoiding dangerous routes and times of day to reduce the risk of accidents o Use of speed control devices (governors) on trucks, and remote monitoring of driver actions • Regular maintenance of vehicles and use of manufacturer approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.
Working at Heights	• Installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area • Proper use of ladders and scaffolds by trained employees • Use of fall prevention devices, including safety belt and lanyard travel limiting devices to prevent access to fall hazard area, or fall protection devices such as full body harnesses used in conjunction with shock absorbing lanyards or self- retracting inertial fall arrest devices attached to fixed anchor point or horizontal life-lines • Appropriate training in use, serviceability, and integrity of the necessary PPE • Inclusion of rescue and/or recovery plans, and equipment to respond to workers after an arrested fall
Fire and Explosions	• Storing flammables away from ignition sources and oxidizing materials. Further, flammables storage area should be: o Remote from entry and exit points into buildings o Away from facility ventilation intakes or vents o Have natural or passive floor and ceiling level ventilation and explosion venting o Use spark-proof fixtures o Be equipped with fire extinguishing devices and self-closing doors, and constructed of materials made to withstand flame impingement for a moderate period of time • Providing bonding and grounding of, and between, containers and additional mechanical floor level ventilation if materials are being, or could be, dispensed in the storage area • Where the flammable material is mainly comprised of dust, providing electrical grounding, spark detection, and, if needed, quenching systems • Defining and labeling fire hazards areas to warn of special rules (e.g., prohibition in use of smoking materials, cellular phones, or other potential spark generating equipment) • Providing specific worker training in handling of flammable materials, and in fire prevention or suppression
General Facility Design and Operation	**Integrity of Workplace Structures** Permanent and recurrent places of work should be designed and equipped to protect OHS:

Impact and Risk Description	Mitigation Measures
	• Surfaces, structures and installations should be easy to clean and maintain, and not allow for accumulation of hazardous compounds. • Buildings should be structurally safe, provide appropriate protection against the climate, and have acceptable light and noise conditions. • Fire resistant, noise-absorbing materials should, to the extent feasible, be used for cladding on ceilings and walls. • Floors should be level, even, and non-skid.
	Workspace and Exit • The space provided for each worker, and in total, should be adequate for safe execution of all activities, including transport and interim storage of materials and products. • Passages to emergency exits should be unobstructed at all times. Exits should be clearly marked to be visible in total darkness. The number and capacity of emergency exits should be sufficient for safe and orderly evacuation of the greatest number of people present at any time, and there should be a minimum two exits from any work area. • Facilities also should be designed and built taking into account the needs of disabled persons.
	Fire Precautions • The workplace should be designed to prevent the start of fires through the implementation of fire codes applicable to industrial settings. Other essential measures include: • Equipping facilities with fire detectors, alarm systems, and fire-fighting equipment. The equipment should be maintained in good working order and be readily accessible. It should be adequate for the dimensions and use of the premises, equipment installed, physical and chemical properties of substances present, and the maximum number of people present. • Provision of manual firefighting equipment that is easily accessible and simple to use • Fire and emergency alarm systems that are both audible and visible.
	Lavatories and Showers • Adequate lavatory facilities (toilets and washing areas) should be provided for the number of people expected to work in the facility and allowances made for segregated facilities, or for indicating whether the toilet facility is “In Use” or “Vacant”. Toilet facilities should also be provided with adequate supplies of hot and cold running water, soap, and hand drying devices. • Where workers may be exposed to substances poisonous by ingestion and skin contamination may occur, facilities for showering and changing into and out of street and work clothes should be provided.

Impact and Risk Description	Mitigation Measures
	Potable Water Supply • Adequate supplies of potable drinking water should be provided from a fountain with an upward jet or with a sanitary means of collecting the water for the purposes of drinking • Water supplied to areas of food preparation or for the purpose of personal hygiene (washing or bathing) should meet drinking water quality standards
	Lighting • Workplaces should, to the degree feasible, receive natural light and be supplemented with sufficient artificial illumination to promote workers' safety and health, and enable safe equipment operation. Supplemental 'task lighting' may be required where specific visual acuity requirements should be met. • Emergency lighting of adequate intensity should be installed and automatically activated upon failure of the principal artificial light source to ensure safe shut-down, evacuation, etc.
	Safe Access • Passageways for pedestrians and vehicles within and outside buildings should be segregated and provide for easy, safe, and appropriate access • Equipment and installations requiring servicing, inspection, and/or cleaning should have unobstructed, unrestricted, and ready access • Hand, knee and foot railings should be installed on stairs, fixed ladders, platforms, permanent and interim floor openings, loading bays, ramps, etc. • Openings should be sealed by gates or removable chains • Covers should, if feasible, be installed to protect against falling items • Measures to prevent unauthorized access to dangerous areas should be in place.
	First Aid • The employer should ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations should be easily accessible throughout the place of work • Eye-wash stations and/or emergency showers should be provided close to all workstations where immediate flushing with water is the recommended first-aid response • Where the scale of work or the type of activity being carried out so requires, dedicated and appropriately equipped first- aid room(s) should be provided. First aid stations and rooms should be equipped with gloves, gowns, and masks for protection against direct contact with blood and other body fluids • Remote sites should have written emergency procedures in place for dealing with cases of trauma or serious illness up to the point at which patient care

Impact and Risk Description	Mitigation Measures
	can be transferred to an appropriate medical facility.
	Air Supply • Sufficient fresh air should be supplied for indoor and confined work spaces. Factors to be considered in ventilation design include physical activity, substances in use, and process- related emissions. Air distribution systems should be designed so as not to expose workers to draughts • Mechanical ventilation systems should be maintained in good working order. Point-source exhaust systems required for maintaining a safe ambient environment should have local indicators of correct functioning. • Re-circulation of contaminated air is not acceptable. Air inlet filters should be kept clean and free of dust and microorganisms. Heating, ventilation and air conditioning (HVAC) and industrial evaporative cooling systems should be equipped, maintained and operated so as to prevent growth and spreading of disease agents (e.g. Legionnella pneumophilia) or breeding of vectors (e.g. mosquitoes and flies) of public health concern.
	Work Environment Temperature • The temperature in work, rest room and other welfare facilities should, during service hours, be maintained at a level appropriate for the purpose of the facility. • Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly • Adjustment of work and rest periods according to temperature stress management procedures provided by ACGIH, depending on the temperature and workloads • Providing temporary shelters to protect against the elements during working activities or for use as rest areas • Use of protective clothing • Providing easy access to adequate hydration such as drinking water or electrolyte drinks, and avoiding consumption of alcoholic beverages.
Physical Hazards	**Noise** • No employee should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C). • The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A). Hearing protective devices provided should be capable of reducing sound levels at the ear to at least 85 dB(A). • Although hearing protection is preferred for any period of noise exposure in

Impact and Risk Description	Mitigation Measures
	excess of 85 dB(A), an equivalent level of protection can be obtained, but less easily managed, by limiting the duration of noise exposure. For every 3 dB(A) increase in sound levels, the 'allowed' exposure period or duration should be reduced by 50 percent.65 • Prior to the issuance of hearing protective devices as the final control mechanism, use of acoustic insulating materials, isolation of the noise source, and other engineering controls should be investigated and implemented, where feasible • Periodic medical hearing checks should be performed on workers exposed to high noise levels
	Ergonomics, Repetitive Motion, Manual Handling • Facility and workstation design with 5th to 95th percentile operational and maintenance workers in mind • Use of mechanical assists to eliminate or reduce exertions required to lift materials, hold tools and work objects, and requiring multi-person lifts if weights exceed thresholds • Selecting and designing tools that reduce force requirements and holding times, and improve postures • Providing user adjustable work stations • Incorporating rest and stretch breaks into work processes, • and conducting job rotation • Implementing quality control and maintenance programs that reduce unnecessary forces and exertions • Taking into consideration additional special conditions such as left handed persons
Chemical Hazards	• Replacement of the hazardous substance with a less hazardous substitute • Implementation of engineering and administrative control measures to avoid or minimize the release of hazardous substances into the work environment keeping the level of exposure below internationally established or recognized limits • Keeping the number of employees exposed, or likely to become exposed, to a minimum • Communicating chemical hazards to workers through labeling and marking according to national and internationally recognized requirements and standards, including the International Chemical Safety Cards (ICSC), Materials Safety Data Sheets (MSDS), or equivalent. Any means of written communication should be in an easily understood language and be readily available to exposed workers and first-aid personnel • Training workers in the use of the available information (such as MSDSs), safe work practices, and appropriate use of PPE.

Impact and Risk Description	Mitigation Measures
Biological Hazards	• If the nature of the activity permits, use of any harmful biological agents should be avoided and replaced with an agent that, under normal conditions of use, is not dangerous or less dangerous to workers. If use of harmful agents can not be avoided, precautions should be taken to keep the risk of exposure as low as possible and maintained below internationally established and recognized exposure limits. • Work processes, engineering, and administrative controls should be designed, maintained, and operated to avoid or minimize release of biological agents into the working environment. The number of employees exposed or likely to become exposed should be kept at a minimum. • The employer should review and assess known and suspected presence of biological agents at the place of work and implement appropriate safety measures, monitoring, training, and training verification programs. • Measures to eliminate and control hazards from known and suspected biological agents at the place of work should be designed, implemented and maintained in close co-operation with the local health authorities and according to recognized international standards.
Radiological Hazards	• Places of work involving occupational and/or natural exposure to ionizing radiation should be established and operated in accordance with recognized international safety standards and guidelines.[100] • Exposure to non-ionizing radiation (including static magnetic fields; sub-radio frequency magnetic fields; static electric fields; radio frequency and microwave radiation; light and near-infrared radiation; and ultraviolet radiation) should be controlled to internationally recommended limits[101]. • In the case of both ionizing and non-ionizing radiation, the preferred method for controlling exposure is shielding and limiting the radiation source. Personal protective equipment is supplemental only or for emergency use. Personal protective equipment for near-infrared, visible and ultraviolet range radiation can include appropriate sun block creams, with or without appropriate screening clothing.
Personal Protective Equipment (PPE)	• Active use of PPE if alternative technologies, work plans or procedures cannot eliminate, or sufficiently reduce, a hazard or exposure • Identification and provision of appropriate PPE that offers adequate protection to the worker, co-workers, and occasional visitors, without incurring unnecessary inconvenience to the individual • Proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out. Proper use of PPE should be part of the recurrent training programs for employees

[100] International Basic Safety Standard for protection against Ionizing Radiation and for the Safety of Radiation Sources and its three interrelated Safety Guides.

[101] For example ACGIH (2005) and International Commission for Non-Ionizing Radiation (ICNIRP).

Impact and Risk Description	Mitigation Measures
	• Selection of PPE should be based on the hazard and risk ranking described earlier in this section, and selected according to criteria on performance and testing established by recognized organizations[102].

OHS Procedure on Developing Risk Assessments During Implementation

It is important that ICTA/Contractors know where the risks are during KDEAP Implementation and prevent or keep them under control to avoid putting stakeholders e.g., employees, public, etc., at risk. The main goal of risk management is to eliminate or at least to reduce the risks according to the ALARP (as low as reasonably practicable) principle. A key aspect in ***risk management*** is that it should be carried out with an active participation/involvement of the entire workforce. Carrying out risk management requires a step-by-step approach.

Step 1: Preparation of the process

The preparation of the risk management process involves several activities, namely:

- Identification of exposed workers – particular attention should be given to:
  - *workers with special needs*, such as *pregnant women*, *young workers*, *aging workers* and *workers with disabilities*;
  - *maintenance workers, cleaners, contractors and visitors*
- *Description of tasks, work equipment, materials, and work procedures*;
- Consideration of work patterns and *organisational aspects*;
- Consideration of external factors that could affect the workplace;
- Identification and description of implemented *prevention measures*;
- Data on *workplace incidents, near-misses, injuries* and work-related *health* problems; and
- Identification of *legal requirements*, *standard*s or company regulations.

Several means can be used to support these activities. For instance:

- Direct observation while the job is being performed – walkthrough;
- Interviews with workers and managers;
- Analysing data on workplace incidents, near-misses, injuries and work-related health problems;
- Review of technical documentation and inspection reports on *work equipment and machinery*;
- Review of the *safety data sheets* of the chemicals used in workplace;
- Review of the applicable legislation, standards and company regulations.

[102] Examples include the American National Standards Institute (ANSI), http://www.ansi.org/; National Institute for Occupational Safety and Health76 (NIOSH), http://www.cdc.gov/niosh/homepage.html; Canadian Standards Association76 (CSA),http://www.csa.ca/Default.asp?language=english;Mine Safety and Health Administration76 (MSHA), http://www.msha.gov.

Step 2: Risk analysis

The risk analysis activities involve:

- Identification of hazards present in the workplace and work environment;
- Determination of the potential consequences of the risks.

Several means can be used to support these activities. For instance:

- Direct observation – walkthrough;
- Interviews with workers and managers;
- Checklists;
- Deviation analysis;
- Task analysis;
- Previous risk assessment data;
- Employee (satisfaction) surveys.

Step 3: Risk assessment

Risk assessment is the process of evaluation of the risks arising from a hazard, taking into account the adequacy of any existing controls. Several methods to perform risk assessment are available ranging from expert to participatory methodologies and from simple to complex methods. Which method for assessing risks is applied will depend on the nature of the workplace, the type of the tasks and work processes, and the technical complexity.

Risk evaluation

Risk evaluation involves the determination of a quantitative or qualitative value for the risk. Quantitative risk evaluation requires calculations of the two components of the risk: the probability that the risk will occur, and the severity of the potential consequences. This approach is seldom applied in practice.

Qualitative risk evaluation is more common and usually adopts a methodology based on a matrix. A risk assessment matrix consists of a two-dimensional grid with categories of harmful effects on one axis and categories of probability or likelihood on the other axis. The cells within the grid are used to indicate risk.

Ranking of the evaluated risks

Based on the risk values obtained during the risk evaluation phase, risks should be sorted and ranked according to their severity.

Classify risk acceptability

A decision whether a risk is acceptable results from the comparison of the obtained risk value with acceptability criteria based on legal requirements, principles of the hierarchy of prevention, standards, recommendations, evidence-based information on risks, adapting to innovation, etc.

It should be highlighted that a particularly careful assessment of individual risk exposure should be performed to workers of special groups (for example, vulnerable groups such as new or inexperienced workers), or to those most directly involved in the highest risk activities (i.e., the most exposed group of workers).

This risk classification is the baseline for selecting actions to be implemented and when defining the timescale, i.e., the urgency of the implementation of the corrective measures.

To have a consistent base for all risk assessments the ICTA/Contractors should first establish the acceptability criteria. This should involve consultation with workers representatives and other stakeholders and should take account of legislation and regulatory agency guidance, and WBG ESF, where applicable.

Step 4: Taking measures

At this stage, ICTA/Contractors should identify actions to be implemented to avoid or reduce risks having in mind the protection of workers' health and safety, as well as their monitoring over time. The measures implemented should be the ones that best protect everyone exposed to the risk. However, it is important not to forget that additional or different measures may be required to protect workers belonging to special groups, namely workers with special needs (such as pregnant women, young workers, aging workers and workers with disabilities) and maintenance workers, cleaners, contractors and visitors.

It is very important to take account of the number of individuals exposed to the risk when setting priorities and the timeline for the implementation of prevention and control measures. The *risk prevention and control strategy* includes the design, planning and implementing of adequate measures, as well as training and informing workers.

Design measures

The first step is the design of the measures to eliminate risks. The risks that cannot be avoided or eliminated should be reduced to an acceptable level, i.e., the residual risk shall be minimised according to the ALARP principle. This means employers must perform a cost-benefit analysis to balance the cost (including money, time, trouble and effort) they could have to reduce a risk against the degree of risk. It should be demonstrated that the cost involved in reducing the risk further would be grossly disproportionate to the benefit gained. The residual risk should be controlled.

Implement measures

The measures to be implemented should be based on up-dated technical and/or organisational knowledge, and good practices using the following hierarchy order:

- Prevention measures
- Protection measures
- Mitigation measures
- Prevention measures

The aim of implementation of prevention measures is to reduce the likelihood of injuries or ill-health. Several examples, also in hierarchical order, that can be used to achieve this objective are:

a) Using engineering or technical measures to act directly on the risk source, to
   - Remove it, i.e., ensure that during the workplace design phase risks are 'designed out'
   - Reduce levels of hazardous materials. For instance, provide effective ventilation through local or general exhaust ventilation systems.
   - Replace it, i.e., substitute the risk by a less risky material, equipment or substance.

These measures are more efficient and economical when accomplished during the project design phase.

b) Using organisational or administrative measures for changing of behaviours and attitudes and promote a safety culture:
   - Information and training (awareness)
   - Establish appropriate working procedures and supervision

- Management and proactive monitoring
- Routine maintenance and housekeeping procedures
- Protection measures

Implementation of Protection measures should consider, first, collective measures and then individual measures. Several examples of measures (sorted by priority) that can be used to achieve this objective are:

- Collective Protection measures:
    - Enclose or isolate the risk using guards, protection of machinery and parts, or remote handling techniques;
    - Physical barriers (anti-drop networks, railings, packaging, acoustic, thermal or electrical barriers);
    - Using organisational or administrative measures to diminish the exposure duration:
        - job rotation of workers;
        - timing the job so that fewer workers are exposed;
        - Implementation of safety signs, for instance restricting entry to authorised persons.
- Individual Protection - use of Personnel Protective Equipment (PPE) to protect worker from the residual risk. The worker should participate in the selection of PPE and should be trained in its use.

Mitigation measures

When despite prevention and protective measures incidents, an injury or a case of ill-health occurs, the company needs to be prepared (emergency preparedness) by implementing mitigation measures. The aim of mitigation measures is to reduce the severity of any damage to facilities and harm to employees and public. Several examples of measures that can be used to achieve this aim are: emergency plans, evacuation planning, warning systems (alarms, flashing lights), test of emergency procedures, exercises and drills, fire-extinguishing system, or a return-to-work plan.

Training and information

Managers must know the risk their workers are exposed to. Workers must know the risks they are exposed to. Providing information and training courses to workers is a legal requirement in Kenya.

Step 5: Review and update

The risk management process should be reviewed and updated regularly, for instance every year, to ensure that the prevention measures implemented are adequate and effective. Additional measures might be necessary if the improvements do not show the expected results. This is also a highly recommendable procedure since workplaces are dynamic due to change in equipment, machines, substances or work procedures that could introduce new hazards in the workplace. Another reason is that new knowledge regarding risks can emerge; either leading to the need of an intervention or offering new ways of avoiding or controlling the risk. The review of the risk management process should consider a variety of types of information and draw them from several relevant perspectives (e.g., staff, management, stakeholders).

Step 6: Document the process

In Kenya, it is a legal obligation that employers assess the risks to safety and health at work, including those facing groups of workers exposed to risks and document the process.

Documentation should provide an overview of the identified hazards, respective risks and subsequent measures implemented.

BRIEF OVERVIEW OF LABOUR LEGISLATION - TERMS AND CONDITIONS

This section sets out the key aspects of national labor legislation with regards to term and conditions of work, and how national legislation applies to different categories of workers identified in Section 2. The overview focuses on legislation which relates to the items set out in ESS2, paragraph 11 (i.e., wages, deductions, and benefits).

National Legislative, Policy and Institutional Framework

Table 0- 10 Policy and Legal Frameworks

Legislation	*Key Provisions*
The Constitution of Kenya (2010)	Articles 25 (b) & 30 – prohibits slavery and servitude Article 27 – prohibits discrimination Article 36 – guarantees the freedom of association including the right to join and form trade unions and employer associations Article 37 – protects the right to industrial action Article 41 – guarantees the right to fair labour practices Article 43 (1) (e) – provides for social security Article 47 – provides the right to fair administrative action. Article 162 (2) (a) – creates Employment and Labour Relations Court
Public Health Act, Cap 242	Prohibits a person/institution to cause nuisance or condition liable to be injurious or dangerous to human health. Requires county governments to enforce the same.
The Occupational Health and Safety Act (OSHA), 2007	Requires Project sites to be registered by DOSHS. Requires workplace and fire safety audits for internal environments. Requires examination and testing of plants and equipment. Requires accident investigation and reporting to DOSHS within 24 hours (fatal accidents) and 7 days (non-fatal accidents).
Work Injury Compensation Benefit Act 2007	Requires compensation for employees on work related injuries and diseases. Requires employer to report an employee's injury to DOSHS county offices within 24 hours (fatal accidents) and 7 days (non-fatal accidents).
The Employment Act No 11, 2007	Prohibits forced and child labour, discrimination, and sexual harassment in employment. Requires employers to provide contracts to all employees and

Legislation	*Key Provisions*
	annual leave.
National Gender and Development Policy, 2019 **National Gender and Equality Commission Act No. 15 of 2011**	Requires projects to offer equal opportunities to women, men, persons with disabilities, the youth, children, the elderly, minorities, and marginalized communities.
National Policy for Prevention and Response to Gender-Based Violence, 2014 **The Sexual Offences Act (No. 3 of 2006)**	Requires employers to develop and implement a gender action plan. Requires elimination of sexual offences e.g., sexual exploitation and harassment, e.g., everywhere including workplaces.
HIV/AIDS Prevention and Control Act (Act No.14 of 2006, Revised in 2012)	requires HIV/AIDs education in the workplace.
The Labour Relations Act, 2007	Recognizes employees right to join trade unions and collective agreements

International Instruments

Convention on Elimination of All Forms of Discrimination against Women, 1979

It looks at discrimination against women as any distinction, exclusion or restriction made based on sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment, or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. The project shall provide for equal opportunity in recruitment and treatment of all staff. There shall be deliberate effort in recruitment of women in appropriate roles and provision of appropriate PPE and safe work environment to enable execution of assigned roles and responsibilities.

The International Convention on Protection of Migrant Workers and members of their families, 1990

This is a United Nations multilateral treaty governing the protection of migrant workers and members of their families. This labor Management Procedure provides for protection of all workers on the project without discrimination.

The UN Conventions on the Rights of Persons with Disabilities, 2007

This is intended to protect the rights and dignity of persons with disabilities and ensure full enjoyment of their human rights and equality under the law. The project has special attention to Vulnerable Groups, the directed efforts in their inclusion and care in taken in project implementation to reduce or mitigate on the negative impacts associated with it. This is mainly in barricading off areas under construction and timely backfilling of excavations among others.

Universal Declaration on Human Rights (UDHR)

The UDHR guarantees certain rights to workers:

- Right to equality (Article 1)

- Freedom from discrimination (Article 2)
- Freedom from slavery (Article 4)
- Right to seek legal help if your rights are violated (Article 8)
- Right to privacy (Article 12)
- Freedom of movement (Article 13)
- Freedom of expression (Article 19)
- Right to work, fair wage, and to join a trade union (Article 23)
- Right to adequate standard of living (Article 25)

ILO Declaration on Fundamental Principles and Rights at Work – adopted in 1998 and amended in 2022

An expression of commitment by governments, employers', and workers' organizations to uphold basic human values - values that are vital to our social and economic lives. It affirms the obligations and commitments that are inherent in membership of the ILO, namely:

- Freedom of association and the effective recognition of the right to collective bargaining;
- The elimination of all forms of forced or compulsory labour;
- The effective abolition of child labour;
- The elimination of discrimination in respect of employment and occupation; and
- A safe and healthy working environment.

THE RESPONSIBLE STAFF

The Environmental Health and Safety (EHS) and Social Safeguards Specialists are responsible for the overall implementation of this LMP. The specialists will work with various stakeholders including Ministry of Labour and Social Services, National Environment Management Authority (NEMA) and directorate for Safety and Health Services (DOSHS) to implement the LMP in compliance with national laws. Specific roles and responsibilities of the EHS and social specialists are defined in the ESMF, Sections 7.2.1.1 and 7.2.1.2 respectively.

ICTA Chief Executive Officer

Overall responsibility of project delivery and showcases commitment to set compliance aspects of the project as a responsible developer.

ICTA Project Managers (PIU)

These are the main contract focal points throughout the project life cycle and provide final guidance in project execution.

Social Safeguards Specialist (SSS)

SSS will provide support to the project on compliance including but not limited to monitoring of workers' welfare, adherence to project related compliance aspects and advising on implementation of agreed or best practices in the operation. SSS will:

- Oversee the development of the project protocols;
- Oversee the implementation of the SEP and LMP;
- Assess the risk of serious safety issues;
- Link with NEMA and DOSHS on all labor related issues; and
- Monitor, document, and report on all OHS matters, and provide training on codes of conduct and other relevant OHS matters.

Contractor Management

Contractor management presents some of the greatest risks during project implementation given the fact that most activities are contracted out. These often come with own Environment Health Safety and Social compliance cultures. Prompt inductions and continuous monitoring is encouraged to ensure compliance. While responsibility is provided to contractors, the client (ICTA) remains accountable for the project. For contract bidding and contracts for the Project,

- ICTA will use the World Bank Group's 2017 standard procurement documents, which include labor, and occupational health and safety requirements.
- ICTA will incorporate a standard language, based on project requirements drawn from ESS2, ESS4 and other sections of the WBG Environmental and Social Framework and supporting documentation, in the tender and contract documents to ensure potential bidders are aware of the environmental and social requirements to be met under the project.
- Tender documentation should note that the contractor/subcontractor shall actively collaborate and consult with project workers in promoting understanding, and methods necessary for project implementation.
- ICTA will require bidders for contracts for the Project to agree and to implement a workplace Code of Conduct (COC) that includes provisions prohibiting any form of sexual exploitation, assault or harassment of Project workers, as well as sexual exploitation or sexual assault of persons in local communities affected by the project, and any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage. The CoC will apply to all persons employed or engaged, including persons employed or engaged through contractors and subcontractors, in relation to the project. The CoC shall form part of the induction process and the routine awareness sessions.
- ICTA will require bidders for contracts for the project to submit a statement confirming their firm compliance with national labor and employment and occupational health and safety laws, and labor management procedures in accordance with Environmental and Social Standard 2 "Labor and Working Conditions" (ESS2) and the LMP for the project.
- ICTA will make reasonable efforts to ensure that parties awarded contracts for the project are reliable law-abiding entities that do not have a history of problems relating to disrespect for national labor law, unresolved labor disputes, or frequent work-related accidents.

As part of the selection process for contractors, ICTA will request and review from prospective contractors the following information as a bare minimum:

1. Information in public records, for example, corporate registers and public documents relating to violations of applicable labor law, including reports from labor inspectorates and other enforcement bodies
2. Business licenses, registrations, permits, and approvals.
3. Documents relating to a labor management system, including OHS records, for example, labor management procedures.
4. Identification of labor management, safety, and health personnel, their qualifications, and certifications.
5. Workers' certifications/permits/training to perform required work for example Work at Height certification and Permit to Work training certification among others.
6. Records of safety and health violations, and responses.
7. Accident and fatality records and notifications to authorities.
8. Records of legally required worker benefits and proof of workers' enrollment in the related programs.

9. Worker payroll records, including hours worked and pay received; and
10. Identification of safety committee members and records of meetings

During the implementation of the contract, ICTA will require that contractors to provide Weekly, Monthly, and quarterly reports during project implementation. The reports shall have in aspects of the LMP especially around Personnel on Board (POB), Lost Time Incidents, Fatalities, inspections and audits, workplace inspections, grievances raised and resolved among others as dictated by field conditions and site-specific risks. Some of the pertinent contractor roles are subsequently presented:

Contractor Site Supervisors

Responsible for daily monitoring of activities to ensure compliance to set legislation and ensure close out of action points as provided in various scenarios. They hold the mantle to sound project implementation. Additionally, the contractor shall:

1. Implement the labour management procedures and OHS requirements in line with the ESMF.
2. Supervise sub-contractors' implementation of labor management procedures and OHS requirements.
3. Provide routine occupational health and safety training to all workers involved in works and maintains records of such trainings.
4. Maintain records of recruitment and employment of contracted workers as provided in their contracts.
5. Ensure that workers understand and sign the code of conduct, prior to commencement of works.
6. Provide workers with the necessary PPE and enforce PPE usage.
7. Ensure availability of first-aid kits, readily accessible by workers in case of injury.
8. Ensure availability of food and adequate potable drinking water for all project teams
9. Documentation and reporting of occupational accidents/incidents, maintain accident/incident logs. Major accidents/incidents such as fatalities etc., shall be reported to ICTA and World Bank Group immediately and investigative action undertaken to determine root causes. Minor incidents shall be recorded in the monthly monitoring reports including corrective actions undertaken to prevent recurrence. As part of OHS requirements, develop and implement emergency preparedness and response measures to effectively respond to emergency situations.

Contractor EHSS Personnel

Responsible for project compliance in line with workers' rights and obligations and advising management on proper systems of work. These carry out daily and routine monitoring of activities to ensure compliance with specified safety measures and records of any incidents.

National Coordination and Interior Government Officials

These include County Commissioners, their deputies, assistants plus chiefs. They ensure that all grievances provided to them are directed to the client and appropriately closed out or forwarded to the next tier as and when situations demand. They are also responsible for providing names of potential casual laborers from their communities.

POLICIES AND PROCEDURES

Employment of project workers will be based on the principles of non-discrimination and equal opportunity. There will be no discrimination with respect to any aspects of the employment relationship, including recruitment, compensation, working conditions and terms of employment, access to training, promotion, or termination of employment. The following measures will be

followed by contractors and monitored by the KDEAP Social specialist, to ensure fair treatment of all employees:

1. Recruitment procedures will be transparent, public and non-discriminatory, and open with respect to ethnicity, religion, sexuality, disability or gender;
2. Clear job descriptions will be provided in advance of recruitment and will explain the skills required for each post;
3. All workers will have written contracts describing terms and conditions of work and will have the contents explained to them. Workers will sign the employment contract;
4. Employees will be informed at least two months before their expected release date of the coming termination;
5. Depending on the origin of the employer and employee, employment terms and conditions will be communicated in a language that is understandable to both parties; and
6. In addition to written documentation, an oral explanation of conditions and terms of employment will be provided to workers who may have difficulty understanding the documentation.

AGE OF EMPLOYMENT

The project will ensure that only those aged 18 years and above are employed.

For verification purpose participants will present National ID, certificate of good conduct and a letter from the local chief. In liaison officials from interior government, awareness sessions on child and forced labor shall be conducted with clear consideration of host community cultural norms.

If a child under the minimum age is discovered working on the project, measures will be taken to immediately terminate the employment.

TERMS AND CONDITIONS

Terms and conditions of direct workers are determined by their individual contracts and public service rules (for government staff). Most of the government staff who will be deployed to the project will be seconded from their parent ministries. Kenya Public Service is guided by terms and conditions stipulated in the Public Service (Values and Principles) Act, 2015.

Consultants will apply the terms and conditions stipulated in their contract of engagement.

The contractors' labor management procedure will set out terms and conditions for the contracted and subcontracted workers. These terms and conditions will be in line, at a minimum, with this labor management procedure and General Conditions of the World Bank Standard Procurement documents.

GRIEVANCE MECHANISM

ICTA has Grievance Redress Mechanism (GRM) guidelines that shall be utilized throughout the project lifespan. These support all processes that are aimed at preventing, timely identification and resolving of project related grievances. The intention is to address workers' concerns, community concerns, reduce risks, and assist other processes to create sustainable positive impact through various tiers. Grievance Redress Mechanism is further discussed in the ESMF.

Workers Grievance Redress

A grievance is a concern or complaint raised by an individual or group affected by the project. Concerns and complaints can result from either real or perceived impacts and maybe logged and handled in a similar manner. The objective of the project GRM is to provide stakeholders processes

for submission and raising grievances and grievance resolution. This mechanism will ensure all grievances are handled in a fair and transparent manner, in line with ICTA internal policies, the Kenyan legal framework and the requirements under ESS2.

ICTA's Social Safeguards Specialist shall work with community leaders in the project sites and communities to establish and operationalize Grievance Redress Committees to address all grievances recorded. All measures shall be taken to settle all grievances amicably before resorting to courts of law. All workers related grievances of contractual nature including among others, non-fulfillment of contracts, levels of compensation, exclusion from subproject benefits, or seizure of assets without compensation shall be addressed to the workers' grievance committee.

The procedure shall include:

Step One

All civil grievances shall be submitted in writing to the Secretary within 24 hours, site specific workers GRC that sits weekly to handle grievances and provides feedback in 7 days. This committee shall consist of the site Engineer, Workers Representative, ICTA Grievance Officer (representative), Contractor EHS/Sociologist and the local interior government official. If the complainant is satisfied with the outcome of the mediation, the entity will fill in the grievance resolution form and the complaint will be closed. If the entity does not agree with the outcome of this committee meeting, the matter shall be referred to the project implementation team GRC. At all times, the GRCs shall be gender responsive with deliberate efforts to have women represented to cater for specific needs and grievances of women. In scenarios where the grievance or complaint is on one of the main committee members, these shall step aside to allow fair investigation and replacements made. For avoidance of doubt, suggestion boxes shall be utilized for scenarios where the complainant(s) prefer to stay anonymous.

Step Two

Project Implementation Unit (PIU) GRC that sits every week and will provide feedback in 14 days. This committee shall consist of the KDEAP Project Manager, Contractor Project Manager, ICTA Grievance Officer (representative), Contractor Engineer, Workers Representative, ICTA Social Safeguards Specialist and EHS and Contractor EHS. If the complainant is satisfied with the outcome of the mediation, the entity will fill in the grievance resolution form and the complaint will be closed. If the entity does not agree with the outcome of this committee meeting, the matter shall be referred to court for adjudication.

Step Three

ICTA GRC. This will include a Grievance Officer, KDEAP Legal officer and the Executive Committee members of ICTA with capacity to handle any civil issue including those that are intricate and complex. This GRC will meet once a month and respond to any issue within 21 days. If the complainant is satisfied with the outcome of the mediation, the entity will fill in the grievance resolution form and the complaint will be closed. If the entity does not agree with outcome of this committee, the matter shall be referred to court for adjudication.

Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)

Mitigation measures against GBV and SEA shall be addressed through the existing legal procedures and process in place including police, courts and prosecution, labor officers and probation officers. The procedure shall include:

Step One

Documentation of the incident and provision of psycho-social support to the victim by the Sociologist/GBV incident or service providers.

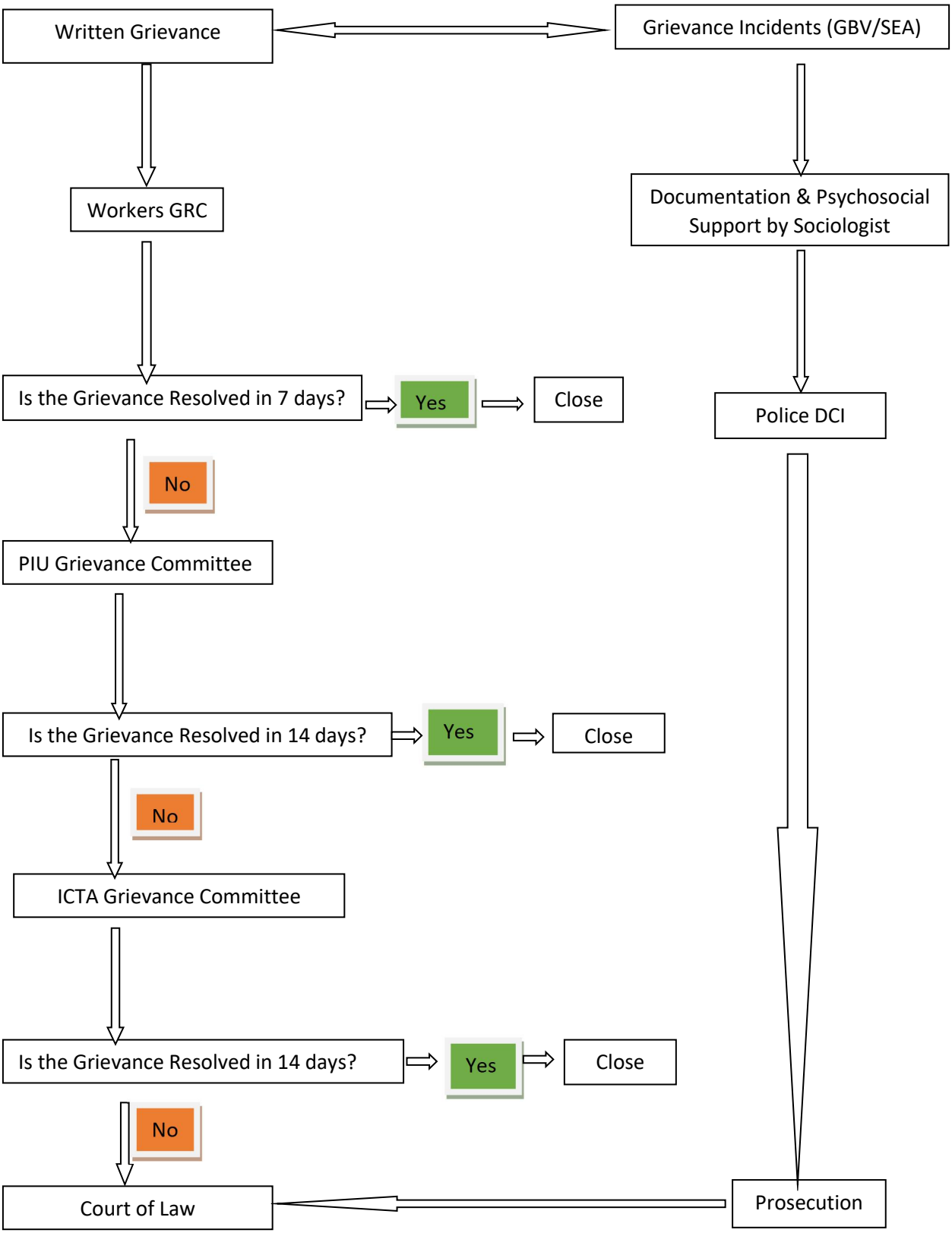
Step Two

Handling of the incident by Police and other criminal justice system authorities for redress

CONTRACTOR MANAGEMENT

To ensure sound and time-bound project implementation, ICTA utilizes several specialists. This call is for sound contractor management be realized through proper agreement signing, agreement on key performance indicators and ensuring that worker related aspects of the project are embedded in contract. Contractors will be selected through an open competitive bidding process. Management of labor issues including occupational health and safety as guided by ESS 2 and the approved LMP shall form part of the contract awarded to the best evaluated bidder. There should be:

1. Accident and fatality records and notifications to authorities.
2. Business licenses, registrations, permits, and approvals; Documents relating to a labor management system, including OHS issues, for example, labor management procedures.
3. Copies of previous contracts with contractors and suppliers, showing inclusion of provisions and terms
4. Identification of labor management, safety, and health personnel, their qualifications, and certifications.
5. Identification of safety committee members and records of meetings; and
6. Records of legally required worker benefits and proof of workers' enrolment in the related programs.
7. Records of safety and health violations, and responses.
8. Scrutiny of Information in public records, for example, corporate registers and public documents relating to violations of applicable labor law, including reports from labor inspectorates and other enforcement bodies.
9. Worker payroll records, including hours worked and pay received.
10. Workers' certifications/permits/training to perform required work.



visual Illustration of Grievance Mechanism

ICTA shall have full access to all project information collected by the contractor and project focal persons. The project manager with support from the Independent Supervisor shall be tasked to monitor and ensure compliance by the Contractor to ESS 2. All contractors shall have clear SOPs, closure dates and competent action parties. Continuous monitoring shall be carried out throughout

the project life cycle including but not limited to anomaly sighting campaigns amongst staff, periodic audits, inspections, and/or spot checks of project locations or work sites and/or of labor management records and reports compiled by third parties. While contractors shall have independent agreements or contracts signed with employees and sub-contractors, ICTA shall ensure that all contractors and employees are employed as per National Legislation, Best industry practice and in compliance to the labor management procedures. The contractor is obliged to provide all copies of contracts or agreements from all employees and subcontractors, or any other contract entered as part of the project delivery to ICTA.

BUDGET AND RESOURCES FOR IMPLEMENTING LMP

Table 0- 11 Estimated budget for implementing the LMP

Labor Management Activities	**Qty/per year**	**Unit Cost, USD**	**Total cost (USD)**
Development of the protocols [OHS at the workplace, Code of conduct (COC), etc.] including retreats for finalization	2	5,000	10,000
Site-specific OHS risk assessment (included in contractors' budget)			
Travel expenses of staff on LMP activities (supervision missions by the safeguards specialists and PIU leadership)	12	5,000	60,000
Training (contract management, COC, Grievance management, GBV, etc.) for PIU and contractors	4	20,000	80,000
Cost of managing the workers GRM	12	5,000	60,000
Monitoring and evaluation	12	5,000	60,000
Sub-total			**270,000**
Contingency (10%)			20,400
Total			**290,400**