



Ministry of Agriculture and Livestock Development

STATE DEPARTMENT FOR CROPS

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

FOR

**NATIONAL AGRICULTURAL VALUE CHAIN DEVELOPMENT PROJECT
(NAVCDP)**

Revised March 02, 2023

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Environmental and Social Management Framework

ACRONYMS

ALV	African Leafy Vegetables
ASTGS	Agricultural Sector Transformation and Growth Strategy
ATO	Agriculture Transformation Office
CAJ	Commission on Administration of Justice
CAP	Community Action Plan
SCTT	Sub County Technical Team
CDD	Community Driven Development
CDDC	Community Driven Development Committee
CIGs	Community Interest Groups
CoG	Council of Governors
CPCU	County Project Coordinating Unit
CTAC	County Technical Advisory Committee
CPSC	County Project Steering Committee
DAT	Digital Agriculture Technologies
DoSHS	Directorate of Occupational Health and Safety Services
EA	Environmental Assessment
EDPs	Enterprise Development Plans
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
ELC	Environmental and Land Court
EMCA	Environment Management and Coordination Act
EPD	Environmental Permitting Decision
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
FAO	Food Agricultural Organization
FLID	Farmer Led Irrigation Development
FPOs	Farmers Producer Organization
GBV/SEAH	Gender Based Violence/Sexual Exploitation, Abuse and Harassment
GM	Grievance Mechanism
GoK	Government of Kenya
GRC	Grievance Redress Committee
GRS	Grievance Redress Service
HIV/AIDS	Human Immuno-Deficiency Virus
HR	Human Resource
IDA	International Development Agency
IFC	International Finance Corporation
IPMP	Integrated Pest Management Plan
IPMF	Integrated Pest Management Framework
JET	Jobs and Economic Transformation

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KCSAP	Kenya Climate Smart Agriculture Project
KEBS	Kenya Bureau of Standards
KEPSA	Kenya Private Sector Alliance
KNCHR	Kenya National Commission on Human Rights
LMP	Labour Management Procedures
M&E	Monitoring and Evaluation
MoALD	Ministry of Agriculture, and Livestock, Development
MoEF	Ministry of Environment and Forestry
MSDS	Materials Safety Data Sheets
NARIGP	National Agriculture and Rural Inclusive Growth Project
NECC	National Environment Complaints Committee
NASEP	National Agricultural Sector Extension Policy
NEMA	National Environment Management Authority
NET	National Environmental Tribunal
NGEC	National Gender Equality Commission
NGO	Non-Governmental Organizations
NIA	National Irrigation Authority
NPCU	National Project Coordination Unit
NRM	National Resource Management
NT	National Treasury
NTAC	National Technical Advisory Committee
NVSP	National Value Chain Support Program
OSHA	Occupational Safety and Health Act
PAD	Project Appraisal Document
PDO	Project Development Objective
PIC	Public Information Centre
PICD	Participatory Integrated Community Development
PMP	Pest Management Plans
PPE	Personal Protective Equipment
PPP	Public Private Partnership
RCA	Root Cause Analysis
SACCOs	Savings and Credit Cooperative Organizations
SAIC	Social Accountability and Integrity Committee
SEAH	Sexual Exploitation, Abuse and Harassment
SEAH/AP	Sexual Exploitation, Abuse and Harassment Action Plan
SEP	Stakeholder Engagement Plan
SME	Small and Micro Enterprises
STDs	Sexually Transmitted Diseases
TAC	Technical Advisory Committee
VCEI	Value Chain Ecosystem Investments
VMGs	Vulnerable and Marginalized Groups
WB	World Bank
WHO	World Health Organization

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WSH	Workplace Sexual Harassment
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EXECUTIVE SUMMARY

- 1) This Environmental and Social Management Framework (ESMF) was prepared, reviewed, consulted, approved, cleared, and disclosed both in country (<https://kilimo.go.ke>) and the World Bank External website in December 2021 for the National Agricultural Value Chain Development Project (NAVCDP) which is a World Bank financed project implemented by the State Department for Crop Development and Agricultural Research in the Ministry of Agriculture and Livestock Development (MoALD). In January 2023, the Government of Kenya requested for additional counties for NAVCDP through a National Treasury Ref. *“Inclusion of Additional Counties to the National Agricultural Value Chain Development Project (NAVCDP)”*, (IDA Credit. No. 7064-KE) letter dated January 23, 2023. Subsequently, the 1st ISM for NAVCDP was held on February 13-17, 2023, and The World Bank, Country Director gave an IDA No Objection letter on the same Ref. February 2, 2023.
- 2) Therefore, NAVCDP adopted the recommended project changes that have affected the project design in the following areas:
 - a) NAVCDP will work in 33 from 26 counties: Meru, Nyeri, Muranga, Kirinyaga, Kiambu, Embu, Machakos, Kitui, Makueni, Tharaka Nithi, Nandi, Uasin Gishu, Trans Nzoia, Nakuru, Narok, Kajiado, Nyandarua, Kericho, Bomet, Kakamega, Busia, Bungoma, Vihiga, Homa Bay, Migori, Kisii, Siaya, Nyamira, Kisumu, Taita Taveta, Kwale, Kilifi, and Tana River (Figure 4).

The added counties in the above list include: Tharaka Nithi, Bungoma, Kajiado, Vihiga, Siaya, Nyamira and Kisumu.
 - b) Allow Saturation- in all wards of the project counties.
 - c) Each county selects up to 5 value chains, however 4 must be from the 12 VC menu and one more an open county choice.
 - d) FPOs are value chain sensitive and will be funded directly - (FPOs will benefit from three grants: inclusion; Enterprise Development; and Value Chain Upgrading Matching grants)
 - e) No micro-project grants- instead CIGs will access funds as a revolving fund from ward based SACCOs.
 - f) The CIGs will also be supported with inputs to demonstrate different technologies and innovations using the FFBS model. Within the wards, it was agreed that to start with, every farmer (including the georeferencing) will be registered and subsequently both the CDDCs (for wards) and CIGs mobilization will be undertaken based on the PICD process.

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- g) Every ward will have a SACCO. A diagnostic will determine whether a new SACCO will be mobilized, or an existing SACCO will be leveraged upon.
- h) Farmer registration, SACCO membership, and accessing SACCO funds will be value chain neutral activities.
- i) No grants will be provided at the CIG level and all grants to be provided will be either at the CDDC level (for selective crop demonstrations) or at the SACCO level (for revolving fund).
- j) Counties to constitute new CDDCs in the new wards and restructure the old CDDCs in the existing wards.

3) Therefore, based on the above project changes, it became prudent to realign all NAVCDP ESS instruments to be in line with the project changes. This ESMF has been realigned to address the project design changes. Consequently, this ESMF will further be reviewed, approved, cleared, Consulted, and redisclosed in country and in the World Bank External Website. The other NAVCDP ESS instruments include Integrated Pest Management Plan (IPMP) an annex of the ESMF, Resettlement Policy Framework (RPF), Vulnerable and Marginalized Framework (VMGF), Labour Management Procedures (LMP), Security Management Plan (SMP), Gender Based Violence/Sexual Exploitation Abuse and Harassment Prevention Plan (GBV/SEAHPP), Grievance Mechanism Manual (GMM), Stakeholder Engagement Plan (SEP), and Environmental and Social Commitment Plan (ESCP). All these instruments will be realigned, just as for ESMF reviewed, approved, consulted, cleared, and redisclosed, both in country and in the World Bank External website.

a. Project Development Objective

- 4) To increase market participation and value addition for target farmers in select value chains in project areas.**

b. Project Components

- 5) NAVCDP will have five thematic components and sub-components as described in Table 0-1.

1)

Table 0-1: NAVCDP Components and Subcomponents

I	Component I: Building Producer Capacity for Climate Resilient Stronger Value Chains
I.1	Sub-component I.1 Farmer Capacity Building and e-Voucher Support
	<ul style="list-style-type: none"> • Participatory identification of capacity needs for CIGs/VMGs; CDDCs, FPOs, and SACCOs

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	<ul style="list-style-type: none"> Community mobilization and strengthening through CDDCs for demos on climate smart TIMPs for prioritized value chains. and value chain promotion mainly for VMGs -CIGs; and new CIGs and IPs-CIGs. Mobilize farmers to access GoK funded NVSP input climate smart e-subsidy support (seeds, fertilizer, and agro-chemicals) Small scale infrastructure investments for primary aggregation and value addition Technical Assistance at National and County levels to support implementation
1.2	<i>Sub-component 1.2 FPO Level Climate Smart Value Chain Investments</i>
	<ul style="list-style-type: none"> Participatory identification of capacity needs for FPOs and provision of inclusion grants for the mobilization and strengthening of FPOs Development of climate informed business plans to enable access high quality climate resilient inputs, balanced fertilizers, aggregation and value addition Technical assistance to support access to formal financing; enable linkages with agribusiness SMEs, e-commerce companies and large ag-tech startups; and build techno-managerial capacity for agribusiness operations
1.3	<i>Sub-component 1.3 Improve Creditworthiness of CIGs and FPOs</i>
	<ul style="list-style-type: none"> Provide initial small grants to CIGs through Savings and Credit Cooperatives (SACCOs) that will be repaid to build a revolving fund Enhance financial management of VMG-CIGs, IPs-CIGs, CIGs/SACCO/CDDCs Technical assistance to FPOs to access finance and support development of FPO rating tool Build county, regional and national level partnerships for FPOs to ensure credit linkages and long-term access to capital from commercial banks, SACCOs, micro-finance institutions and digital financial service providers.
2	Component 2: Climate Smart Value Chain Ecosystem Investments
2.1	<i>Sub-component 2.1 Farmer-led Irrigation Development</i>
	<ul style="list-style-type: none"> Leverage on CIGs/FPOs to motivate farmers access irrigation and use water efficiently. Leverage on CIGs/FPOs to develop irrigation centred FLID forums linking farmers with irrigation suppliers, financial institutions and other key stakeholders. Deployment of technical resource persons to coordinate with County Irrigation Development Units (CIDU) for provision of technical support on water harvesting and accessing irrigation through aggregation and linkage of farmers to high-tech suppliers and financial institutions
2.2	<i>Sub-component 2.2 Market Access and Infrastructural Development</i>
	<ul style="list-style-type: none"> Formulate value chain development plans and co-financing models to maximize finance and crowding of investments at County, regional and national levels. Development and upgrading of physical markets, aggregation centres and cold chain infrastructure. Develop linkages with anchor off-takers and create pipeline investable opportunities for development of market infrastructure with private sector players.

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	<ul style="list-style-type: none"> Strengthen Kenya Markets Information Systems (KAMIS) to bridge market information asymmetry. Finance new and existing SMEs that provide essential services along the value chains
2.3	<i>Sub-component 2.3 Data and Digital Investments</i>
	<ul style="list-style-type: none"> Scale up partnership with DAT service providers by mobilizing technical assistance, training/capacity building and digital equipment Strengthen existing Big Data platform at KALRO to support wider farmer outreach Develop women and youth agripreneurs as last mile extension service providers and human touch point for bundling services in partnership with DAT providers Training and capacity building for county staff and farmers.
2.4	<i>Sub-component 2.4 Research Linkages, Technical Assistance and Institutional Capacity</i>
	<ul style="list-style-type: none"> Develop an inventory of TIMPs for the three new value chains (cotton, pyrethrum, and cashew nuts) Update inventories of TIMPs for other value chains developed under NARIGP/KCSAP and prioritize 3-5 TIMPs with highest potential for impact. Support on-boarding of Technical Support Agencies across several functional areas Support deployment of full-time dedicated human resource and required equipment to support their functioning at County level Establish dedicated cell at County level to anchor investment coordination and reference database of ongoing county level investments for prospective new investors
3	Component 3: Piloting Climate Smart Safer Urban Food Systems
3.1	<i>Sub-component 3.1 Climate Smart Urban and Peri-urban Agriculture</i>
	<ul style="list-style-type: none"> Mobilizing and organizing urban and peri-urban farmers into CIGs/VMGs and FPOs and provide micro-project investment support to promote appropriate TIMPs Linkage with DAT service providers for efficient input use Link urban/peri-urban zones to mid-stream value chain stakeholders such as processors, logistic providers, and quality control and assurance institutions i.e. KEBS Train and link SMEs in urban/peri-urban production and marketing to financial service providers
3.2	<i>Sub-component 3.2 Urban Infrastructure</i>
	<ul style="list-style-type: none"> Develop climate proof market infrastructure to serve market hubs for direct farmer-consumer linkages Facilitate between CIGs/VMGs and FPOs and e-commerce platforms and digital aggregators Support intensive consumer awareness and information campaign to catalyze higher demand and value for safer food produce.
3.3	<i>Sub-component 3.3 Policy and Institutional Strengthening</i>
	<ul style="list-style-type: none"> Implementation of existing legal and regulatory frameworks such as the Nairobi City Council Food System Strategy Strengthening the coordination and convergence of line ministries and departments and agencies involved in urban food systems at National and County levels

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	<ul style="list-style-type: none"> • Training and capacity building for consumers, farmers and government line ministries and departments • Support policy analytics and technical assistance to line ministries and departments
4	Component 4: Project Coordination and Management
4.1	<i>Sub-component 4.1 Project Coordination</i>
	<ul style="list-style-type: none"> • Finance costs of NPCU that include salaries, operation and maintenance costs, project supervision and oversight • Support oversight and inter-governmental coordination provided by the Joint Agriculture Sector Steering Mechanism (JASSCOM), Council of Governors (CoG and Caucus of County Executive Committee Members (CECMs) • Support the Agriculture Transformation Office
4.2	<i>Sub-component 4.2 Communication, Monitoring and Evaluation (M&E), Environmental and Social Safeguards, and Information Communication Technology</i>
	<ul style="list-style-type: none"> • Finance activities related to communication with all stakeholders that are part of project implementation • Support engagement with farming communities to ensure participation and ownership at planning, preparation and implementation of community driven development operations • Finance routine M&E functions including baseline, mid-point and end of project evaluations • Support project investments to identify potential risks and impacts, capacity build stakeholders and beneficiaries, and devise suitable mitigation measures with a view to achieving project compliance. Facilitate networking across project components and support development of an ICT-based agricultural information platform for sharing information
5	Component 5 Contingency Emergency Response Component
	Finance immediate response activities following natural disasters impacting the agricultural sector triggered upon formal request from the National Treasury on behalf of GoK

c. Project Beneficiaries

- 6) The project will support over 500,000 small-scale farmers who will be transitioning from subsistence to commercial farming within 33 Counties spread across 6 geographical regions. Other beneficiaries will be value chain actors at various levels including extension workers, aggregators, logistics support providers and SMEs operating within selected value chains. The selection of value chains and participating counties for the project has been driven by a multi-dimensional criterion. The nine (9) value chains prioritized for support are: Dairy, Coffee, Chicken, Fruits (Avocado, Banana, Mango), Vegetables (Irish potatoes, Tomato), Apiculture, Pyrethrum, Cashew nut and Cotton. Further, the 33 counties that will participate in this project are: Kilifi, Kwale, Taita Taveta, Kiambu, Trans-Nzoia, Nandi, Uasin Gishu, Narok, Nakuru, Tana

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River, Bomet, Migori, Homabay, Kisumu, Siaya, Nyamira' Machakos, Kitui, Nyeri, Kajiado, Nyandarua, Kisii, Kakamega, Busia, Bungoma, Vihiga, Embu, Makueni, Tharaka Nithi, Kirinyaga, Muranga, and Meru.

- 7) In addition, taking into consideration the VMGs as beneficiaries and bearing in mind the issues and characteristics as set out under ESS7, the following fourteen counties have been established to have VMGs: Kiambu (Ogiek), Nandi (Talai), Uasin Gishu, (Sengwer), Trans-Nzoia (Sengwer), Narok (Ogiek), Nakuru (Ogiek), Tana River (Watha), Kilifi (Watha), Kwale (Waata), Kericho (Talai and Ogiek), Kajiado (Masaai), Bomet (Ogiek), Kericho (Talai), and Bungoma (Ogiek).

2)

- 8) A Social Assessment (SA) and Gender analysis (GA) study targeting the identified VMGs in compliance with ESS 7 will be carried out within the first six months after the launch of the project to determine the specific relative vulnerabilities of the identified VMGs according to the terms of reference in the Vulnerable and Marginalized Groups Framework (VMGF). This study will borrow from previous SAs/GAs by KCSAP, and NARIGP.

d. ESMF Justification, Principles and Objective

- 9) The Environmental and Social risk classification of NAVCDP has been assessed as **substantial** since it will cover a significant geographical area. The environmental and social risks and impacts are expected to be medium in magnitude, temporary, site specific, predictable, and reversible. Since the exact type, number, location, and designs of investments envisaged under the project are yet to be determined, the environmental and social impacts and risks will be managed by following a framework approach. A range of framework instruments were prepared, reviewed, approved, consulted, cleared, and disclosed including this Environmental and Social Management Framework (ESMF) to guide the management of foreseen environmental and social risks and impacts as per World Bank's Environmental and Social Framework in December 2021 and now being realigned as per the project design changes recommended by the 1st NAVCDP ISM held on February 13-17, 2023.
- 10) The ESMF is an umbrella instrument, applicable to all project activities. The framework sets out the principles, rules, guidelines, and procedures for screening proposed project activities based on their expected environmental and social impacts. Further, the adequate environmental and social instruments to be applied in each case are defined which can range from an Environmental and Social Impact Assessment/Summary Project Report/Comprehensive Project Report

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(ESIA/SPR/CPR) to a simplified Environmental and Social Management Plan (ESMP). The ESMF also establishes the principles and procedures to be followed when undertaking consultations and to implement a grievance mechanism as required; a monitoring and evaluation system; and a reporting system. It will establish the institutional responsibilities for implementation, supervision, monitoring and evaluation and reporting on environmental and social risk management throughout all phases of the project (design, construction, and operation).

e. Policy, Legal and Institutional Review

- 11) The following key policy, legal instruments and international conventions that apply to the project were reviewed since they provide guidance when implementing sub projects described in component 1, 2 and 3. A comparative analysis has been made between relevant regulations of the GoK and the applicable World Bank's Environmental and Social Standards (ESS).

Relevant Policies

- The Agricultural Transformation and Growth Strategy
- The National Agricultural Sector Extension Policy
- The National Productivity Policy
- The National Agricultural Sector Extension Policy No. 04 of 2011
- The National Productivity Policy No. 3 of 2013
- Kenya National Youth policy 2018
- National Gender and development policy 2019

Relevant Legislations

- Constitution of Kenya (2010)
- Water Act (No. 43) 2016
- Pest Control Act 1982
- Public Health Act (CAP 242) 2012
- Plant Protection Act (CAP 324)
- Occupational Health and Safety Act 2007
- Wildlife Conservation and Management Act 2013
- Forest Conservation and Management Act 2016
- Employment Act 2019
- Crop Protection Act No. 16 of 2013
- County Government Act 2012
- National Council for Disability Act 2003
- Physical Planning Act (CAP) 286

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- Agricultural, Fisheries and Food Authority Act No. 13 of 2013
- Land Act, 2012
- Community Land Act (No.34) 2016
- Climate Change Act 2016
- HIV/AIDS prevention and control Act, 2006
- Persons with disabilities Act, 2014
- Sexual offences Act 2006
- Children Act, 2010
- National Museums and Heritage Act 2006
- Seeds and Plants Variety Act 2012
- The Pest Control Products (Registration) Regulations, 1984
- The Pest Control Products (Labeling, Advertising and Packaging) Regulations, 1984
- The Pest Control Products (Importation and Exportation) Regulations, 1984
- The Pharmacy and Poisons Act No. 17 of 1956
- The Pest Control Products (Licensing of Premises) Regulations, 1984
- The Pest Control Products (Disposal) Regulations, 2006
- Public Participation Act 2018
- Livestock Act 2020
- Co-operative Societies Act Amended, 2004
- Water Resources Management Rules, 2007
- Environmental Management and Coordination Act, 1999 (amended 2015)

International Conventions

- Convention on Biological Diversity (1992)
- International Plant Protection Convention of FAO (1952)
- United Nations Framework Convention on Climate Change (1992)

f. Environmental and Social Risk Management Instruments

GoK has prepared an Environmental and Social Commitment Plan (ESCP), and Stakeholder Engagement Plan (SEP). There are other environmental and social risk instruments that will complement this ESMF and include as indicated in **j** below.

g. Environmental and Social Requirements

- 12) To reduce, minimize and mitigate adverse risks and impacts and undue harm of its development projects to the environment, all World Bank-financed projects are guided by applicable environmental and social standards under the Environmental and Social Framework (ESF). Several Bank's ESSs are applicable because of this project E&S screening, as shown in Table 0-2.

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Table 0-2 Relevant Environmental and Social Standards (ESS)

ESS	Rationale
Assessment and Management of Environmental and Social Risks and Impacts. (ESS1)	<p>The project activities will include demonstrative micro-projects, small scale infrastructure for primary aggregation, small duration storage and value addition, provision of high-quality climate resilient inputs, access to irrigation and improved water management practices. The implementation of these activities is likely to result to potential negative environmental risks and impacts that include soil erosion, soil and water pollution, dust emissions, community health and safety risks and occupational, health and safety (OHS) risks, generation of hazardous and non-hazardous wastes, disease outbreak, eutrophication, salinization as well as potential use of pesticides. These impacts are expected to be temporary, site specific , reversible and easy to mitigate.</p> <p>The negative social impacts that could arise from the sub project activities are: (i) Conflict among communities due to site selection and investments; (ii) Difficulty in accessing land and temporary loss of income for enabling investments(iii) Inadequate consultations with the local populations due to the vastness of the areas being targeted by the project; (iv) Inadequate input into the selection of value chains and sites for infrastructure investment; (v) Interruptions in production and livelihoods – some farmers may shift production towards the commodities being supported by the value chain development; (vi) Community health and safety; (vii) Gender Based Violence/Sexual Exploitation, Abuse and Harassment (GBV/SEAH) and sexual exploitation and abuse and harassment ((SEAH); (viii) Labour Conflicts (ix) Child labor;. (x) Elite capture of the investments or controlled access to products; (xi) Exclusion of disadvantaged and vulnerable groups from participating and benefiting from the investments such as selection of value chains that do not recognize the traditional practices and (xi) Limited access to outlets/extension support services/benefits especially in the far-flung counties;</p>
Labor and Working Conditions (ESS2)	<p>This project will have the following types of workers: (i) direct workers, (ii) contracted workers, (iii) primary supply workers, and (iv) community workers. The project shall involve use of civil servants in the management and supervision of project activities. The direct workers will include Consultants who would be brought to support the Project on specific deliverables. The Project will involve the use of contracted workers in the construction of civil works. The project will also use community workers engaged by the FPOs and CIGs for farm level community-based activities. The project anticipates the use of community labor only for specific sub projects e.g. water related, NRM related or cottage industry. The use of community labor will be undertaken through two mechanisms: (i) when the community voluntarily contributes labor as their part of the beneficiary (counter-part) contribution; (ii) when the local youth will provide unskilled labour for off-season employment programs and will be paid for the work done. The risk of child labour, sexual exploitation and forced labour cannot be ruled out as the agriculture value chains such as coffee and cotton have faced similar allegations in the past. The Community labor agreements, bidding and contract documents shall include clauses forbidding child and forced labour as well as maintaining workers health and safety. Moreover, all government staff, Consultants and Contracted workers will be required to sign a code of conduct (CoC) in relevant languages, acceptable to</p>

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ESS	Rationale
	the World Bank, to mitigate the risk of GBV/SEAH or misconduct in the workplace and in contact with community members. The CoC shall include zero tolerance policy on GBV/SEAH and SH. They will also ensure that national labor-related laws are upheld, such as public service act, employment act, , occupational health and safety act, workers injury benefits act, public health provisions, and public service human resource policy et al and institutional roles related to enforcement of the laws, and recruitment, discipline, appraisals and dismissals.
Resource Efficiency and Pollution Prevention and Management (ESS3)	The project will finance procurement of agricultural inputs that will include pesticides. The pesticides may include both synthetic chemical pesticides and biopesticides and equipment to support the application of the pesticides and livestock vaccinations.
Community Health and Safety (ESS4)	<p>There are additional risks of SEAH that may extend to communities being served by the project. The project has prepared an Integrated Pest Management Plan to manage the Community health and safety risks of use of pesticides in farming.</p> <p>Given the Project will be implemented in counties that often witness inter/intracommunity conflicts based on competition for natural resources, the project has prepared Security Management Plan (SMP) as part of the ESMF to guide on the management of conflict and security risks during implementation. The project will not be implemented in counties that border Somalia or South Sudan with potential attacks from the Al Shabab militants or encountering unexploded ordinance (UXO), thus the security risk is assessed to be medium to low for the participating 33 counties. The project will not use the armed public security forces for its activities. However, the project may use unarmed private security personnel to guard infrastructure under the project during construction and operation phase.</p>
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS5)	NAVCDP will undertake infrastructural sub-projects, whose exact type, number, location, and designs are yet to be determined, for improved market access and value addition by smallholder farmers at farm, FPO, County, Regional and National levels that will require access to land. When project implementation activities commence, there will be environmental and social screening of all sub-projects proposed by beneficiaries to exclude from approval and eventual funding any that will: lead to involuntary resettlement and or physical displacement. Also any activity that may involve income loss/economic displacement of more than 200 PAPs would be excluded under the project to keep the impact low and manageable.. The farm investments will involve CIGs/VMGs group level demonstrative micro-project and small-scale infrastructure investments that will require small private or communally owned land obtained through voluntary donations or lease following the principles, procedures and processes provided in the Resettlement Policy Framework (RPF). At FPO level, the investments approved for funding will be small-scale capital investments established on private FPO land for which they must provide proof of ownership. Further, some FPO and value chain ecosystem investments maybe established on public land in compliance with the National Land Commission guidelines on change of use, reservation and lease. Loss of Land, Assets and Income: Since the project require small portions of farming land and will affect less than 10% of the land (fencing, crops and trees), hence the loss would be economic. Similarly there is possible disruption of income

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ESS	Rationale
	of vendors until the market is rehabilitated/improved on the land already allocated for market. This economic loss to PAPs would be mitigated/restored through income restoration plan in ESMPs to be prepared for the specific activity. In case of community land, the plan shall be based on community level agreement on the potential scale of impact and mitigation measure agreed specific to the sub project. A RPF is prepared that details the mitigation and management measures to manage potential risks and impacts.
Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS 6)	This ESS is relevant, even though risks of impacts on sensitive habitats and/or protected areas is low, some of the sub-components infrastructures can have an impact on the biodiversity namely the investments aiming at improving the irrigation infrastructures (aquatic and riparian fauna), new storage areas for pesticides products, presence of machinery during the works on water pans and other water structures (on small terrestrial mammals) and pollution to water bodies by pesticides which can affect aquatic fauna
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS7)	Due to the high number of counties targeted by the project (33), the investments will affect people meeting the criteria of ESS7 in 11 out of the 33 project counties (referred to as VMGs in Kenya). A VMGF has been prepared that outlines the procedure to prepare 11 VMGPs at county level. The VMGPs will then ensure that the county Development Plans (DPs) for selected value chains and Community Development Plans are meaningfully consulted, that VMG have equitable access to benefits of these plans and that VMGs concerns on the plans are addressed. In addition, the project will undertake a Social Assessment (SA) and Gender Analysis (GA) study to inform on the Baseline.
Cultural Heritage (ESS8)	Minor construction works have been proposed under components 1, 2,3. Thus, there is the potential for a chance to find cultural or archeological significance during construction.
Stakeholder Engagement and Information Disclosure (ESS 10)	A key risk under this standard, relates to potential inadequate, ineffective, insufficiently inclusive, and inappropriate stakeholder and community engagements and disclosure of information leading to exclusion of truly vulnerable, marginalized and minority members of the community from expressing their views and concerns relating to the project and to their exclusion from sharing in project benefits, amplified by the context of limited resources against widespread need. Others include elite capture where project benefits are diverted to less-needy individuals and locations and poor access to beneficiaries for meaningful community engagements and difficulty in monitoring for social harm.

h. Environmental and Social Risks Classification

13) The overall Environmental and Social Risk Classification is rated as substantial based on the risks for subprojects identified and outlined in Table 0-3.

i. Procedure for Preparation of Sub-Project E&S Instruments

14) Subprojects include all activities directly being implemented by project beneficiaries at farm, community, regional and national levels as a result of undergoing inclusion through a participatory process and funded by the World Bank under NAVCDP. These would be micro projects, Farmer Producer Organizations investments (Value Chain Upgrading Matching Grants - VCUMG) and Enterprise Development Plan Grants - EDPG) and Value chain Ecosystem investments at County, Regional or National levels) proposed and approved under the project. Using this ESMF which is in essence a guide, there would be a need to develop site Environmental and Social Management Plans (ESMPs), Summary Project Reports (SPRs) or Comprehensive Project Reports (CPRs) and Income Restoration Plans (IRPs) in accordance with NEMA Legal Notice No. 30/31 of April 31, 2019. NAVCDP is a Category B Project according to NEMA and World Bank classification and there will be only Low and Medium risk sub-projects that will require preparation of ESMPs, SPR or CPR and IRPs as outlined in the able 0-3.

Table 0-3 Classification of NAVCDP Subprojects and expected E&S Instruments

Classification	Sub Project Type	Expected E&S Instrument
Medium Risk	<ul style="list-style-type: none"> Farmer-led micro-Irrigation for small scale farmers using water from various water harvesting structures. Construction of urban market centers Milk and feed processing plants at maximum cost of US\$ 1,000,000 Water pans and other water storage structures whose capacity is not more than 100,000 m³ located in areas of medium to high population density. Packhouses for fresh crop produce at a maximum cost of US\$1,000,000. Aggregation/ sorting centers for farm produce in areas of medium to high population density at a maximum cost of US\$500,000 	CPR/ ESMP and IRP
	<ul style="list-style-type: none"> Livestock slaughter-houses and saleyards Water pans and other water storage structures whose capacity is not more than 100,000 m³ in areas of low populated density. Aggregation/ sorting centers for farm produce in areas of low population density at a maximum cost of US\$200,000 	SPR/ ESMP and IRP

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Classification	Sub Project Type	Expected E&S Instrument
Low Risk	<ul style="list-style-type: none"> Farm ponds whose storage capacity is not more 500 meters cubed. Small scale investments for aggregation and value addition e.g. weighing, grading, cleaning of produce, small duration storage and quality testing equipment at a maximum cost of US\$200,000 	SPR and ESMP

15) NAVCDP environmental and social safeguard teams at the CPCUs will screen all sub-projects that will be implemented under component 1, 2 and 3. The screening will determine the environmental and social issues that the sub-project might trigger, and the type and level of assessment required including which type of report to submit to NEMA (see screening form in Annex 3). The community leaders, CESSCO and a team of ESS County based Panel of Experts will prepare and finalize the ESMP for simple micro project investments and any actions fully executed before commitment of World Bank funds for implementation. They will also prepare IRP (where necessary) which will be reviewed by both NPCU and the World Bank before commencement of implementation. The ESMP for micro projects will be disclosed in the project areas for access by beneficiaries and other interested parties. Further, SPR will be prepared by a NEMA registered EIA/EA lead expert and reviewed/cleared by NPCU before submission to NEMA for final review and licensing prior to commencement of subproject implementation. In addition, CPR will be prepared by a NEMA registered EIA/EA lead expert, reviewed by NPCU and submitted to the World Bank for review and clearance before submission to NEMA for final review and licensing prior to commencement of subproject implementation. Approved and Licensed SPR/CPR including IRPs will be disclosed on the external World Bank website, NAVCDP-NPCU website and in the project areas for access by beneficiaries and all other interested parties. The World Bank will sample SPRs and ESMPs for review and provide advice to the NPCU on the quality of the documents. The sub project documents will include clauses on environmental health and safety, Child sexual abuse, child labour and forced labour. For all civil works, the contractor will prepare a contractor- ESMP whose compliance will be monitored and evaluated by the E&S safeguards team in the counties.

Exclusion list

- 3) The following types of activities will be ineligible for financing under the project:
- i. Activities that have a high probability of causing serious adverse effects to human health and/or the environment.
 - ii. Activities that may adversely affect lands or rights of Traditional Local Communities or other vulnerable and marginalized groups.

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- iii. Associated facilities which do not meet the requirements of the ESSs, to the extent that the beneficiaries have control or influence over such associated facilities.
- iv. Activities that may have significant adverse social impacts and/ or may give rise to significant social or community conflict.
- v. sub-project/ activity with either adverse impacts on land or natural resources under traditional/customary use or have risks associated with the relocation of VMGs coupled with any negative impact on their cultural sites/heritage.
- vi. Activities that may involve involuntary resettlement or land acquisition (physical relocation of PAPs).
- vii. Investment on land for which clear ownership document is not available.
- viii. Activities that may involve economic displacement of more than 200 PAPs.
- ix. Activities that may affect or result in impacts on cultural heritage.

j. Capacity Building

- 16) Capacity development and strengthening remains a crucial component in this ESMF and will be integrated all through the project implementation phase. The project will be implemented by the MoALD which has a long experience in implementing World Bank financed projects under the safeguards policies, including Kenya Climate Smart Agriculture Project (KCSAP), the National Agriculture and Rural Inclusive Growth Project (NARIGP), and the Regional Pastoral Livelihood Resilience Project (RPLRP). Thus, MoALD has established a NPCU and recruited qualified Environmental and Social Specialists to oversee management of environmental and social risks in the project. Capacity building will focus on among others World Bank ESF, ESS, ESMF, IPMP, SEAH Prevention and Response Plan, SMP, GRM, RPF, VMGF, LMP and ESMP Implementation and Monitoring.

k. Monitoring and Reporting

- 17) MoALD through the NAVCDP/NPCU will be required to prepare and submit to the Bank regular monitoring progress reports on the environmental, social, health and safety (ESHS) performance of the project, including but not limited to, the implementation of the ESCP, status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and the functioning of the grievance mechanism. Reporting will be quarterly and annually throughout the project implementation period. MoALD will promptly notify the Bank (within 48 hours) 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 including child abuse, gender-based violence, pesticide spills or misuse or any dispute between local communities' project workers.

I. Public Consultations, Stakeholder Engagement, and Disclosure

18) Consultations on NAVCDP design, planned activities and implementation arrangements including this ESMF, IPMF and other instruments have been done with institutional stakeholders among them Government Ministries, Departments and Agencies as well as community representatives. Stakeholder consultation was undertaken on the 8th, 9th and 10th November 2021 and the ensuing recommendations have been included in this ESMF, and the other instruments (Table 0-4). Further, a Stakeholder Engagement Plan (SEP) has also been prepared to guide the stakeholder consultation process throughout the project implementation cycle. The SEP also contains details about the purpose and timing of stakeholder engagement as well as the required resources and responsibilities for consultation activities. Below is a list of stakeholders and other participants consulted/engaged (see annex 1):

- NARIGP/KCSAP – NPCU
- NARIGP/KCSSAP - CPCUs
- County Executive Committee Member Representatives
- Kenya Agricultural and Livestock Research Organization (KALRO)
- Kenya National Federation of Farmers
- Kenya Private Sector Alliance (KEPSA)
- National Environment Management Authority (NEMA)
- Kenya Bureau of Standards (KEBS)
- National Irrigation Authority (NIA)
- National Gender and Equality Commission (NGEC)
- Directorate of Occupational Safety and Health Services (DoSHS)
- National Treasury
- World Bank
- National coordination office for the Indigenous Peoples.
- FAO Kenya
- ILO kenya
- Children department
- Department of labour

19) This ESMF and IPMF (see Annex 2) will be disclosed on MoALD's website and World Bank's external website upon its review and approval by the MoALD and the World Bank.

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Table 0-4 Summary of Stakeholder Consultation Concerns

S/No	Concerns	Response
1.	The project is huge in terms of investments. Where will be the place of the IP/SSAHUTLC in this project? Will we be involved in the design?	All stakeholders will be involved in the design and implementation of each of the sub projects, including IP/SSAHUTLC in areas where they are present.
2.	What were the environmental risks and impacts and challenges encountered in the other projects e.g., KCSAP, NARIGP? Has a completion report for the past projects been undertaken to determine the lessons learned?	The KCSAP and NARIGP have moderate environmental and social impacts similar to those expected in NAVCDP. Environmental and Social Impact Assessment reports were prepared for the sub projects and disclosed. These reports are available online (www.kilimo.go.ke).
3.	At what level do we undertake the environmental impacts assessment? There are small and huge projects?	Screening will be undertaken for all the sub projects and a determination of the appropriate environmental and social analysis made based on the screening results.
4.	We have provided our contributions at this stage, and we are glad that we have been consulted. At implementation, will we be consulted?	A Stakeholder Engagement Plan has been prepared for this project and will ensure that consultation with all stakeholders is undertaken throughout the project implementation phases.
5.	How will the use of pesticides affect the value chains between each other? Use of pesticides in potatoes ends up impacting bees?	There is a possibility of pesticide use in one value chain adversely impacting another value chain. The IPMP developed will provide a framework for the use of pesticides.
6.	How will the project be implemented in areas with security issues e.g., Lamu and Boni Forest? How will you address the security issues and ensure our safety?	The project has prepared a Security Management Plan which provides guidance on managing security related concerns.
7.	Will there be disclosure of this ESMF after these consultations?	This ESMF and other related instruments will be disclosed on the websites of MoALD and by the World Bank.
8.	Impacts associated with GHG emissions from dairy farming and mitigation measures have not been addressed. Consider biogas projects.	This is noted and will be included in the revised draft.
9.	Pesticide container collections/disposals has not been included in the ESMF.	The adverse impacts associated with empty containers and their disposal have been described in the document including mitigation measures.
10.	Apiculture: What safeguards exist to manage pesticide use and ensure safety of beehives. Some pesticides that are used affect honey production, how will that be considered in the new project?	<p>All sub projects using pesticides and implemented in areas where bee farming is undertaken will be required to conduct specific analysis on the potential impacts of the pesticides on bees and develop adequate mitigation measures including not using the chemicals and seeking other alternatives.</p> <p>The pesticides to be used in NAVCDP will be those that are friendly to pollinators with minimum effect on non-targeted organisms. Where pesticides will be used, specific</p>

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S/No	Concerns	Response
		IPMP will be prepared and mitigate against potential impacts against bees.
11.	Government has minimum wages for workers which may be too low and may not attract workers. How can the project ensure that workers (youth employment) are not paid this low minimum wage?	A labor management procedure has been prepared for the project. It provides guidance on all labor related issues and concerns during project implementation.
12.	What can be done concerning the high number of chemicals being used on the farms that negatively affects humans through compromised food safety issues?	NAVCDP is having IPMP as one of the framework approaches that will guide pesticide use at beneficiary level. Communities will be trained on safe use of chemicals and the management of pesticides, handling, storage, and transportation.
13.	How will the project help lps to continue conserving the environment?	The project will continue implementing SLM activities in collaboration with the IP communities and KFS
14.	lps are surrounded by other communities and the project might not benefit them making them not respond which may in turn affect the lps and cause delays in producing responses.	lps will be targeted during project operation and their CIGs/VMGs/POs will be considered along those of majority communities.
15.	Encourage use of solar power in the FLIP to cut the cost of energy and reduce pollution caused by use of fossil fuels.	Comments noted positively. NAVCDP will engage further.
16.	Some counties have no capacities on E&S. They go ahead and hire consultants who have no or truly little expertise? How will this new project help control this gap?	Counties will be required to hire consultants handling environmental/ social issues who have the requisite qualifications and experience.
17.	Public Lands and ownership: when such lands are given to communities to invest; management issues crop up later and this affects the progress of such investments. How is land being handled in this project?	The land on which the project will be implemented will be fully documented and due diligence done. NLC will also be fully involved to ensure that public land is properly available for FPO utilization.

m. Grievance Mechanism (GM)

- 20) NARIGP/KCSAP have a functional GM which will be adopted and adapted to manage grievances from NAVCDPs' assorted sub-projects and activities. The GM will address concerns and complaints promptly and transparently without cost or discrimination for project affected persons. The NPCU and CPCU will be the first point of contact for the GM with appeals being referred to the National Social Safeguards Compliance Expert (NSSCE) stationed at the NPCU or County Social Safeguards Compliance Officer (CSSCO) stationed at CPCU. Grievances may also be reported to the National institutions mandated to receive and resolve environmental and social complaints including National Environment Complaints Committee (NECC) and the Environment and Land Court. The main channels that will be used to communicate grievances will include physical reporting, telephone calls, short message services, letters, emails and a toll-free number. In line with ESS2, the project will also establish and implement a worker grievance mechanism to enable project workers to address project-related workplace concerns, including sexual abuse, exploitation, and harassment (SEAH) as outlined in the LMP. The grievances on SEAH are sensitive and require strict confidentiality and a dedicated pathway in the GM as specified in the SEAH action plan and LMP will be developed.

n. Project Implementation and Institutional Arrangements

- 21) NAVCDP's implementation will involve a three-tiered institutional arrangement (National, County, and Community). Under the first tier at the national level, the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALD) will be the main implementing agency. Within MoALD, the project will be anchored in the State Department for Crop Development and Agricultural Research. The second tier will be at the County level, with county governments as the executing agencies. The third tier will be at the community level, where beneficiaries will implement sub-projects and other community-led interventions.

0. COVID-19 Restrictions and Implementation

- 22) Considering the COVID-19 pandemic and potential risks associated with social interactions during the implementation of the activities, this project will comply with the GoK guidelines on COVID-19 as well as WB Technical Note: -Public consultations and stakeholder engagement in WB-supported operations when there are constraints on conducting public meetings.

INTRODUCTION

BACKGROUND

- 4) Kenya has witnessed strong economic growth and declining poverty incidence, but absolute poverty remains high. Since 2011, the Country has experienced robust national economic growth averaging 5.8%, catapulting Kenya to a middle-income country and significantly bringing down poverty levels. Kenya's poverty rate with respect to the international poverty line is among the lowest in East African countries, falling from 43.7 percent in 2005/06 to 36.8 percent in 2015/16 and 33.4 percent in 2019, below the sub-Saharan Africa average. Poverty reduction in Kenya has been accompanied by reduced income inequality, with the Gini index falling from 0.45 in 2005/06 to 0.39 in 2015/16, indicating the country's success in boosting shared prosperity. Kenya's Human Development Index value for 2019 was 0.601, which put the country in the medium human development category - positioning it at 143 out of 189 countries and territories. With a score of 0.55, the World Bank Human Capital Index 2020 places Kenya third in Sub-Saharan Africa, after Seychelles and Mauritius.

- 5) The National Agricultural and Rural Inclusive Growth Project (NARIGP) has laid down a strong foundation for commercialization of agriculture in Kenya. NARIGP was launched in 2016 with the objective of increasing agricultural productivity and profitability of targeted rural communities in selected counties in Kenya. It has thus far benefitted 523,774 smallholder farmers organized into 19,866 Common Interest Groups (CIGs) and Vulnerable and Marginalized Groups (VMGs) based on prioritized value chains across the 21 participating counties. The project has funded 13,310 micro-project investments to a tune of KES 4.3 billion (USD 43.04 m), aimed at building farmer capacity for adopting productivity enhancing Technology Innovation and Management Practices (TIMPs). Further, 2,013 Community-Based Facilitators (CBFs) had been trained to provide integrated extension services delivery to farmers through the Farmer Field Schools (FFS). As at 31st December 2021, the project had achieved a 23.5 percent yield increase in the prioritized value chains across the participating Counties. To strengthen Producer Organizations (POs) and promote value chain development, 288,515 farmers have been federated into 314 farmer Producer Organizations (POs), and an additional 40 coffee cooperatives have been competitively selected for support under the coffee revitalization initiative. Further, 259 POs have received inclusion and capacity development grants while 265 POs have developed bankable Enterprise Development Plans (EDPs) and 176 public private partnerships have been established between supported POs and private sector firms to improve service delivery to participating farmers. For the POs supported by NARIGP, 75

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have reported increased profitability thereby creating a strong foundation for the transformation of the agriculture sector that paves the way for the next generation of intensive investments for selected value chains with high potential to drive the shift from subsistence to commercial farming.

- 6) The focus of the Kenya Climate Smart Agriculture Project (KCSAP) has been on enhancing climate resilience using value chain approach in 24 participating counties. The project has already mobilized nearly 9,530 Common Interest Groups (CIGs) covering 261,000 farmers. In addition, 151 Farmer Producer Organizations (FPOs) have been mobilized thus far, covering 155,000 farmers. Further, a total of 638 TIMPs across 19 value chains are ready for upscaling and several are being disseminated to the mobilized farmers.

- 7) Farmers and the priority value chains supported by NARIGP and KCSAP have been negatively impacted by the COVID-19 pandemic and require support to reverse the debilitating impacts and ensure recovery. Since the first COVID-19 outbreak in Kenya, NARIGP and KCSAP have proactively instituted measures to ensure business continuity in implementation and minimize disruptions in service delivery to farmers. The projects have also carried out rapid assessments of the impact on participating farmers which showed that approximately 25% of the farmers have been severely impacted and require support to build back to their previous agriculture production levels. Other segments of the value chains highly impacted include last-mile inputs distribution system, advisory and extension services delivery, financial services, and linkages to output markets. For stronger value chain recovery, investments across the value chains are required including those at the Farmer, Community, County and National levels. At farm level, farmers either in transition or have just transitioned from subsistence to commercial agriculture may need support towards establishment of small-scale investments for aggregation and value addition coupled with enhanced access to financial services for sustainable productivity enhancement, safe food production, increased value addition and market participation. Similarly, at community level, partnerships should be facilitated between FPOs and commercial entities like e-commerce companies and large agri-tech startups for enhanced value addition and market access. At the county and National levels, ecosystem-based infrastructure investments that will include Farmer-Led Irrigation Development, market infrastructure and partnerships with technical support agencies across prioritized value chains would be needed to guarantee value addition and market access by farmers and FPOs.

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Project Justification

- 8) The COVID-19 pandemic reversed some of the gains in poverty reduction precipitating Kenya's first recession in 20 years and pushing an estimated two million Kenyans into poverty in 2020. Kenya's real GDP which was growing at an annual rate of above five percent, contracted by 0.3 percent in face of the triple shocks of the Covid-19 pandemic comprising of the health impact, the economic impact of the containment measures and behavior changes coupled with reverberations from a synchronized global recession. Kenya's future economic outlook remains uncertain and the anticipated return to above 5 percent growth rate faces several potential adverse scenarios including slower than expected vaccination rollout, fiscal slippages, adverse weather conditions, and a weaker global economic backdrop. In an adverse scenario involving the realization of these downside risks, average annual GDP growth rate would be lower at about 3.7 percent in 2021-22. Policymakers face the challenge of supporting the economic recovery and laying the foundation for green, resilient, and inclusive development, while reducing macro-financial vulnerabilities.
- 9) NAVCDP is envisaged as the natural progression to NARIGP and KCSAP that will deepen investments to scale up existing interventions around productivity enhancement, community led farmer extension, water management investments at county level and data driven value chain services. Additionally, the project will introduce intensified infrastructure investments into select value chains, support farmer led irrigation development especially at the individual farmer level, enhancing access to credit and financial services and developing proof of concept around Urban Food Systems and peri-urban agriculture in select clusters.
- 10) NAVCDP is expected to unlock new opportunities for maximizing finance and private sector investments in supported value chains. The project holds significant potential in maximizing finance within selected value chains as it will support a range of enabling environment initiatives including improved subsidy targeting through e-vouchers and operationalizing warehouse receipt financing. The project will build producer level capacity for higher investment through improved access to credit, farmer led irrigation development and promotion of strong FPOs for improved aggregation and linkage with anchor off-takers. The project will also engage intensively with private sector value chain actors to crowd in investments in agri-business opportunities across the selected value chain including input supply, access to finance for farmers and SMEs, digital extension services, farm gate infrastructure for primary value addition, storage and cold chains and consumer retail. With agriculture being a devolved function, strong county level engagements will focus on bringing in new policy incentives that will create an enabling environment for agri-business growth and private sector investments.

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- 11) NAVCDP's design is aligned to the latest Systematic Country Diagnostic for Kenya contributing to the agenda of boosting productivity and job creation. The project aims to support Kenya in reducing poverty and boosting shared prosperity through increasing agricultural productivity and commercialization, creation of new jobs and enhanced value-added output. Specifically, the project responds strongly to the identified priority 7 for agriculture which calls for enhanced commercialization opportunities across agriculture value chains. The project is also well aligned to the proposed Country Partnership Framework for the period of FY 2022-2027, supporting the first pillar of boosting productivity, job creation and incomes and will contribute to the objectives of fostering small producer success as well as eliminating food insecurity and vulnerability to climate change.
- 12) The project will focus on developing smallholders' capacities to engage in commercially oriented agriculture while supporting enabling ecosystem investments in water management, digital agriculture services, value addition and market infrastructure. The project will leverage the strong architecture of community level institutions comprising over 37000 farmer CIGs, trained Community Driven Development Committees (CDDCs) and strong implementation capacity at national and county level. Several of the project investments such as access to credit, climate information services, development of water harvesting/storage and market infrastructure are envisaged to be value chain neutral and universally support smallholder transition towards commercial agriculture. At the same time, tailored extension support, demonstrative micro-project investments, support for value addition infrastructure and investment support to FPOs will be aligned to the selected value chains.
- 13) NAVCDP will support a range of investments along selected agricultural value chains as outlined hereafter: (i) For each of the commodities, county level as well as regional value chain development plans will be finalized, identifying a set of investments crucial to the achievement of shared objectives. These plans will clearly outline pathways for private sector engagement, ecosystem investments envisaged from the regional government and Ag-tech solutions most relevant to the specific commodity and region; (ii) In the selected value chains, the capacity of the existing or new farmer groups will be built through strong community based digital extension systems, micro-investments for demonstration of production technologies and support for access to credit; (iii) FPOs will receive infrastructure and working capital support and technical assistance to build capacity for delivering a range of services such as inputs, extension and value addition to member farmers/farmer groups. Productive alliance approaches will be undertaken to build market capacity of these FPOs through linkage with

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commercial and private sector entities like Agribusiness Small and Medium Enterprises (SMEs) engaged in value addition, anchor agribusiness firms, e-commerce companies and large Ag- tech startups with support for business development, technical assistance, and part financing. It will also generate new jobs and enterprises at various levels in supported value chains; (iv) In the selected value chains, the project will also support the e-voucher program so that farmers and farmer groups could access vital input support; (v) Complementary investments at the County and National level will be supported for necessary enabling infrastructure (irrigation infrastructure, processing infrastructure or market infrastructure etc.) for enhanced agriculture commercialization; (vi) Incubation and training of women and youth from local communities to emerge as Agri-entrepreneurs (Agripreneurs) will be scaled up for provision of bundled services (inputs, extension, credit and market linkages) to farmers. These are expected to emerge as meaningful private sector jobs in rural economy as Agripreneurs will earn incomes through transaction charges from the private sector for delivery of above services and (vii) Farmer-consumer market linkages will be developed in select urban clusters through dedicated urban food system pilots with end-to-end traceability mechanisms and appropriate interventions that enhance food safety, operationalizing farmer markets and institutional linkages.

Sectoral and Institutional Context

- 14) NAVCDP is aligned with Kenya's long-term development blueprint "The Kenya Vision 2030" as well as the 10 year "Agricultural Sector Transformation and Growth Strategy (ASTGS 2019-2029)". The project responds to the Vision 2030 objective for agriculture by focusing on revitalizing agriculture and transforming it from subsistence into a more competitive and commercially oriented sector. The ASTGS lays down framework for sectoral interventions for next decade, with a combined focus on small-farmer income enhancement, agriculture commercialization, food security and resilience. The strategy has three main pillars: First, raising incomes of small-scale farmers, pastoralists and fisherfolks through farmer facing enterprises supporting provision of inputs, equipment, processing, and post-harvest aggregation. This pillar also envisions a shift in nationwide subsidy programme focus to empower almost 1.4 million registered high need farmers through e-vouchers. Secondly, increasing agricultural output and value-added through large scale agro-processing hubs and large private firms. Thirdly, boosting household food resilience farming through community-driven design of interventions in pastoralist and fishing households in arid and semi-arid lands (ASALs). NAVCDP directly aligns to the first pillar of agriculture transformation, focusing on increased participation of small farmers into commercially oriented value chains.

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- 15) NAVCDP aims to support selected priorities within the government's long-term strategy for the agriculture sector. The project is focused on supporting several key outcomes complementing the GoK's vision to support small holders transitioning from subsistence to market driven commercial agriculture. These are: (i) Value Chain driven integrated investment planning (ii) Building producer capacity through enhanced access to credit and extension services; (iii) Developing and strengthening farmer facing producer organizations that can support collective marketing and value addition; (iv) Integration of Digital Agriculture solutions across all segments of value chains; (v) Facilitating large scale roll out and access to Ag reforms like e-vouchers, warehouse receipt and commodity exchange; (vi) Building stronger farmer-consumer market linkages with food systems focused production and marketing in select urban clusters; (vii) Support efficient value chains by linking project supported FPOs and farmer groups with digital aggregators and e-commerce platform like Twiga and (viii) Incorporate CSA practices in the food systems and value chain. This project will complement and build on other interventions by the World Bank that support the government's Big Four agenda: Kenya Climate Smart Agriculture Project (P154784); National Agricultural and Rural Inclusive Growth Project (P153349); proposed Kenya Marine Fisheries and Socio-economic Development Project (P163980); and the Program to Strengthen Governance for Enabling Service Delivery and Public Investment in Kenya (P161387). The operation also complements interventions by other development partners in support of the Big Four agenda.
- 16) NAVCDP will unlock new opportunities for maximizing finance and private sector investments in supported value chains. The project holds significant potential in maximizing finance within selected value chains as it will support a range of enabling environment initiatives including improved subsidy targeting through e-vouchers and operationalizing warehouse receipt financing. The project will build producer level capacity for higher investment through improved access to credit and farmer led irrigation development and promotion of strong FPOs will enable improved aggregation and linkage with anchor off-takers. The project will also engage intensively with private sector value chain actors to crowd in investments in agri-business opportunities across the value chain including input supply, access to finance for farmers and SMEs, digital extension services, farm gate infrastructure for primary value addition, storage and cold chains, insurance schemes against climate shocks and consumer retail. With agriculture being a devolved subject, strong county level engagements will focus on bringing in new policy incentives for agri-business growth and private sector investments.

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- 17) NAVCDP's design is very strongly aligned to the latest Systematic Country Diagnostic for Kenya contributing to the agenda of boosting productivity and job creation. The project aims to support Kenya in reducing poverty and boosting shared prosperity through increasing agricultural productivity and commercialization, creation of new jobs and enhanced value-added output. Specifically, the project responds very strongly to the identified priority 7 for Agriculture which calls for enhanced commercialization opportunities across agriculture value chains. The project is also well aligned to the proposed Country Partnership Framework for the period of FY 2022-2027, strongly supporting the first pillar of Boosting productivity, job creation and incomes and will contribute to the objectives of fostering MSMEs and small producer success as well as eliminating food insecurity and vulnerability to climate change through adaptation and mitigation options.
- 18) The project design is also in line with the Jobs and Economic Transformation (JET) theme adapted for Kenya as part of the framework of the 19th International Development Agency (IDA) replenishment. The job creation will happen through multiple pathways as already described in the section above namely (i) Capacity building of the FPOs and their emergence as community owned enterprises will contribute to new jobs (ii) Linking the FPOs and the farmers to anchor firms and SMEs will enable these anchor firms and SMEs to expand and create new jobs (iii) Similarly, strong partnerships with the Agri tech starts will enable these Agri Techs to expand and create new jobs (iv) In addition, Incubation and training of women and youth from local communities to emerge as Agri-entrepreneurs (Agripreneurs) will also contribute to jobs in rural economy (v) Lastly, the creation of strong linkages between the rural producers and urban consumers to be developed in select urban clusters through dedicated Urban Food System pilots will also contribute to job creation.

Project Description

Project Development Objective (PDO)

- 19) To increase market participation and value addition for target farmers in select value chains in project areas.

Project Components

- 20) NAVCDP will build on the strong foundation laid by NARIGP and KCSAP and will deepen investments in existing interventions around productivity enhancement, community-led farmer extension, water management investments

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and data driven value chain services. Further, the project will introduce intensified infrastructure into select value chains, scale up value addition and market linkages with agri-business off-takers and SMEs, support FLID, enhance access to credit and financial services and develop proof of concept around Urban Food Systems and Peri-Urban agriculture in select clusters. The project will have five components as described thereafter.

Component 1: Building Producer Capacity for Climate Resilient Stronger Value Chains

- 21) This component will focus on sustainable productivity enhancement, climate resilient and nutrition sensitive production and increased market participation for project farmers through improved access to credit, inputs and digital extension services while linking them to high-capacity Farmer Producer Organizations (FPOs). Inclusion of women smallholders will be a key focus area with at least 50 percent of CIG/VMG/IPs members supported under the project estimated to be women farmers.
- 22) The sub-component will build small-holder farmer capacity for enhanced climate resilience, improved production and market participation through (i) training on climate smart TIMPs through on farm extension and public facilities to demonstrate CSA technologies for increased productivity, (ii) enhanced climate resilience and reduced GHG emissions, (iii) demonstrative micro-project investments to complement TIMPs training, (iv) farmer mobilization and technical assistance to support access to e-vouchers, and (v) small scale infrastructure investments for primary aggregation, small duration storage and value addition. Most activities under this sub-component will be scaled up from earlier investments made under NARIGP/KCSAP and the focus will be on strengthening commercial orientation, inclusion of women farmers and enhanced climate resilience and adaptation. New mobilization of small farmers into CIGs as required, will also be undertaken as part of this component. Capacity building, Institutional strengthening of the CIGs and CDDCs and community level coordination costs will also be covered. The project will partner with KALRO to further strengthen and expand the existing inventory of TIMPs with emphasis on climate resilience, nutrition, and safer food production practices.
- 23) CDDCs will request demo support for new CIGs, VMG-CIGs , and IP-CIGs s for the climate smart TIMPs. The sub-component will also support farmers to access e-vouchers as part of the National Value Chain Support Program (NVSP), launched in 2020 by Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALD). The project will support mobilization and registration of farmers, and

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provision of technical assistance at the national and county levels for the implementation of the program. Finally, the sub-component will also support provision of small-scale infrastructure investment (through micro project investments) needed for primary aggregation and value addition including weighing, grading, cleaning of produce, small duration storage and quality testing equipment.

Sub-component 1.2: Farmer Producer Organization (FPO) Level Climate Smart Value Chain Investments.

- 24) This sub-component will focus on nurturing strong, market oriented FPOs that can enhance market participation and value realization for member small farmers and CIGs through the establishment of SACCOs at Ward Level. The project will leverage on the existing FPOs (mostly the best performing) mobilized under KCSAP/NARIGP and undertake new mobilization of FPOs if required. The sub-component will provide small inclusion grants to eligible FPOs towards inclusion /recruitment of more members into the FPOs. In addition, FPOs will be supported to develop climate informed Enterprise Development Plans (EDPs) that will be funded to enable the FPO and its member farmers access to high quality and climate resilient inputs (e.g., climate resilient seeds, breeds, and balanced fertilizers), aggregation and value addition. EDPs will prioritize investments which could help build resilience of farmers to climate vulnerability and will be screened for their emission potential. Further, there will be provision of technical assistance to support long term access to formal financing, enable linkages with agribusiness SMEs, e-commerce companies and large ag-tech startups, and build techno-managerial capacity for agribusiness operations.

Sub-component 1.3: Improve Creditworthiness of CIGs and FPOs.

- 25) This sub-component will focus on addressing both demand and supply side constraints to improve creditworthiness of CIGs and FPOs. On the demand side, initial small grants will be provided to the CIGs through the Savings and Credit Cooperative Organizations (SACCOs) (both existing and new) within the CDDCs. These grants will be repaid back by the CIG members to the SACCOs/CDDCs to build a revolving fund. The revolving fund will be primarily targeted towards increased adoption of climate smart TIMPs, access to climate resilient inputs, access to irrigation and improved soil & water management measures among others.
- 26) Additionally, the financial management capacity of CIG members farmers and SACCOs/CDDCs will be enhanced, and technical assistance provided to FPOs to access finance. Working on the supply side, support will be given towards

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development of a FPO rating tool coupled with intensive engagement with commercial banks, SACCOs, micro-finance institutions and digital financial service providers to build county level, regional and national partnerships for sustainable credit linkages and long-term access to capital.

Component 2: Climate Smart Value Chain Ecosystem Investments

- 27) This component will focus on supporting enabling ecosystem investments identified as part of county level, regional level (spanning several counties) and National value chain development plans for each of the nine identified value chains.

Sub-component 2.1: Farmer-Led Irrigation Development (FLID).

- 28) This sub-component will support FLID with a focus on developing water efficient irrigation systems, water harvesting and efficient water use, building drought adaptive capacity and climate resilience. The focus will be on where surface and shallow groundwater resources are readily available to farmers. For water harvesting, the sub-component will support construction of small-size farm ponds and water pans (both construction of new water pans and rehabilitation of existing ones) and other interventions enabling improved water recharge.
- 29) The FLID interventions will be demand driven and will leverage CIGs and FPOs to motivate individual farmers to access irrigation and use water efficiently. The CIGs and FPO network will also be leveraged to develop Irrigation-centred multi-stakeholder platforms called FLID forums that will emphasize climate resilience by linking farmers with irrigation suppliers, financial institutions, and other key stakeholders. Lastly, this sub-component will also support deployment of specialized technical resource persons at county level to coordinate with county irrigation development unit (CIDU). The resource persons and the county teams will facilitate technical support to farmers on water harvesting and accessing irrigation including identifying, aggregating, and linking individual farmers with tech-suppliers and financing institutions.

30) Sub-component 2.2: Market access and Infrastructure Development.

This sub-component will support development of enabling climate resilient market infrastructure linked to prioritized value chains and on enhancing market linkages for farmers through enabling linkages with agri-business SMEs and other private sector partners. The market infrastructure will include development and upgrading of both new and existing physical markets, aggregation centers (e.g. warehouses, packhouses, cold chain storage facilities, sale yards) and cold-chain infrastructure to reduce post-harvest losses and food spoilage and the associated GHG emissions. Investments will be

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identified by value chain development plans and focus will be on developing co-financing models including Public Private Partnership (PPP) investments, impact investments and multi-county collaborations. Investments will also be informed by climate considerations such as increased resilience and reduced emissions across food value chains.

- 31) Actively support will also be given to initiatives towards maximizing finance for value chain development and crowding in of investments through value chain forums at county, regional and national level aimed at building higher coordination among value chain actors, financing institutions and policy makers. The project will work closely with International Finance Corporation (IFC) to develop linkages with anchor off-takers and value chain actors while also identifying and creating a pipeline of investable opportunities for development of crucial market infrastructure in partnership with private sector. In addition, the Kenya Markets Information Systems (KAMIS) will be strengthened to bridge market information asymmetry between producers and other value chain actors. This sub-component will also include a dedicated window for financing new and existing SMEs providing crucial services, especially market linkages along the value chains.

Sub-component 2.3: Data and Digital Investments.

- 32) This sub-component will support climate adaptation planning through the scaling up of partnership with DAT service providers including mobilization, technical assistance, training and capacity building and digital equipment. The support will enable farmers to access climate information services, climate smart TIMPs, climate resilience inputs (seeds, breeds, and balanced fertilizers), market information, digital finance and e-commerce. In addition, support will be directed towards the strengthening of the existing Big Data platform at KALRO as the foundational database for insight-driven, more productive, resource efficient and climate-resilient farming. The Big Data platform will support wider farmer outreach by supporting digitization of more farmers, deepening data around savings, credit, cash flows and access to market at the farmer level and mapping of other key stakeholders to enable access to financial services and market linkages for farmers under the project.
- 33) Also, under the sub-component, at least 2000 youth (with at least 30 percent women) will be developed as agriculture entrepreneurs (referred to as “agriprenuers”) that will double up as both the last mile extension service providers and as the human touch point for “bundling” the services (access to climate resilient inputs, climate information services, financial service, and market linkages) through the partnership with the various DAT providers. Lastly, county staff and lead farmers will be trained in digital services, data driven decision making and partnership management.

Sub-component 2.4: Research Linkages, Technical Assistance, and Institutional Capacity.

- 34) This sub-component will (i) provide continued support to KALRO towards further strengthening of climate smart TIMPs, (ii) support technical assistance for value chain development at various levels and (iii) placement of and building capacity of county level implementation units and county level coordination to anchor project activities. The sub-component will support sustained partnership with KALRO and fund the development of TIMPS for the three new value chains (cotton, pyrethrum, and cashew nuts). Also, the inventories of TIMPS for all other value chains developed during the implementation of KSCAP and NARIGP will be updated with a focus on further strengthening climate resilience and enhancing value addition. Three to five TIMPS with the highest potential for impact (through enhanced productivity, profitability, climate resilience, GHG mitigation) for each of the supported value chains will be prioritized.
- 35) The sub-component will also support the onboarding of technical support agencies (TSA) across several functional areas including but not limited to TSAs for FPO capacity building, value chain development, financial services, and market infrastructure development. Lastly, this sub-component will support deployment of full-time dedicated human resources, coordination activities and the procurement of equipment to support their functioning at the county level. A dedicated cell to coordinate closely with private sector players, anchor off-takers and public departments will be established. The cell will anchor investment coordination and a reference database of ongoing value chain investments at the county level for prospective new investors.
- 36) **Component 3: Piloting Climate Smart Safer Urban Food Systems**
- 37) This component will support the rollout of urban food system pilots in Nairobi, a major urban cluster in the county, and parts of Kiambu and Machakos bordering the city as the peri-urban areas. The focus will be to demonstrate proof of concept of an efficient and safe urban food system.
- 38) **Sub-component 3.1: Climate Smart Urban and Peri-Urban Agriculture.** In this sub-component, urban and peri-urban farmers within certain select production zones (e.g., chicken, potato, tomato, dairy, and apiculture among others) will be mobilized into CIGs/VMGs and FPOs and supported with

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micro project investments to promote contextually conducive climate smart agriculture technologies. Linkages with DAT service providers will be ensured to support more efficient input use matched to climatic trends and reduced GHG emissions. These urban/peri-urban production zones will be linked to midstream value chain stakeholders such as processors and logistics providers (nutrition-sensitive preservation and processing technologies) to reduce post-harvest losses, as well as linking this to quality control and assurance institutions (i.e KEBS). New and existing agri-business SMEs supporting such production and marketing practices will be supported through training and linkage with financial service providers.

- 39) **Sub-component 3.2: Urban Market Infrastructure.** This subcomponent will support linkages between rural/peri-urban producers and urban consumers by (i) developing climate proof market infrastructure (physical urban and peri-urban markets) to serve as market hubs for direct farmer-consumer linkages and make them more resilient to climate change and (ii) facilitating direct linkages between the CIGs/FPOs under the project and e-commerce platforms and digital aggregators. Further support will focus on intensive consumer awareness and an information campaign to catalyze higher demand and value for safer food produce.

Sub-component 3.3: Policy and Institutional Strengthening:

- 40) This sub-component will support the implementation of existing policy and regulatory frameworks, beginning with the Nairobi City County Food System Strategy. The activities to be funded will include: (i) operational costs towards strengthening the coordination and convergence among the various line ministries and departments (e.g. Urban, Agriculture, Health) that are involved in Urban Food Systems and Food Safety both at the national and county level; (ii) training and capacity building costs both at the government level, farmer level and consumer level; and (iii) Support Policy Analytics and Technical assistance (through appropriate technical experts and agencies) to be provided to the line ministries, departments and agencies.

Component 4: Project Coordination and Management

- 41) This component will finance activities related to National and County-level project coordination, including planning, fiduciary (financial management and procurement), Staffing and Human Resource (HR) management at the National level, environmental and social safeguards implementation, monitoring and compliance, development of the MIS and Information Communication

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Technologies (ICT), regular M&E, impact evaluation, communication, knowledge management and citizen engagement.

Subcomponent 4.1: Project Coordination.

- 42) This subcomponent will finance the costs of National Project Coordination Unit (NPCU) including salaries of the contract staff, and operation and maintenance (O&M) costs, such as office space rental, fuel and spare parts of vehicles, office equipment, audits, furniture, and tools, among others. It will also finance the costs of project supervision and oversight provided by the National Project Steering Committee (NPSC) and inter-governmental coordination provided by the Joint Agriculture Sector Steering Coordination Mechanism (JASSCOM) and the Council of Governors' (COG) structures for Agriculture including Committee on Agriculture, Caucus of County Executive Committee Members (CECMs) for Agriculture. Further support will be provided to the Agriculture Transformation Office and other project administration costs.

Subcomponent 4.2: Communication, Monitoring & Evaluation (M&E), Environmental and Social safeguards Mainstreaming and compliance, and ICT.

- 43) This sub-component will finance activities related to communication with all stakeholders including project beneficiaries, all government officials that are part of the project implementation, key policy makers and the citizens at large. As part of citizen engagement, the project will draw from similar experiences with Community Driven Development (CDD) to engage with the communities intensively and ensure their participation and complete ownership in the planning, preparation and implementation of the value chain development plans, the micro project proposals at the CIG level and the Enterprise Development Plans at the FPO. It will also finance activities related to routine M&E functions (e.g., data collection, analysis, and reporting) and development of an ICT-based Agricultural Information Platform for sharing information (e.g., technical or extension and business advisory services, market data, agro-weather, and others) and networking across all project components. Furthermore, baseline, mid-point, and end-of-project impact evaluations will also be financed. This subcomponent will also support project investments to identify potential risks and impacts through screening, capacity build stakeholders, and beneficiaries, and devise suitable mitigation measures with a view to achieving project compliance.

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Component 5: Contingency Emergency Response

- 44) This zero-budget component will finance immediate response activities following natural disasters (e.g., droughts, floods and or any sudden surge of a crop and livestock pest or disease like the locust or fall army worms) impacting the agricultural sector. The emergency response financing would be triggered upon formal request from the National Treasury (NT) on behalf of GoK. In such cases, funds from project components would be reallocated to finance immediate response activities as needed. Procedures for implementing the contingency emergency response will be detailed in the Immediate Response Mechanism Operations Manual (IRM-OM) to be prepared and adopted by GoK after declaration of the natural disaster.

Project Scope

Project Beneficiaries

- 45) NAVCDP aims to support mainly 500,000 small scale farmers who will be transitioning or have potential to shift from subsistence to commercial farmers or are selling only a small percentage of their produce commercially. Other beneficiaries of the project include value chain actors at various levels including extension workers, aggregators, logistics support providers, SMEs operating within the value chain as well as Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (IP/SSAHUTLC) who meet the conditions set out under ESS7 as described in the Vulnerable and Marginalized Groups Framework. Further, the project will place a strong focus on inclusion of youth and women farmers within the supported value chains. The project will place a strong focus on inclusion of women farmers within the supported value chains.

Project Coverage and Value Chains

- 46) Final selection of value chains and counties for NAVCDP was based on intensive analytics that assessed potential for inclusion and commercialization, ongoing investments in the 9 value chains supported by NARIGP/KCSAP; a menu of 5 value chains per county is recommended with 4 VCs drawn from this basket while the counties will have an open chance to pick on the 5th VC. In addition, there was consideration for upscaling strong community institutions like CDDCs and SACCOs to enable building up on ongoing investments and capacity to deliver multiplier effects while minimizing duplication.
- 47) For value chains, climate vulnerability and the potential of Climate Smart Agriculture (CSA) practices were reviewed and incorporated coupled with the consideration of the three pillars of CSA of increased productivity and incomes, adaptation to climate change and mitigation of GHG emissions. Also, the selected

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value chains were also largely aligned with the high potential value chains identified under ASTGS. The nine value chains that have been prioritized are: Dairy, Coffee, Chicken, Fruits (Avocado, Banana, Mango), Vegetables (Irish potatoes, Tomato), Apiculture, Pyrethrum, Cashew nut and Cotton.

- 48) The selection of counties to be supported under NAVCDP involved ranking of all 47 counties on a combination of parameters including the production advantage in the prioritized value chains, relative ranking at national level and ongoing performance under NARIGP and KCSAP. A key consideration in the selection was avoidance of duplication and overlap of Bank and other donor funded projects. NAVCDP will be implemented within 33 counties spread across 7 geographical clusters (Table 1-1; and Figure 4)

Table 1-1: Distribution of NAVCDP Participating Counties across different Regions

Region	Mt Kenya	Lower Eastern	North Rift	Central/South Rift	Western	Nyanza		Coast
Counties	Meru, Nyeri, Murang'a, Kirinyaga, Kiambu, Embu, Nyandarua	Machakos, Kitui, Makueni, Tharaka Nithi	Nandi, Uasin Gishu, Trans Nzoia	Nakuru, Narok, Kericho, Bomet, Kajiado	Kakamega, Busia, Vihiga, Bungoma	Homa Bay, Migori, Kisii, Kisumu, Siaya, Nyamira		Taita Taveta, Kwale, Kilifi, Tana River

Exclusion list

- 49) The following types of activities will be ineligible for financing under the project:
- Activities that have a high probability of causing serious adverse effects to human health and/or the environment.
 - Activities that may adversely affect lands or rights of Traditional Local Communities or other vulnerable and marginalized groups.
 - Associated facilities which do not meet the requirements of the ESSs, to the extent that the beneficiaries have control or influence over such associated facilities.
 - Activities that may have significant adverse social impacts and/ or may give rise to significant social or community conflict.

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- v. sub-project/ activity with either adverse impacts on land or natural resources under traditional/customary use or have risks associated with the relocation of VMGs coupled with any negative impact on their cultural sites/heritage.
- vi. Activities that may involve involuntary resettlement or land acquisition (physical relocation of PAPs).
- vii. Investment on land for which clear ownership document is not available.
- viii. Activities that may involve economic displacement of more than 200 PAPs.
- ix. Activities that may affect or result in impacts on cultural heritage; and

Implementation Arrangements

- 50) The project will leverage on the existing implementation arrangement developed under NARIGP and KCSAP for implementation of NAVCDP. However, the implementation architecture under the new project will undergo significant changes with stronger focus on specialized technical assistance. Specialized positions will be created at national as well as county level to support highly technical functions under the new project (including GBV/SEAH Expert, Security Expert, Human Resource Specialist). The project will also adopt new innovative practices for bringing in highly qualified young graduates/professionals and /or interns from leading agriculture and management institutions in the country to work on high intensity fixed duration technical assistance assignments. Additionally, the project will innovatively utilize mechanisms such as internships and community level human resource deployment especially at institutions such as Farmers Field and Business Schools (FFBS) (Refer to Project FFBS Framework), SACCOs, and FPOs.
- 51) NAVCDP's implementation will involve a three-tiered institutional arrangement (national, county, and community). Under the first tier at the national level, Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALD) will represent GoK as the main implementing agency. Within MoALD, the project will be anchored in the State Department for Crop Development and Agricultural Research. The second tier will be at the county level, with county governments as the executing agencies of the project. The third tier will be at the community level, where beneficiaries will implement various activities and sub-projects. The three-tiered institutional arrangement will: (i) Lessen the approval layers for faster decision making and efficient project implementation and (ii) Utilize the constitutionally mandated governance structures at the National and County levels, to the extent possible.
- 52) To enhance linkages and ownership of the project, participating county governments will be fully involved in the decision-making process at the National level, as they will be represented in NPSC by the Chair of the Committee of Agriculture for the Council of Governors (CoGs). In addition, County Governments through CPSCs, CTACs and County Environment Committees (CECs) with support from CPCUs will be responsible for

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decision making/approval of sub-projects and for providing oversight at the county and community levels.

- 53) **National level.** Overall project oversight and policy guidance will be provided by NPSC, which will be co-chaired by the Cabinet Secretary (CS), MoALD and the Chair of the Committee for Agriculture in the CoGs secretariat; NPSC will comprise PSs from the relevant state departments of line ministries, and representatives of the private sector and civil society. NPCU, to be headed by the National Project Coordinator (NPC), will be established in the State Department for Crop Development and Agricultural Research and will be responsible for managing day-to-day project implementation. Other key staff of NPCU will include thematic technical experts, Financial Specialist, Human Resource Expert and Procurement Specialist, M&E Specialist, Gender/SEAH Expert, Security Expert, Environmental Safeguards Compliance Expert, and Social Safeguards Compliance Expert. The NPCU staff will be deployed to the project on a full-time basis by the national government. Recruitment of NPCU staff from the market will be done only where internal capacity is inadequate. NTAC, comprising (among others) directors of relevant line ministry departments, directors general of the relevant government agencies, County Executive Committee Members (CECMs) Caucus, and representatives of the private sector, will be co-chaired by the PS, MoALD and Chair of CECM Caucus Agriculture Committee. The CEO of the Intergovernmental Relations Technical Committee (IGRTC) will also be a member of NTAC including NGEC, KEBS, KALRO, Labour, and Youth Ministries and Departments also replicated at the county level CTAC. NTAC will be responsible for providing technical support for overall project implementation. The composition of members of NTAC attending each meeting will depend on the agenda or technical advice sought by NPCU. NPC will serve as the secretary to both NPSC and NTAC.
- 54) **National Grievance Management Committee**-these are members drawn from the implementing agencies for the purpose of ensuring smooth running of the project through resolution of complaints logged by the stakeholders. They are nominated by NPC and appointed by the PS the principal secretary for crops and agricultural research development. They shall be between 7 to 9 with two ex-officials with the 2/3 gender rule adhered to.
- 55) **County level.** Depending on each county's governance structure, CPSC will be chaired by the County Executive Committee Member for Agriculture who will be responsible for providing implementation oversight in the respective counties. That oversight will include: (i) approving county annual work plans and budgets (AWP&Bs), community-led

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micro-project proposals, and investment proposals submitted by FPOs and (ii) ensuring that they are incorporated in the CIDP. CPSC will comprise chief officers of the relevant county ministries (e.g., Agriculture, Livestock and Fisheries; Water and Irrigation; Trade and Cooperatives; Environment and Natural Resources; Works, Mechanization, Labour, youth, KEBS, and so on); county director of environment (National Environment Management Authority; Finance and Planning departments; and representatives from the private sector (e.g., County Chamber of Commerce), county representative of farmers/POs, civil society, and VMGs. The County Commissioner may be co-opted in the CPSC, as needed. Similarly, the actual composition of CPSC members attending each meeting will depend on the agenda or technical advice sought by CPCU. The CPC will serve as the secretary to CPSC.

- 56) CPCU, which will be embedded into the respective county government structures, will comprise the Country Project Coordinator (CPC), County Thematic Technical Leaders, and County M&E, Finance, full time Environmental Specialist, Social Specialist and Procurement Assistants. The CPCU staff will be seconded to the project on a full-time basis by the county governments. Recruitment of CPCU staff from the market will be done only where internal capacity is inadequate.
- 57) County Grievance Management Committee-these are members drawn from the implementing agencies and other sector partners for the purposes of ensuring smooth running of the project through resolution of complaints logged by the stakeholders. They are nominated by CPC and appointed by the chief officer of the project implementing department. They shall be between 11 to 13 with the 2/3 gender rule adhered to.
- 58) County Environment Committees-these are structures legally gazetted by governors and they will be used for supervision and backstopping of the investments.
- 59) **Community level.** CDDCs with elected leaders (chair, secretary, treasurer, and board members) will represent beneficiaries in the targeted communities. CDDCs will be responsible for working with SPs in mobilizing communities into CIGs and VMGs through the PICD process. They will also be responsible for identifying vulnerable and marginalized members of the community through participatory targeting approaches. CDDCs will facilitate the preparation of prioritized CDPs, and the resulting community micro-projects (e.g., SLM and VC, alternative livelihoods, VMG targeted and nutrition interventions), as well as their implementation, community participatory monitoring, and reporting.

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- 60) Social Accountability and Integrity Committee (SAIC)-For oversight and handling of grievances it's paramount to put in place the Social Audit and Integrity Committee (SAIC). The membership should be between 3 and 5 with the 2/3 gender rule adhered to including the youth.

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)
PURPOSE AND RATIONALE

- 61) ESMF was selected as the environmental and social instrument for assessing, managing, and monitoring environmental and social risks and impacts of the project and specifically component 1, 2 and 3 since the actual project locations, designs are not known, and the impacts cannot therefore be clearly described at the time of project preparation.
- 62) Given that the sub-projects have not been identified at this stage in project preparation, the project will prepare ESMF, to provide guidelines and procedures for assessing environmental and social risks and impacts during implementation.
- 63) This ESMF lays out screening processes and tools to be used by the NAVCDP to assess risks and impacts per investment. Using the ESMF, screening will be undertaken for all investments planned (referred to as micro-projects and sub-projects) in order to guide preparation of specific E&S instruments for the selected sub projects. The E&S instruments to be prepared include sub-project Integrated Pest Management Plans (IPMPs).
- 64) The ESMF describes the appropriate roles and responsibilities of the NPCU/CPCU and other stakeholders and outlines the reporting procedures on environmental and social risk issues. It describes the managing and monitoring processes of environmental and social risks and impacts related to the project. It further determines the training, capacity building and technical assistance required for PCU to successfully implement the provisions of the ESMF; and provides practical information resources for implementing the ESMF. It also lays out the project's staffing and institutional arrangements clarifying the relations between PCUs and the World Bank, including their roles and responsibilities in view of the implementation of the ESMF. The ESMF has been prepared in accordance with applicable World Bank Environmental and Social Standards (ESS).

OTHER NAVCDP ESS INSTRUMENTS

- 65) The following ESS Instruments were prepared, reviewed, approved, consulted, cleared, and disclosed in December 2021 for NAVCDP and because of the

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recommendations in the 1st ISM held in February 13-17, 2023; they are ALL realigned to the changes; they will be reviewed, approved, consulted, cleared and redisclosed both in country and in the World Bank External.

- 66) **ESRS** - This NAVCDP Appraisal stage Environmental and Social Review Summary (ESRS) was prepared at project conceptual phase to disclose its findings and recommendations related to environmental and social considerations regarding potential investments. Its purpose is to enhance the transparency of activities. This is reference material only available to the national project team. The document was prepared by the World Bank Project Task Team.
- 67) **ESCP** – Environmental and Social Commitment Plan is a living document which was prepared by the Government as a prerequisite to project approval by the World Bank Board. The NAVCDP ESCP sets out the measures and actions required for the project to meet the Environmental and Social Standards over a specified timeframe – 5 years. It is available for reference by all implementers, and it will be reviewed as necessary (it is a living document) during implementation. All ESS activities will be aligned to this document in addition to other frameworks and manuals.
- 68) **SEP** - The Project shall implement a **Stakeholder Engagement Plan (SEP)** consistent with ESS10, in a manner acceptable to the World Bank Financial Agreement. The project prepared a plan to guide in this process. Communication is critical to the transmission of clear concise and factually correct information, either through inter-personal communication or communication with a group of people. Some of the key risks to poor communication for this phase of the project include:
- Reduced community buy-in on critical project needs/changes such as project design, value chain bundle, etc;
 - Misinformation on project activities, impacts and outcomes resulting in disagreement and in heightened cases, demonstrations (non-violent and violent) by aggrieved communities.
 - Growing opposition to the project processes and its staff;
 - Increased costs and serious delays in project implementation due to stakeholder and community objections to the project interventions i.e SACCOs.
- 69) NAVCDP will employ all means of communication and platforms to ensure, the right messages and stakeholder involvement is adhered to for the project to achieve its PDO.
- 70) **ESMF/IPMP** – The project has prepared this Environmental and Social Management Framework (ESMF) with integrated pest Management Plan (IPMP) as an annex. The objective of the ESMF is to assess and mitigate potential negative environment and social (E&S) risks and impacts of the project in line with the

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Environmental and Social Standards (ESSs) of the World Bank Environmental and Social Framework (ESF). Specific objectives of the ESMF are to:

- (a) Assess the potential E&S risks and impacts of the proposed project and propose their mitigation measures;
- b) Establish procedures for the E&S screening, review, approval, and implementation of activities;
- (c) Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring E&S issues/ concerns related to the activities;
- (d) Identify the training and capacity building needed to successfully implement the provisions of the ESMF;
- (e) Address mechanisms for public consultation and disclosure of project documents as well as redress of possible grievances; and
- (f) Establish the budget requirements for implementation of the ESMF.

71) The ESMF also provides principles and specific processes to ensure that disadvantaged, minority and vulnerable individuals or groups have access to the project's benefits. The starting point after beneficiary communities are identified and they prioritize their investments; the ESS Team should at this point move in with the Environmental and social screening checklist; train the communities on how to administer or fill in the form. The form is expected to indicate the magnitude of risks or impacts for mitigation or exclusion of the proposed investment (read Annex I in the ESMF). This form will stipulate the next course of action.

Targeting

- 72) Under this ESS I the project will address issues of vulnerability including orphans, child headed households, the sick, elderly, and female headed households, the poor, among others and who may be adversely affected by the proposed investments especially if their status as vulnerable or marginalized groups is not considered in the preparation of the specific investments. Targeting a high number of women farmers will have a positive impact on their incomes and on the food and nutrition status of households. The key challenge for the project would be to ensure that the women are meaningfully engaged in the project and that they accrue the project benefits. In addition, women may be challenged with low literacy levels and limited access to land which is a key resource for the project. In addition, a Stakeholder Engagement Plan (SEP) is prepared that outlines the key stakeholders to be consulted (including VMGs, female headed households, and people with disabilities),
- 73) **RPF** - Involuntary resettlement should be avoided. Where involuntary resettlement is unavoidable, it will be minimized and appropriate measures to mitigate adverse impacts on displaced persons (and on host communities

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receiving displaced persons) will be carefully planned and implemented. (<https://projects.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards>). NAVCDP is to operate in a landscape where land volatility/conflicts is low, save for one County – Tana River County and therefore, investment of public goods and services will be well defined in the way the NAVCDP will be operationalized through due diligence in documentation. Components 1, 2 and 3 will be relevant this ESS5 application.

- 74) **SMP** – NAVCDP has prepared a **Security Management Plan (SMP)**. The main mission of security on the project is to protect the project investments, assets, and information. This protection will be based on the following strategy:
- i. Identification of the risks
 - ii. Implementation of preventive measures
 - iii. Reduction of the impact

The identification of risks will be done by the Security Expert through a project risk assessment (PRA) to be done 3-6 months into the implementation phase.

- 75) The implementation of preventive measures will be based on physical protection on the identified sites and facilities, active protection through security officers' deployment throughout the project area, transport monitoring whenever the vehicles are within the operational areas. The impact will be reduced through active measures implemented by the security personnel. All measures will be non-lethal.

- 76) Some of the Dos and DONTs of the implementers will include:

- Always wear a clean and smart uniform.
- Always carry on oneself a whistle.
- Visibly wear the badge.
- Always be polite with professional behaviour while on duty.
- Always have a professional attitude and respect of hierarchy reporting line.
- Ensure the good functioning of communication systems.
- Implement and respect all the instructions and security measures from the SSP.
- It's strictly forbidden to sleep while on duty.
- It's strictly forbidden to read books and newspapers while on duty.
- It's strictly forbidden to receive private visitors while on duty.
- It's strictly forbidden to send or receive personal calls while on duty.
- It's strictly forbidden to smoke while on duty.
- It's strictly forbidden to consume any alcoholic Beverages while reporting for duty.
- It's strictly forbidden to listen to radio/music while on duty.

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- 77) **LMP** – NAVCDP has formulated Labour **Management Procedures**. The project will promote sound worker-management relationships and enhance the development benefits of this project by treating workers in the project fairly and providing safe and healthy working conditions. ESS 10 is also applicable (<https://projects.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards>). The NAVCDP will apply this standard in component 1, 2, and 3. Stakeholders will be guided on how to use this manual during implementation – who to employ, why or why not and how?
- 78) **GBV/SEAH /P** – A **Gender Based Violence /sexual exploitation and abuse and Harassment (SEAH)** Plan is prepared for use by the project. It will be applicable across board target beneficiaries, staff, stakeholders, including contractors. Given the implementation context, sexual harassment, exploitation, and abuse of co-workers is a likely risk. Thus, all staff and contracted workers should sign the code of conduct (CoC) outlining expected standards of behavior in this regard and attend an awareness session on the same including the consequences of such actions. The Project will identify a qualified trainer/consultant to offer training in GBV and SEA (the development partners or local firms may be approached to offer support with this training). A separate GRM will be set up for addressing GBV and SEA complaints as described further in the GRM and ESMF Manuals.
- 79) **NACDP** -GRM: Grievance Redress Committee (GRC) will appear in three levels: (i General project GRC; (ii Contractors' workers GRC; and (iii GBV/SEAH GRC (this will be manned by a lady champion on matters of sexual exploitation. All the grievances will have to be logged in under the Project General GRC except for GBV/SEAH complaints whose referral system is unique and well defined.
- 80) **VMGF** – NAVCDP **Vulnerable and Marginalized Groups Framework** will address how the communities identified in 14 Counties out 33 (Table 4) (have been identified to have groups that are categorized as Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (IP/SSAHUTLC) as per ESS7 as detailed in the VMGF for NAVCDP. Therefore, the project will ensure the project benefits are also reaching these communities through the Free Prior Informed Consent (FPIC) which is detailed under the NAVCDP VMGF.

Table 4: NAVCDP Project Counties with IP/SSAHUTLAC

<i>No</i>	<i>Counties</i>	<i>Community</i>
1	Nakuru	Ogieks

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<i>No</i>	<i>Counties</i>	<i>Community</i>
2	Tana River	Waata
3	Bungoma	Ogieks
4	Nandi	Talai
5	Trans Nzoia	Ogieks, Sengwers
6	Kiambu	Ogieks
7	Kilifi	Waata
8	Kwale	Waata
9	Uasin Gishu	Sengwer
10	Narok	Ogieks, Masaai
11	Bomet	Ogieks
12	Taita Taveta	Waata
13	Kericho	Talai
14	Kajiado	Masaai

METHODOLOGY

LITERATURE REVIEW

81) Review of the existing baseline information and literature material was undertaken and helped in gaining a further and deeper understanding of the proposed project. A desk review of the Kenyan legal framework and policies was also conducted to the relevant legislations and policy documents that should be considered during project implementation. Among the documents that were reviewed to familiarize and further understand the project included:

World Bank Related Documents

- Project Appraisal Document (NAVCDP)
- World Bank's Environmental and Social Standards
- Concept Environment and Social Review Summary
- Technical Note: Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings
- World Bank Group General Environmental Health and Safety (EHS) Guidelines
- Environmental and Social Framework reports for ELRP, RPLRP, NARIGP and KCSAP
- Integrated Pest Management Plans for RPLRP, NARIGP, ELRP, and KCSAP

Kenyan Relevant Legislative and Policy Documents

Constitution of Kenya 2010

- Environmental Management and Coordination Act (1999 amended 2015)
- Water Act (No. 43) 2016
- Pest Control Act 1982
- Public Health Act (CAP 242) 2012
- Plant Protection Act (CAP 324)
- Occupational Health and Safety Act 2007
- Wildlife Conservation and Management Act 2013
- Forest Conservation and Management Act 2016
- Employment Act 2019
- Crop Protection Act No. 16 of 2013
- County Government Act 2012
- National Council for Disability Act 2003
- Physical Planning Act (CAP) 286
- Agricultural, Fisheries and Food Authority Act No. 13 of 2013
- Land Act, 2012
- Community Land Act (No.34) 2016
- Climate Change Act 2016

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- HIV/AIDS prevention and control Act, 2006
- Persons with disabilities Act, 2014
- National Gender and development policy 2019
- National Gender Policy 2011
- Kenya National Youth policy 2018
- Sexual offences Act 2006
- Children Act, 2010
- National Museums and Heritage Act 2006
- Seeds and Plants Variety Act 2012
- The Pest Control Products (Registration) Regulations, 1984
- The Pest Control Products (Labeling, Advertising and Packaging) Regulations, 1984
- The Pest Control Products (Importation and Exportation) Regulations, 1984
- The Pharmacy and Poisons Act No. 17 of 1956
- The Pest Control Products (Licensing of Premises) Regulations, 1984
- The Pest Control Products (Disposal) Regulations, 2006
- The Agriculture Transformation and Growth Strategy (ASTGS) 2019 – 2029
- The National Agricultural Sector Extension Policy No. 04 of 2011
- The National Productivity Policy No. 3 of 2013
- Public Participation Act 2018
- Livestock Act 2020
- Co-operative Societies Act Amended, 2004
- Water Resources Management Rules, 2007
- Employment Act 2019
- Companies Act 2015

Other Documents

- United Nations Convention on Biological Diversity (1992)
- International Plant Protection Convention of FAO (1952)
- United Nations Framework Convention on Climate Change (1992)

STAKEHOLDER CONSULTATIONS AND DISCUSSIONS

82) The draft ESMF, IPMP, RPF, VMGF, LMP and SMP were subjected to public validation on the 8th, 9th and 10th November 2021 as required by the Bank's Environmental and Social Safeguards (ESS) 10 on Stakeholder Engagement and Information Disclosure. The total number of people who attended the consultation meetings was 67 (48 males/19 females) as detailed in the SEP. Further consultations on child labour were held on 6th March 2022 which involved 20 participants mainly from the World Bank (Nairobi office) FAO Kenya, ILO Kenya plus senior staff from the GoK Children and Labour Departments.

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- 83) To prevent the spread of COVID-19, the consultations were conducted with the strict observance of the COVID-19 regulations by the GoK and World Bank procedures, protocols, and guidelines that Borrowers are required to follow when implementing projects until such a time that the pandemic will be managed.
- 84) After realigning these NAVCDP ESS Instruments, all will be consulted sometime in April XXX, 2023 and redisclosed as per the Project SEP.
- 85) Technical Note: Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings will be employed in this project.

BASELINE DATA

86) This section describes the overall baseline condition of targeted 33 Counties in terms of bio-physical environment and socio-economic situation.

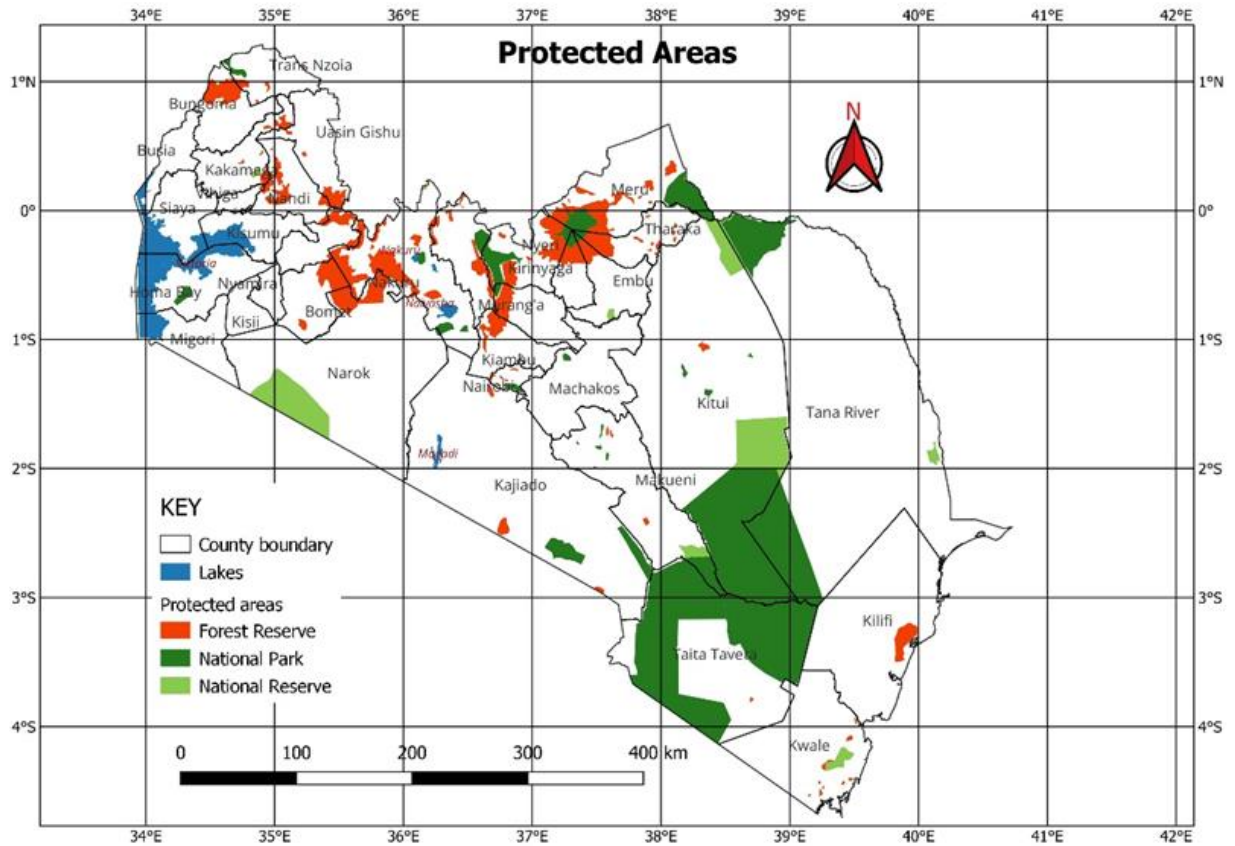


Figure 1: Protected Areas within and around the Project Counties

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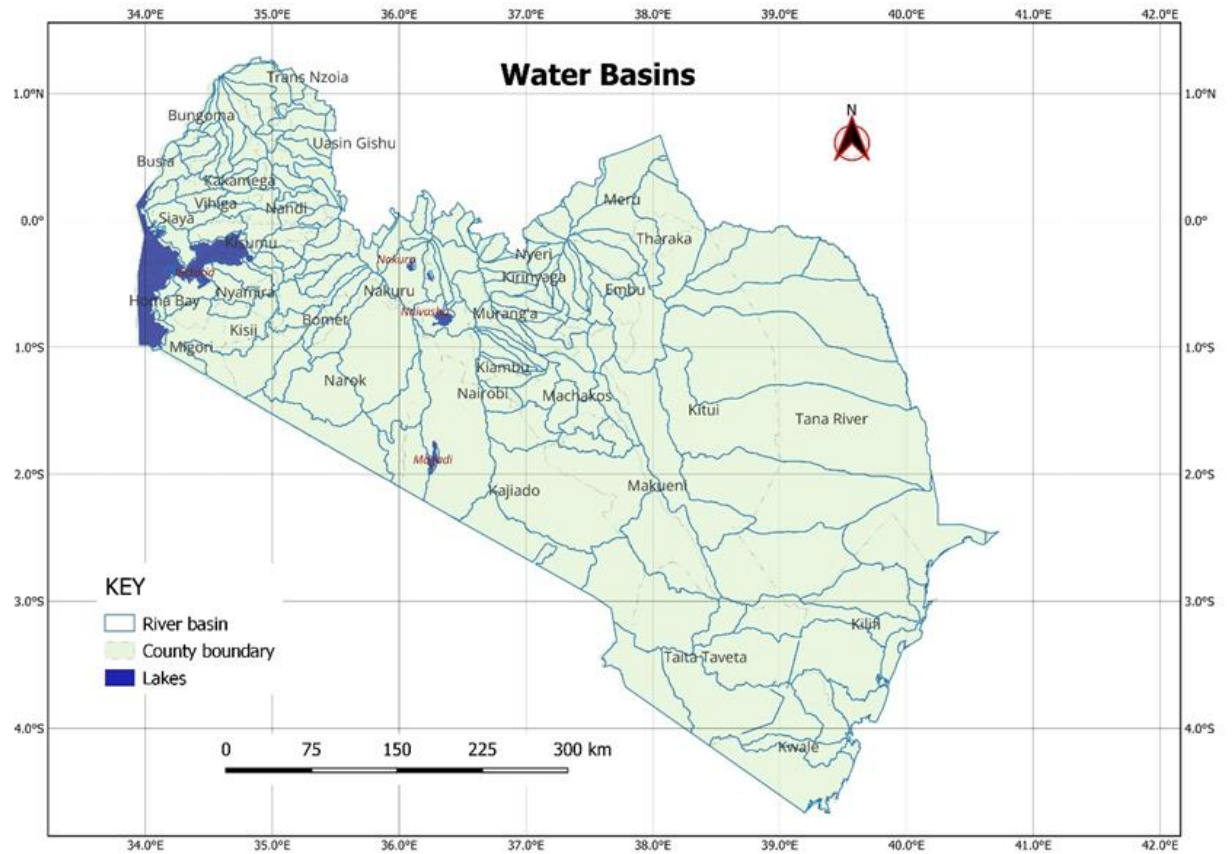


Figure 2: Hydrological Distribution (of Water Basins) within the Project Counties

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Table 3-1. County Baseline Profiles

Physiological and Topographical Features	Biodiversity	Socio-Economic
Trans Nzoia County		
<p>Trans Nzoia County has a cool and temperate climate with mean maximum temperatures ranging between 23.4oC and 28.40C and mean minimum temperatures ranging between 11.00C and 13.5oC.</p> <p>Trans Nzoia County is generally flat with gentle undulations rising steadily towards Cherangany Hills in the east and Mt. Elgon in the northwest with an altitude of 4,313 meters above sea level.</p> <p>The Cherangani Hills, an old fault-block formation of non-volcanic origin, form an undulating upland plateau on the western edge of the Rift Valley. To the east, the Elgeyo Escarpment drops abruptly to the floor of the Kerio Valley, while westwards the land falls away gently to the plains of Trans-Nzoia County.</p> <p>The county comprises rocks of the Precambrian basement system, the Tertiary lavas-Mt. Elgon volcanics and the recent lateritic and the black cotton soils.</p> <p>The County has two water towers namely Mt. Elgon and Cherangany hills making environmental protection a key issue (Figure 2). These two topographical features are the water catchments for most of the rivers in the County and the neighboring counties. There are three main rivers including Ewaso-Rongai, Noigamaget River and Sabwani River.</p>	<p>The hills are largely covered by a series of forest reserves. These are made up of 13 administrative blocks, totaling 95,600 ha and include closed-canopy forest, the remainder being formations of bamboo, scrub, rock, grassland, moorland, or heath.</p> <p>The botanical diversity in the county includes giant podocarpus, juniper and Elgon olive trees cedar Juniperus procera, pillar wood cassipourea malosana, elder Sambucus adnata, pure stands of Podocarpus gracilior and many orchids.</p> <p>Climate change and variability: historic and future trends</p> <p>The rainfall trends in the past and in the future does not show significant changes for the long rainy season. However, for the short rainy season, rainfall will increase in the near future (2020-2040) and continue to do so by 2060. The trends in temperature show an increase in the annual mean temperature for both seasons and</p>	<p>According to KNBS report 2019 census, the county has 911,209 people with 448,487 males and 462,701 females.</p> <p>The County has eight (8) functional tier-3 public hospitals.</p> <p>The main sources of energy in the County are electricity, paraffin, liquid petroleum gas, firewood/charcoal, solar, and biogas. Access to energy however varies between rural and urban areas.</p> <p>High-input, rain-fed mechanized agriculture is the main livelihood source in the county contributing about 70% of an average household's income. The major horticultural crops i.e., maize, wheat, sunflowers, pyrethrum, tea coffee and barley amongst others, as well as livestock activities such as the rearing of cattle and sheep. Approximately, over 43 groups of 258 farmers with average acreage of 41.2 hectares (103 acres) practice organic farming. The average farm size ranges from 0.816 ha for small scale farming to 22.55 ha for large scale farming. The main challenge faced is the high cost of farm inputs especially fertilizers and livestock feeds.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>for both projections (2020-2040 and 2041-2060). Prolonged drought has been experienced in the County over the past few years affecting agricultural activities, livestock and water sources. Some of the contributing factors include deforestation and changing weather patterns.</p> <p>Protected Areas (Figure 1):</p> <ol style="list-style-type: none"> 1. Saiwa Swamp National Park 2. Mt. Elgon National Park 	<p>The county has a cosmopolitan setting, with Luhya, Kalenjin, Sabaot and Kikuyu being the main resident communities. The Ogiek and Sengwer vulnerable and marginalized communities are found in this county.</p> <p>The county records a 11.2% on SEAH (including domestic violence) and 6.6% of child and other sexual abuse against the national record of 9.2% and 4.3% respectively.</p> <p>Conflict and Tension:</p> <ol style="list-style-type: none"> 1. Cattle rustling 2. Land boundary conflicts/clashes <p>Water & Sanitation: Water resources The County being the home of two water towers namely Mt. Elgon and Cherangany hills makes environmental protection a key issue. These two topographical features are the water catchments for the most of the rivers in the County and the neighbouring counties. There are three main rivers namely; a) Ewaso-Rongai with its tributaries being Kabeyan, Kissawai, Kipkulkul, Tongaren, Kabuyefwe and Machinjoni; b) Noigamaget River with its tributaries being Kapolet and Sinyereri; and c) Sabwani River has Kiptogot, Mubere, Kaibei, Kimothon and Chepchoina as its tributaries. The portable water sources in the County are by gravity and pumping, boreholes, developed</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>shallow wells, protected springs and rainwater harvesting. The average walking distance to the nearest portable water source is about 1.5km.</p> <p>Sanitation The sanitation management services are under water service providers. For effective provision of these services, the County department has embraced both sewerage and non-water conservancies systems especially in water scarce areas.</p> <p>Environmental Challenges Facing Agricultural Sector The vagaries of the weather have worsened the situation as changes in seasonality, longer dry spells, and more excess rainfall have adversely affected agricultural production.</p>
Uasin Gishu County		
<p>The County experiences a high and reliable rainfall with an average annual rainfall ranging between 624.9mm-1560.4mm. It occurs between the months of March and September with two distinct peaks in May and August. The areas with relatively higher rainfall are found in Ainabkoi, Kapseret and Kesses whereas Turbo, Moiben and Soy receive relatively lower amounts of rainfall. Average temperatures range between 70C and 290C.</p> <p>Uasin Gishu County is a highland plateau. Altitudes fall gently from 2,700m above sea level at Timboroa in the East to about 1,500m above sea level at Kipkaren in the West.</p>	<p>The County has a total of 29,802 hectares of gazetted forests out of which 13,184 hectares (or 44%) is under plantation while 16,618 (or 56%) are under indigenous forest cover. The gazetted forests are in Nabkoi, Timboroa Kipkurere, Lurenge, Singalo, and Kapsaret.</p>	<p>The County has a population of 1, 163,186 people: specifically, 582,889 (50.2%) females and 580,269 (49.7%) males.</p> <p>The main water resources are dams, rivers, boreholes, shallow wells, and springs.</p> <p>Waste disposal in towns and urban centers remains a challenge despite efforts made by the County and thus a recipe for environmental degradation and pollution.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The County is within the Lake Victoria catchment zone and therefore all the rivers from the County drain into Lake Victoria. Major rivers in the County include: Moiben, Sergoit, Kipkarren, Chepkoilel and Sosiani.</p> <p>The county Western Zone of the Rift Valley where phonolite lavas rest directly on the basement rocks. On top of the basement, the geology comprises tuff phonolite, agglomerates, and sediments. Most of the soils are covered by deep black cotton soils and shallow red clay mixture that spread most of the Plateau area, which overlie the Uasin Gishu phonolites base- rock structure.</p>	<p>Natural forests are dominated by drier highland species like <i>Juniperus procera</i>, <i>Olea africana</i>, and <i>podocarpus gracillior</i>. <i>Grevillea robusta</i>, <i>Markhamia platycalyx</i>, <i>spathodea nilotica</i>, <i>Teclea nobilis</i> and <i>Olea hochstetteri</i> are dominant in Soy region.</p> <p>The Timboroa region, which is cool and wet and with frequent frosts is dominated by mountain type tree species of bamboos and Podocarpus forests</p> <p>Climate change and variability: historic and future trends Floods on the other hand have occurred every year since 2013 in different parts of the county, affecting crop and livestock production as well as infrastructure and sometimes resulting in loss of lives¹⁰. Analysis of temperature trends in the county over 25 years (1980 to 2005), showed that both first and second season temperatures have increased moderately over the years (0.5°C and 0.3°C respectively). These temperature changes have however not resulted in any significant</p>	<p>For cooking purposes, 5% of residents in the county use liquefied petroleum gas (LPG), and 7% use paraffin. 55% use firewood and 32% use charcoal. Firewood is the most common. For lighting, 28% of residents use electricity as their main source of lighting. A further 44% use lanterns, and 25% use tin lamps. Less than 1% use fuel wood.</p> <p>The County has a total of 170 health facilities ranging from Level 2 to 6. The total county land area is 334,500 ha. Arable land covers 299,500 ha representing about 90% of the total county area while forestland (both indigenous and plantations) covers 29,802ha representing 8.9% of the total county area.</p> <p>The major crops grown include maize, wheat, beans, potatoes, and horticultural crops while livestock include dairy farming, beef cattle, goats, sheep, pigs, bee keeping, rabbit farming and fish farming. The farming community is faced with the challenge of high cost of farm inputs especially fertilizers and livestock feeds.</p> <p>The domestic SEAH in the county stands at 5% against 9.2% national tally, defilement at</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>changes in the number of heat stress days. Analysis of rainfall over a 35 year period (1980- 2015) showed that average seasonal rainfall had remained relatively constant in the first season and had increased only slightly ($\approx 25\text{mm}$) in the second season. Although average annual precipitation has not changed significantly, there have been changes in rainfall intensity, with the number of days of high intensity rainfall increasing from an average of 20 days in the to 25 days in the second season and from 21 days to 23 days in the first season.</p> <p>Drought is not common in the County, however when they do occur the impacts have repercussions not just for the county but for Kenya as whole.</p>	<p>7.2% against 7.1% and rape at 7.7% against 12.9% national tally</p> <p>The county is majorly dominated by the Kalenjin tribe. Other tribes include Luhya, Kikuyu, Luo, Kamba, Kisii.</p> <p>The Ogiek, a vulnerable and marginalized community, is found in this county.</p> <p>The main water resources are dams, rivers, boreholes, shallow wells, and springs.</p> <p>Waste disposal in towns and urban centers remains a challenge despite efforts made by the County and thus a recipe for environmental degradation and pollution.</p> <p>For cooking purposes, 5% of residents in the county use liquefied petroleum gas (LPG), and 7% use paraffin. 55% use firewood and 32% use charcoal. Firewood is the most common. For lighting, 28% of residents use electricity as their main source of lighting. A further 44% use lanterns, and 25% use tin lamps. Less than 1% use fuel wood.</p> <p>The County has a total of 170 health facilities ranging from Level 2 to 6. The total county land area is 334,500 ha. Arable land covers</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>299,500 ha representing about 90% of the total county area while forestland (both indigenous and plantations) covers 29,802ha representing 8.9% of the total county area.</p> <p>The major crops grown include maize, wheat, beans, potatoes, and horticultural crops while livestock include dairy farming, beef cattle, goats, sheep, pigs, bee keeping, rabbit farming and fish farming. The farming community is faced with the challenge of high cost of farm inputs especially fertilizers and livestock feeds.</p> <p>The domestic SEAH in the county stands at 5% against 9.2% national tally, defilement at 7.2% against 7.1% and rape at 7.7% against 12.9% national tally</p> <p>The county is majorly dominated by the Kalenjin tribe. Other tribes include Luhya, Kikuyu, Luo, Kamba, Kisii.</p> <p>The Ogiek, a vulnerable and marginalized community, is found in this county.</p> <p>Water and Sanitation: The main water resources are dams, rivers, boreholes, shallow wells and springs. There are 250 dams and pans constructed during the colonial period and mostly silted; and five major rivers namely Moiben, Sergoit,</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Kipkarren, Chepkoilel and Sosiani. There is also abundant good quality ground water that is a major source of water for the rural population who draw water from shallow wells, hand dug wells and springs. The County has seven gazetted water schemes: Turbo, Moi's Bridge, Burnt Forest, Sambut, Sosiani, Kipkabus and Eldoret Water and Sanitation (ELDOWAS). Of the seven, six are run by the County government while ELDOWAS is managed as a public company. The average distance to the nearest water point in the rural and urban areas of the County is approximately 500m–1Km and 0-500m respectively; meaning anyone in the County does not have to spend a disproportionate part of the day fetching water for the family's needs.</p> <p>Environmental Challenges Facing Agricultural Sector The vagaries of the weather have worsened the situation as changes in seasonality, longer dry spells, and more excess rainfall have adversely affected agricultural production.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Cattle rustling 2. Land boundary conflicts/clashes
Bomet County		
Rainfall in the County is highest in the lower highland zone with a recorded annual rainfall of between 1000 mm and 1400 mm. The	A section of Mau Forest Complex is in Bomet County.	The population of Bomet County was estimated at 875,689 (49.6% men and 50.4%

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>temperature levels range from 160 C to 240 C with the coldest months between February and April, while the hot seasons fall between December and January.</p> <p>Bomet County is characterized by undulating topography that gives way to flatter terrain in the south. The overall slope of the land is towards the south, except the northeastern part which rises eastwards towards the 3,000 m high Mau Ridges. The land slopes gently from Kericho plateau to about 1,800 m in the lower area where the land is generally flat with a few scattered hills in Chepalungu and Sigor plain.</p> <p>The County has several rivers: Kipsonoi river flows through Sotik to Lake Victoria, Chemosit flows through Kimulot in Konoin Sub-County, Nyongores flows from the Mau Forest southwards through Tenwek area, Amalo which originates in the Transmara Forest (Kimunchul) flows along south-western boundary of the County, and Tebenik/Kiptiget Rivers, which flow along the northern boundaries of the County.</p> <p>The underlying geology of the County is comprised of volcanic, igneous, and metamorphic rocks. In addition to tertiary lava (phonolites) and intermediate igneous rocks, there are basement systems (granite), volcanic ash mixtures and other pyroclastic rocks. Also present are quaternary volcanoes to the southwest parts and faults along the Mau escarpment bordering Narok County.</p> <p>The soils of the county are those developed on ashes and other pyroclastic rocks of recent volcanoes.</p>	<p>This complex forms the largest closed canopy forest in the country. Vegetation patterns range amongst broad altitudinal zonation, lower montane forest, thickets of bamboo <i>Arundinaria alpina</i> mixed with forest and grassland, and finally to montane sclerophyllous forest near the escarpment crest.</p> <p>The county forest is home to rare animal species like bongo, giant forest hogs, cooper tailed monkeys, black and white Colobus monkeys, elephants, leopards, buffalos and abundant birdlife.</p> <p>Typical tree species in the County include <i>Pouteria adolfi-friedericii</i>, <i>Strombosia scheffleri</i> and <i>Polyscias kikuyuensis</i>. <i>Olea capensis</i>, <i>Prunus africana</i>, <i>Albizia gummifera</i> and <i>Podocarpus latifolius</i>.</p> <p>Climate change and variability: historic and future trends Analysis of temperature trends in the county over 25 years (1981 to 2005), showed that temperatures have increased by approximately 0.5 °C for both the first and second</p>	<p>women) in the 2019 Population and Housing Census.</p> <p>The existing water supply schemes which are managed by Bomet Water Company Ltd are Itare, Sotik, Bomet, Longisa, Sigor, Olbutyo, Kamureito, Yaganek and Ndanai water supply.</p> <p>Sanitation in the County is mainly by use of pit latrines at household level and septic tanks in institutions and urban centers with access to piped water supplies.</p> <p>The main sources of energy in the county are electricity and wood fuel.</p> <p>The County has a total number of 136 health facilities comprising three hospitals of which two are mission hospitals, 10 health centers, 30 private clinics and 93 dispensaries.</p> <p>Agriculture is the main economic activity with over 80% of the total population engaging in crop and livestock production. The main farming systems include small-scale mixed crop-livestock systems and medium to large-scale mono-cropping systems. The main crops grown for subsistence are: maize, beans, sweet potatoes, cabbages, tea, coffee and pyrethrum.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>They are the source for rivers in the Lake Victoria and Mara basins.</p>	<p>seasons. Looking ahead to the period 2021-2065, climate projections based on two representative concentration pathways (RCPs22) indicate that under both scenarios mean temperatures are expected to continue to increase. This results in an increase in drought risk, with the number of consecutive drought stress days. Under both scenarios there is also expected to be an increase in flood risk with the maximum 5-day precipitation average rising by approximately 20-25% from the historical average. Under the high emissions scenario there is also expected to be a reduction in rainfall in both seasons.</p> <p>Although the County is not particularly dry or vulnerable to droughts, Bomet was among several non ASAL counties identified as being affected by the 2016/17 drought in Kenya. Incidences of extreme rainfall resulting in flash floods have also been recorded and farmers have testified to uncertainties in the start of the growing season.</p>	<p>The multi-ethnic county but predominantly occupied by the Kipsigis sub-tribe of the Kalenjin tribe</p> <p>The SEAH at the county stands at 30.9% against 9.2% national tally, cases of rape and defilement are 1.7% each against 12.9% and 7.1% national tally respectively.</p> <p>Environmental Challenges Facing Agricultural Sector Despite the County's fertile soils, adequate rainfall, diverse range of commodities grown, and high productivity, there are still a number of challenges in the agricultural sector. The county has a conducive agricultural environment and there is an overreliance on rain fed agriculture which has become unreliable in recent years.</p> <p>Water and Sanitation Water Resources The county is well endowed with water resources. Permanent rivers originating from the Mau Forest and flowing through the county are Oinab Ng'etunyet, Nyongores, Kipsonoi, Itare, Kiptiget, Chemosit, Amalo and Maramara. Sisei River originates from several swamps in Bomet Central Sub-county and is fast diminishing due to intensified cultivation along its banks and catchment areas. A majority of the population draw</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>Protected Areas</p> <p>I. Saiwa Swamp National Park</p>	<p>water from rivers, water pans and springs. Rain water harvesting is practiced by the households that have corrugated iron roofs. The county government has protected a total of 27 springs since 2013. Bomet Water Company Limited, a Semi-Autonomous Government Agency (SAGA) of the County Government, currently manages nine (9) water supply schemes. These are Itare, Sotik, Bomet, Longisa, Sigor, Chepalungu (Olbutyo), Kamureito, Ndanai and Sergutiet. Sigor water supply has been upgraded through a joint programme between the County Government and Kenya Red Cross Society (KRCS) to serve a population of 68,000 residents. There are also several community water projects supported mainly by the County Government, national institutions such as Water Service Trust Fund (WSTF) and State Department of Water, and other development partners e.g. African Development Bank (AfDB).</p> <p>Access to safe and clean water is still low in the county. Access to piped water is currently at 25 percent. Average walking distance to the nearest water point in the county is about 1km. However, this distance varies with the season, source of water and area. During the dry seasons, the lower parts of the county namely, Chepalungu and Bomet East sub-counties where the main source of water is</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>dams and pans, the distance covered to the water points increases considerably to about 5 kms.</p> <p>Sanitation The provision of sanitation is a key development intervention – without it, ill-health dominates a life without dignity. The term sanitation in its widest sense covers excreta disposal, sullage and storm water drainage, solid waste management. Sanitation in the county is mainly by use of pit latrines at household level and septic tanks in the institutions and urban centres with access to piped water supplies. A new sewerage plant funded to a tune of Ksh 135 million by the World Bank through the Lake Victoria Environmental Management Project (LVEMP II) has been constructed in Bomet town. The sewer system is designed to convey and treat approximately 750 m³ /day of sewage by the year 2022. The waste water collection system consists of approximately 2 kms of trunk sewer and approximately 56 manholes. Additionally, about 5 kms of sewer network has been completed and now awaiting commissioning. There is still a need to lay an additional network of about 15 kms to cover the entire Bomet town and construct sewerage systems in other towns such as Sotik, Mogogosiek, Longisa and Mulot.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		Conflict and Tension <ol style="list-style-type: none"> 1. Cattle rustling 2. Land boundary conflicts/clashes
Narok County		
<p>Temperatures range from 200C (January- March) to 100C (June-September) with an average of 180C.</p> <p>The climatic condition of Narok County is strongly influenced by the altitude and physical features. The county has four agro-climatic zones namely: humid, sub-humid, semi-humid to arid and semi-arid.</p> <p>The county lies within the Great Rift Valley, and is serviced by several rivers, flowing from highlands through arid and undulating landscapes. It is home to numerous volcanic landforms with areas of prominent geothermal activities.</p> <p>The highland areas of Mau escarpments, rising to an altitude of 3,100 m above sea level, provides fertile ground for farming and source to major rivers like Mara and Ewaso Nyiro.</p> <p>Major rivers are Mara and Ewaso Nyiro. Ewaso Nyiro drains into Lake Natron while Mara River which passes through Maasai Mara Game Reserve drains into Lake Victoria.</p> <p>The county geology comprises the oldest rocks of quartzofeldspathic gneisses, quartzites and mica quartzites of the Kenya Basement System believed to be of late Precambrian age. The main soil types in the district include: Mollic andosols, luvisols,</p>	<p>The most dominant vegetation types in the county are the evergreen and semi-evergreen species. About seven vegetation communities are distinct: grassland; bushland; Juniperus woodlands; bushed grassland; bush-shrubland; shrub-grassland, and rock outcrops.</p> <p>The dominant plant species in the bushland are Tarchonanthus camphoratus, Acacia drepanolobium, Acacia xanthophloea, Juniperus procera (cedar), Ficus thonningii, Dodonaea viscosa, and Euphorbia inaequilatera</p> <p>The dominant animals are Thomson's gazelle, Dik-dik, and Grant gazelle. Locals reported having sighted Hyrax, Leopard, Lion, Hyena, Elephants, and Buffalo.</p> <p>Narok County is home to the world renowned Maasai Mara Game Reserve which is considered Kenya's jewel when it comes to wildlife.</p>	<p>Narok County had a total population of 1,157,873 in 2019 (KNBS, 2019a) with a male-to-female ratio of 1:1.</p> <p>The main water supply schemes in Narok County comprise conventional water supplies from surface water and boreholes water supplies from ground water sources.</p> <p>The county has inadequately developed sewerage system and good drainage system in urban centers such as in Narok Town and Kilgoris is a major threat to good sanitation.</p> <p>Health services in Kenya are offered in three tiers namely: tier one which is composed of community, tier two composed of primary health care facilities i.e., dispensaries and health centers and tier three hospitals. Firewood is the most common cooking fuel by gender. Narok County uses electricity as their main source of lighting.</p> <p>Approximately 45% of the County can be classified as semi-humid to humid, while 55% classified as semi-arid to very arid. The dominant farming systems are pastoralism, ranching, marginal mixed farming, and agro-</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>chromic luvisols, luvic and ando-luvic, phaeozems, chromic vertisols and chromic aerosols.</p>	<p>It is characterized by Savannah plains and woody shrubs which provide an ideal home for the 95 species of mammals, amphibians, and reptiles and over 400 bird species found in the park and its environs.</p> <p>Climate change and variability: historic and future trends Analysis of temperature trends in the county over 25 years (1981 to 2005), showed that temperatures have increased by approximately 0.5 °C for both the first and second seasons. Looking ahead to the period 2021-2065, climate projections based on two representative concentration pathways (RCPs22) indicate that under both scenarios mean temperatures are expected to continue to increase. This results in an increase in drought risk, with the number of consecutive drought stress days. Under both scenarios there is also expected to be an increase in flood risk with the maximum 5-day precipitation average rising by approximately 20-25% from the historical average. Under the high emissions scenario</p>	<p>pastoralism. The farmers majorly engage in sweet potatoes, yams, cassava, sorghum, maize, potatoes, cowpeas and beans amongst others.</p> <p>The primary ethnic groups are the Maasai and the Kalenjin (Kipsigis subgroup); other groups include the Kikuyu, Kisii, and Luo; and minority communities include Ogiek and Oromo. The Ogiek, a vulnerable and marginalized community is found in this county. There have been some tensions and conflicts between the Maasai and the Kalenjin communities who have occupied the Mau forest.</p> <p>The land conflict between the Ogiek in the Mau and the Kenya Government has been reported in the International Court for arbitration where the court rules in favour of the Ogiek community.</p> <p>SEAH including domestic violence is at a record high of 36.1% against national tally of 9.2%, female genital mutilations at 10.1% against 1.3% national tally while defilement cases at 22.2% against 7.1% national tally.</p> <p>Environmental Challenges Facing Agricultural Sector Narok County is vulnerable to climate change. It is one of the drier counties in Kenya. The</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>there is also expected to be a reduction in rainfall in both seasons.</p> <p>Drought and famine is one of the main environmental threats currently faced in Narok County. Over 30% of the population in the county resides in the semi-arid areas.</p> <p>Environmental shocks and stresses brought about by droughts compound poverty and affect the poor disproportionately because the poor are found in marginal and vulnerable areas.</p> <p>Protected Areas</p> <p>I. Maasai Mara National Park</p>	<p>regions of Narok County that lie near the Mau Forest and the highlands are the only areas of the county that experience heavy rainfall. This means that the lowlands experience water shortages. This puts pressure on the available water resources. The county's reliance on rain-fed agriculture, especially in the lowlands, leads to crop failure. Heavy downpours coupled with heavy winds erode fertile lands, destroy farm structures, and displace people. This affects agricultural productivity. Floods occur almost every year during the long rainy season. Narok North sub-county, which is home to Narok town, is one of the sub-counties that is hardest hit by floods</p> <p>Water and Sanitation</p> <p>With regard to water quality in the county, water provided by the three water supplies (Narok w/s, Olololunga w/s, Kilgoris w/s) is quality assured as the water supplied is treated water. Spring Water drawn at the source (natural springs) is clean and can be used without treatment. Water from boreholes is considered free from contamination, except for dissolved minerals which unless otherwise advised is considered safe for domestic use. However, water downstream is unsafe for raw consumption due to pollution which is mainly from agricultural farm chemicals and human faeces due to high levels of open defecation in the county.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>The main water supply schemes in Narok County comprise of conventional water supplies from surface water and boreholes water supplies from ground water sources. Major water supply schemes include Narok water supply, Ololunga water supply, Kilgoris water supply, Mulot water supply, Enaibelbel water supply, Ilmashariani water supply, Iolgorian water supply, Mosiro water supply, Lemek water supply, Oletukat watr supply and Rotian water supply. Ground water source is also a major contributor in water supply schemes, with the county having an estimated total number of boreholes at 207, both public and private, with an average yield of 6 M3 /hr. The water is supplied by Rift Valley Water Service Board through the local water service provider (Narok Water and Sewerage Company).</p> <p>There is an estimated 1,684 water sources in the county among them dams, rivers, water pans, springs and boreholes which are community and private owned. In the whole county only an estimated 8.6 % of households were benefitting from piped water (KNBS 2009). In 2017, about 1,600 households were estimated to have roof catchments systems for harvesting rain water. The average distance people travel in search of water is approximately 2Km in wet seasons. The</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>distance increases to 10 Km during the dry seasons. The areas with the longest distance to the water points are in rural areas where only 7,760 households accessed tap water mainly from protected springs and boreholes. Low flows in rivers and springs have continued to be recorded in the county mainly due to water sources and catchments degradation.</p> <p>Sanitation Lack of a properly developed sewerage system and good drainage system in urban centres such as in Narok Town and Kiligoris is a major threat to good sanitation. Lack of these systems has exposed these towns to risk of disease outbreak especially during the rainy season. Management of waste is not properly organised done making the urban centres dirty and posing health challenges. Waste products of about 10 per cent of the households are collected by the local authority, 2 per cent by private firms while 30 per cent of the households use garbage pit. In 2017, approximately 97,010 of the households in the county used latrines (covered and uncovered) for waste disposal while about 65,360 households relieved themselves in the bush, resulting to outbreaks of water borne diseases such as cholera and diarrhea especially during the rainy seasons. Households in urban areas use pit latrines and septic tanks, which are emptied by by Narok Water and Sewerage</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Company exhauster and private owned exhausters. This has been necessitated by lack of a sewer system, which is a major sanitation problem.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Cattle rustling 2. Land boundary conflicts/clashes
Kericho County		
<p>The county enjoys favorable climate and receives relief rainfall, with moderate temperatures of 170C and low evaporation rates. Temperatures range between 100C- 290C.</p> <p>The rainfall pattern is such that the central part of the county, where tea is grown, receives the highest rainfall of about 2,125mm p.a while the lower parts of Soin and parts of Kipkelion receive the least amount of rainfall of 1,400 mm</p> <p>The county is characterized by undulating topography. The county forms a hilly shelf between the Mau Escarpment and the lowlands of Kisumu County. To the Northwest are the hilly areas of Kipkelion rolling towards Koru. The Kericho plateau forms the central part of the county sloping gently from 2,500m to about 1,800m above sea level.</p> <p>The county is well drained with a good number of rivers that include Chemosit, Kiptaret, Kipsonoi, Timbilil, Maramara, Itare, Nyando, Kipchorian and Malaget. Some of these rivers are characterized by rapids and falls. Some of the rivers with the waterfalls include Maramara, Itare and Kiptaret.</p>	<p>The County is endowed with five main forest reserves consisting of the south Tinderet, Londiani, western Mau and Southwest Mau.</p> <p>The forests are rich in different species of trees, plants, and insects. There are also private forest plantations within the county which are mainly owned and managed by multinational tea companies.</p> <p>The common endemic indigenous trees species found in the county forests include Podocarpus falcatus (set), Dombeya goetzenii (Silibwet), Olea spp (Emitiot), Syzygium queneensii (Lemeiywet), Nuxia congesta (Chorwet), Ekebergia capensis (Arorwet), and Prunus africana (Tendwet).</p>	<p>Kericho County had a total population of 901,777 with 450,741 male and 451,008 as per the KNBS 2019.</p> <p>Agriculture is the main source of livelihood in Kericho County, contributes more than 80% of household incomes, and employs over 50% of the county's population. The county has an absolute poverty rate of 41.3% while 38.7% of the population lives below the food poverty line.</p> <p>The major crops grown include; Maize, Tea, sugarcane and cotton french beans, carrots, leek, celery, spinach, beetroot and turnips amongst others</p> <p>Firewood is the most common cooking fuel by gender. Kericho County uses electricity as their main source of lighting.</p> <p>The dominant ethnic group in the county are the Kipsigis.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The County lies in the Lake Victoria basin. Its geology is characterized by volcanic as well as igneous and metamorphic complexes which are associated with radioactive elements.</p> <p>The county is predominantly underlain by tertiary lavas (phonelites) and intermediate igneous rocks. A small part of the county is dominated by undifferentiated basement system granite rocks, volcanic ash mixture and other prolific rocks.</p>	<p>These endemic species and other diverse indigenous tree species in the forests are useful for water catchment and to the local community as a source of wood fuel, medicine, honey and other related forest products and services.</p> <p>The animals commonly found in the county include Colobus Monkey, Baboons Bush pigs, Porcupine, Hyena and Honey Badger, Buffalos, and Elephants.</p> <p>Birds commonly found in the forests include the woodpecker, African hornbill, black bill weaver eagles, cattle egret, the crow, sparrows, owls, and the honey guide.</p> <p>Climate change and variability: historic and future trends</p> <p>The county has fertile soils and adequate rainfall but this has gradually changed especially in the last 3 decades due to climate change. There are prolonged dry spells characterized by high moisture stress that negatively affect crops like tea. Rainfall is now erratic throughout the year and this affects both the long and short planting</p>	<p>The SEAH in the county stands at 5.5% against a national tally of 9.2% while defilement and creating disturbance stands at 2.8% and 7.7% against 7.1% and 3.3% national tally respectively.</p> <p>Environmental Challenges Facing Agricultural Sector</p> <p>There are several factors that affect the agricultural sector in Kericho County. The major one being overreliance on rain fed agriculture which has undermined the capacity of the county to realize the yield potential of most crops. Because of climate change and increases in climate variability within the county especially in the last two decades, rain fed agriculture is no longer viable to maintain high agricultural production.</p> <p>Water supply schemes</p> <p>Kericho town, urban centers and the tea companies/estates are served with piped treated water whereas some rural communities are served with either raw or treated piped water. Kericho Water and Sanitation Company (KEWASCO) supplies water within an area of approximately 144km square comprising the former Kericho municipality area and parts of the adjoining peri urban and rural areas. Tililbei Water and Sanitation Company on the other hand is responsible for the supply water in rural areas</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>seasons. Intense rainfall occurrence is also on the rise especially in the Second Season (July-December). Extreme precipitation over short periods has caused flash floods that have destroyed crops e.g. in Soin.</p> <p>Despite the relatively large increase in mean temperatures, this has not been accompanied by an associated increase in the number of heat stress days. This may be due to an increase in rainfall, which over a 35-year period (1980-2015) showed that average seasonal rainfall had increased by over 50mm in both the first and second seasons. There has also been greater variability of rainfall about the mean in recent years and this has resulted in increases in both drought and flood risk. Despite some differences in the changes in temperature and rainfall patterns between the two seasons, temperatures in both seasons are on the rise and rainfall from year-to-year has become more variable. Looking ahead to the period 2021-2065, climate projections based on two representative concentration pathways (RCPs10) indicate that under both scenarios there is</p>	<p>across the county. KEWASCO serves 12,000 water and 500 sewerage connections respectively. It draws 68.2% (8,800m³ /day) of its water from Timbilil river, 30.2 % (3,900m³/day) from Kimugu river and 1.6% (200m³ /day) from Ngecherok springs. During periods of drought, the water levels in these rivers and springs reduce due to deforestation of the catchment areas. The amount of unaccounted for Water (UFW) though reduced from 50% in 2012 to 46% in 2017 though this is still a big concern. These losses are due to leakages, illegal connections, inefficient and wasteful use of water by some consumers.</p> <p>Water sources and access</p> <p>Kericho County is endowed with major rivers namely Chemosit, Timbilil and Kipchorian emanating from the Mau Forest water tower. The main water sources within the county are roof catchment, shallow wells, springs and streams for the rural population. KEWASCO draws its water from River Timbilil, River Kimugu and Ngecherok Springs. Shallow wells and springs which are the main source of water for the rural population are unsafe though attempts are being made through devolved funds for instance CDF and County Government Funds to protect the springs and provide convenient watering point and sanitation facilities. Public water sources have</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>expected to be a moderate increase in the flood risk as well as an increase in the length of the dry period.</p>	<p>been encroached and some interfered with altogether. A section of the population draws water from the rivers. A negligible number of households depend on water pans mainly for watering cattle. It is estimated that the average distance to the nearest water point is 1km. Fetching of water is mainly done by women especially in the rural areas.</p> <p>Sanitation Wastewater disposal is still a major challenge within the county. Approximately 2.5km² of the former Kericho municipality is served by water borne sewerage system comprising of sewer lines and a combined treatment plant. The sewerage system covers only the CBD and a few residential estates. Some health facilities, tea factories and multinational companies are also served with sewer lines and septic tanks whereas majority of the populace uses pit latrines. The urban centres within the county use pit latrines which pose a major hazard in the near future. Both KEWASCO and TILILWASCO offer exhauster services to customers who have on site sewerage facilities.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Cattle rustling/raiding 2. Land boundary conflicts/clashes
Migori County		

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>Annual rainfall averages from 700mm to 1,800 mm with long rains experienced between March and May while the short rains occur between September and November.</p> <p>Annual temperatures vary between a mean minimum of 240C and maximum of 310C, with high humidity and a potential evaporation of 1800mm to 2000 mm per year. Migori county's altitude ranges between 1140m above sea level at the shores of Lake Victoria in Nyatike Sub- County to 4625m above sea level in Uriri Sub-County.</p> <p>Undulating hills cover most of the county's landscape with few stretches of flat lands.</p> <p>The main rivers in the county are Kuja, Migori and Riana, all of which originate from the highland regions of the neighboring Kisii and Narok Counties while the smaller and mainly seasonal rivers include Ongocha, Oyani and Sare. Rivers Migori, Ongocha, Oyani and Sare eventually drain into River Kuja at various locations within the county which in turn finally drains into Lake Victoria.</p> <p>The county's topography is underlain by 'relatively acid' parent rock and Granite covering most parts of Kuria East, Kuria West, Nyatike, some parts of Rongo and Migori Sub-counties with the rest being covered by the Nyanzian and Bukoban rocks.</p> <p>In the Kavirondo Gulf, soils are sandy loam formed from sedimentary rocks. Alluvial deposits of eroded material from uplands are common along floodplains of rivers such as Nyando, Yala, Nzoia, and Kuja. In plains such as the Yala and Kano plains, peat swampy soils and black cotton soils dominate. Volcanic soils</p>	<p>There are 327 Ha. of gazette forest and 549 Ha. of un-gazetted forest under trust land.</p> <p>Common trees include Euphorbia candelabrum, Carissa edulis, Croton megalocarpus, Ficus natalensis, Terminalia brownii), Cupressus lusitanica and some pine.</p> <p>The birdlife in Migori is varied with many records of blue flycatcher, blue-spotted wood dove, harrier hawk, bat hawk, baglafaecht weaver, tawny eagle, purple grenadier, beautiful sunbird, yellow-billed stork, hadada ibis, African citril, cape turtle dove, paradise flycatcher, yellow white eye, white-browed robin chat, black-headed gonolek, black kite among others.</p> <p>Climate change and variability: historic and future trends</p> <p>Climatic projections show that Migori County will remain susceptible to drought and heat stress, both of which will affect crop and animal productivity. Between 1985 and 2015, the average duration of dry spells was 10 days; this average is projected to increase to 13 days by 2050. The county has</p>	<p>The population of Migori is 1,116,436 as per the 2019 population census. It has risen from the previous census data due to subdivision of the larger district into several other districts.</p> <p>Majority of the population use firewood and charcoal to meet their daily energy needs for cooking and heating within homesteads and kerosene for lighting.</p> <p>Malaria, Urinary Tract Infections (URTI) & diarrhea are the most prevalent diseases in the district. Malaria is common due to the high temperatures experienced in the district while diarrhea is as a result of poor sanitation in the district. About 60% of patients admitted in medical wards at the district hospital are suffering from HIV AIDS related ailments.</p> <p>Agricultural activities occupy approximately 63% of the total land with 60% under food crop cultivation and the remaining 40% under cash crop cultivation. The main food crops produced in the county include cereals (maize, sorghum, rice, millet); pulses (beans, cow peas, green grams, soya beans), roots and tubers (sweet potatoes, cassava).</p> <p>The SEAH crime rate in Migori stands at 19.6% against a national rate of 9.2%. It is mostly carried out on young girls between infancy and age 15.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
interspersed with fertile peat swampy soils are found in the uplands.	recently experienced climate changes, including unpredictable rainfall patterns, rising temperatures and precipitation amounts, frequent and prolonged dry spells, and periods of water scarcity. Future climate analyses for Migori project significant increases in moisture stress and, conversely, increased flood risk in the second season. Projections indicate an increasing number of CDD, representing an increased risk of droughts in the long rains season, between 2020 and 2040.	<p>The county is a multi-ethnic makeup consisting of Luo, Abasuba, Abagusii, Abaluhya, Kuria, Indians, Arabs, and Somali.</p> <p>Environmental Challenges Facing Agricultural Sector Agricultural productivity in Migori County faces numerous challenges, including excessive reliance on subsistence farming, poor water management practices, soil erosion, the presence of pest and diseases, land degradation, and declining soil fertility, due in part to insufficient awareness of soil fertility management practices</p> <p>Water and Sanitation Water Resources The major water resources in the county comprise of surface, ground and rain water. Surface water consists of Lake Victoria with a total water mass of 475 km² and several rivers with the major ones being Kuja, Migori, Sare, Oyani, Riana, Tebesi, Misadhi and Ongoche. All these rivers drain into Lake Victoria. Ground water resources comprise of boreholes, shallow wells and springs. The quality of water from these sources—especially surface water is however relatively poor and usually requires treatment prior to domestic use.. The County has six urban water supply schemes—Migori Water Supply, Awendo Water Supply, Rongo Water</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Supply and Kehancha Water Supply. Other water supply schemes in the county are Macalder Water Supply in Nyatike Sub County and Uriri Water Supply in Uriri Sub County. The main water source in the county are piped schemes, boreholes, shallow wells, springs, and water dams with access ranging between 200 m and 500m.</p> <p>Sanitation The county lacks access to any form of sewerage system and is therefore highly prone to diseases brought as a result of poor hygiene standards. This contributes heavily to acute respiratory infection, diarrhoea, malaria among other diseases that are common in the county.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Cattle rustling/raiding 2. Land boundary conflicts/clashes
Homabay County		
<p>Homabay County covers an estimated area of 4,267.1 km² constituting 2,696 km² of land area and the largest freshwater lake in Africa of surface area 1,227 Km².</p> <p>Homa Bay County has an inland equatorial type of climate. The climate is however modified by the effects of altitude and nearness to the lake which makes temperatures lower than in equatorial climate. There are two rainy seasons namely the long rainy season from March to June and the short rainy season from August to November. The rainfall received in the long rainy season is 60%</p>	<p>Vegetation is largely of acacia woodland and bush land growing over expansive black cotton soils that cover most of the district apart from the hilly areas which have rock outcrops.</p> <p>The vegetation of acacia woodland is characteristic of the kind of vegetation cover found in areas of dominant black cotton soils. There</p>	<p>According to the 2019 Population and Housing Census, the total population of Homabay County stood at 1,131,950 with urban population contributing about 31% of the entire population.</p> <p>The main water resources in the County include dams, rivers, boreholes, shallow wells, and springs. There are also about 260 boreholes in the County of which 160 are registered. Most homes have shallow wells.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>reliable and ranges from 250 – 1000 mm while 500 –700 mm is received in the short rainy season. The county receives an annual rainfall ranging from 700 to 800mm. Temperatures in the county range from 18.6°C to 17.1°C, with hot months being between December and March.</p> <p>The topography of Homa Bay County varies from uplands of different levels to plains and alluvial valleys. Along the shores of Lake Victoria steep mountains such as Gwasi and Gembe hills characterize the landscape.</p> <p>Soils in Homa Bay County have a moderate to high fertility in the east and low fertility in the south, the north and the center. The majority of the County is underlain by relatively acid parent rock, causing soils of low fertility, and only small areas with basaltic rock types have better soils.</p> <p>The county is divided into two main relief regions namely the lakeshore lowlands and the upland plateau. The lakeshore lowlands lie between 1,163–1,219 m above the sea level and comprise a narrow stretch bordering Lake Victoria especially in the northern parts of the county.</p> <p>The upland plateau starts at 1,219 m above the sea level and has an undulating surface which has resulted from erosion of an ancient plain. It is characterized by residual highlands such as Gwasssi and Ngorome hills in Suba, Gembe and Ruri Hills in Mbita, Wire Hills in Kasipul as well as Homa hills in Karachuonyo. Koderia forest in Kasipul and the Kanyamwa escarpment that runs along the borders of Ndhiwa and Mbita also form part of the upland plateau. To the west of the county lies the Lambwe Valley where Ruma National Park is located.</p>	<p>is also an assortment of indigenous species of trees.</p> <p>Various types of natural vegetation are recognized in the area. Evergreen or semi evergreen tree bushes and grasses generally cover the hilly lands. The lowlands are mostly grassland with shrubs and often swampy and flood prone areas along Sondu and Awach rivers. The specific flora in Homabay include Acacia species: Balamites aegyptica (otho): Ficus thonningii sycomora and natalensis: Markhamia lutea and platy calyx: Lamea spp: Euphorbia trichi callii: Chlorophora excelsa and Ficus species.</p> <p>Homabay County is endowed with several small mammals, avifauna, reptiles, fish, amphibians, insects, arthropods. Animals that are associated with human-wildlife conflicts include birds, monkeys, and hippos.</p> <p>Homa Bay County has two gazetted forests covering an area of 29.6 km². These forests are Gwasssi and Wire Hills.</p>	<p>The water supply schemes in the County is Homabay Water and Sanitation.</p> <p>Majority of Homa Bay County residents rely heavily on fuel wood (84%) and charcoal (13.4%) for cooking. Firewood is used more intensively in rural areas while charcoal in urban areas. As a result, Homa Bay is one of the counties with a negative biomass net balance represented by an annual deficit of 257,706 cubic meters.</p> <p>The county is not doing well in terms of efficient use of paraffin for lighting, with 94.6% of households using it for lighting. Average annual demand for electric energy in Homa Bay County was 51.1GWh as at the end of 2016 and is expected to increase to 149.31Gwh (low case scenario) or 284.25Gwh (high case scenario) by the year 2030.</p> <p>Health access in the county has been made achievable through the department of Health Services. The accessibility of health services is considered by the nutrition, morbidity, mortality rates and the immunization coverage.</p> <p>HIV prevalence in Homa Bay is nearly 4.5 times higher than the national prevalence at 26.0% (Kenya HIV Estimates 2015). The HIV prevalence among women in the County is</p>

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<p>The county is dissected by a number of rivers namely Awach Kibuon, AwachTende, Maugo, Kuja, Rangwe and Riana rivers, most of which originate from Kisii and Nyamira counties. There are also several seasonal rivers and streams which originate from highlands within the county. The county has 16 islands, some with unique fauna and flora and an impressive array of physiographic features with great aesthetic value as well as breath-taking scenery and forested landscape particularly those around the islands and the coast of Lake Victoria and a peninsula like Sikri of Mbita sub-county.</p>	<p>The county also has eight non-gazetted forests covering an area of about 128 km². They are Ngorome Hills, Ruri Hill, Gembe Hills, Mfangano, Homa Hills, Asego Hill and Koderia Forest.</p> <p>Climate change and variability: historic and future trends</p> <p>Food insecurity is linked to low productivity due to factors such as extreme weather, climatic shocks, unsustainable natural resource management, high prevalence of HIV/AIDS (21.7%) and limited access to farm inputs. Water availability is also a limiting factor in crop and livestock production. Only 13.3% of the land under irrigation, despite the County's huge potential to irrigate as it borders the largest freshwater lake in Africa, Lake Victoria. Looking to the future in the years of 2021-2065, temperature is projected to increase by 0.4°C, with the first wet season projected to experience even greater changes. And by this time, precipitation is projected to increase by 0.7% in the first wet season, and 3% in the second wet season. Prolonged moisture stress is projected to</p>	<p>higher (27.8%) than that of men (24.0%), indicating that women are more vulnerable to HIV infection than men in the County (HIV County Profiles 2016). The county therefore should provide more sensitization or awareness programmes to prevent the prevalence that affects the productive population especially the youths.</p> <p>The county has recorded an increase in SEAH and teenage pregnancies in the Coronavirus period which is likely to lead to high dropout rates. 10 cases of SEAH have been reported every month since the onset of COVID-19.</p> <p>The main food crops produced in the county are maize, beans, green grams, sorghum, finger millet, kales, cassava, sweet potatoes and cowpeas. The vast majority (80%) of the farmers produce maize and beans. Cassava and sweet potatoes are the main county's insurance crops due to their resilience to adverse weather conditions.</p> <p>The Luo and Abasuba people are the dominant communities in Homa Bay, making at least 95% of the county's population.</p> <p>Environmental Challenges Facing Agricultural Sector</p> <p>Homa Bay County has the potential to feed itself and export surplus to neighbouring</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>occur in the first season of the year, whereas intense precipitation looks to change little in either season. Consecutive days of moisture stress is projected to almost double in the first wet season (January – June) from approximately 25 days to around 45-50. In contrast, moisture stress in the second wet season (July–December) is projected to decrease from 60 consecutive days of moisture stress to approximately 50 days.</p> <p>Protected Areas</p> <p>I. Ruma National Park</p>	<p>counties, however it faces perennial food shortages and food insecurity due to low productivity (GoK, 2013), driven by factors such as outbreak of pests/diseases, low soil fertility, inadequate staff at the ward level, high poverty levels, dependency on rain-fed agriculture and increased climate hazards (drought and floods). Historic analysis of weather in Homa Bay County shows that both dry spells and extreme precipitation are hazards in the County. Dry spells are on average longer during the second wet season and consistently close to 60 consecutive days of moisture stress, whereas moisture stress is consistently less than 30 days during the first wet season. Extreme precipitation and flood risks are moderate to low in both seasons, with most years receiving between 10 and 25 mm of precipitation on the wettest day. Looking to the future in the years of 2021-2065 (by the early 2040's), temperature is projected to increase by 0.4°C, with the first wet season projected to experience even greater changes. And by this time, precipitation is projected to increase by 0.7% in the first wet season, and 3% in the second wet season.</p> <p>Water and Sanitation:</p> <p>Save for Lake Victoria and other known natural sources such as rivers and springs, the county of Homabay has several water facilities</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>spread over 211 sub-locations. These facilities include boreholes, water pans and water wells/springs. Whereas development partners such as World Vision have made great sides in development and rehabilitation of water facilities, many areas still remain water-deficient particularly in Karachuonyo, Rangwe, Suba South and Homa Bay Town. In each of the four county towns, rehabilitation of both the old and new intakes is on-going, and new pumps are being installed, resulting in a doubling of urban water production.</p> <p>Immediate works to reduce leaks and rehabilitate the treatment works at the reservoirs will help to reduce unaccounted-for-water from 65% to the present level of 41%. Additional works will include the laying of many kilometers of PVC pipeline, installation of 100 tipping bins and 10 waste transfer stations, construction of 80 VIP latrines in selected schools and public areas and a number of water kiosks in low income settlements.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Cattle rustling/raiding 2. Land boundary conflicts/clashes
Kwale County		
The county has a monsoon type of climate which is hot and dry from January to April/May, while the period from June to August	Within the greater Kwale County, plant species are dominated by	The total population of Kwale County is projected to be 713,488 persons in 2012

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>is the coolest in the year. Rainfall is bi-modal with short rains being experienced from October to December, while the long rains are experienced from March/April to July. The total annual precipitation varies from 900mm–1500mm per annum along the coast to 500mm to 600mm per annum in the hinterland. The average annual rainfall ranges from 600mm in the hinterland to 1200mm at the coastal belt.</p> <p>Mwache River is the main determinant of the drainage in the project area and the immediate adjoining areas. The slope is predominantly west east towards the sea shoreline (Mwache River discharges into Mwache Creek) from Taita hills in the west where Mwache River originates. Kombeni River basin to the north of the Mwache river basin has similar characteristics (discharging into Tudor Creek just north of Changamwe).</p> <p>The general topography is relatively flat with breaks of medium valleys with seasonal flows. The local landforms are influenced by the rivers and mild slopes towards the flood plans.</p> <p>The county is well drained by seven major rivers and numerous minor streams. Of the seven (7) rivers, three (3) are permanent. The main rivers and streams are Ramisi, Marere, Pemba, Mkurumuji, Umba, Mwachema and the Mwache River.</p> <p>The geology in Kwale County is dominated by rocks of sedimentary origin except in the western side where the basement rock exists just like in the rest of the coast region of Kenya. The underlying rocks in the sedimentary system are dominated by three geologic zones, namely a) Duruma Sandstone Series, b) Tertiary Sediments, and c) Quaternary sediments.</p>	<p>coconut trees being the main agricultural crop. Other lesser agricultural plants noted include cassava, cashew nuts, and isolated food crops towards inland zones. Most of the land in the area is covered with grass species, shrubs and in some places, ornamental plants, and flowers.</p> <p>Climate change and variability: historic and future trends</p> <p>Reliance on rain fed agriculture makes farmers in Kwale especially vulnerable to climate shocks and changes. Historical records indicate that average temperatures have increased significantly in the past twenty years and the number of heat and drought-stressed days are projected to continue increasing during the first Season (March to May), leading to shorter crop cycles. Farmers have noted that rivers and streams have dried up in recent years, forcing them to adopt alternative planting or livelihood strategies.species. Producers also engage in value-adding practices such as boiling and fermenting milk and salting and drying meat.</p>	<p>comprising 346,898 males and 366,589 females. This is a 9.8% increase from 649,931 in 2009.</p> <p>Kwale Water and Sewerage Company is mandated by the Coast Water Services Board to supply/distribute, control, and manage all the water supply schemes within the county. The main sources of water are boreholes, springs, dams, water pans and rock catchments.</p> <p>Lack of access to clean sources of energy is a major impediment to development through health-related complications such as increased respiratory infections and air pollution. The type of cooking fuel or lighting fuel used by households is related to the socio-economic status of households.</p> <p>The County has a total of three (3) government hospitals, eight health centers and sixty-four (64) dispensaries located in Msambweni, Kwale and Kinango constituencies.</p> <p>Agriculture is one of the main economic activities carried out in Kwale County with 85% of farmers practicing subsistence farming. The agricultural sector plays a crucial role in guaranteeing food security, poverty reduction and employment creation in the County. The major crops include of crops includes cashew</p>

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	<p>As such, heat stress, dry spells, and drought are hazards that strongly contribute to agricultural risk in the County, especially in the central and western parts of the County. However, flooding due to intense rains has also occurred historically and as such is a risk to the County, especially in the central to eastern parts (including the coast) of the County.</p> <p>Protected Areas</p> <p>I. Shimba Hills National Reserve</p>	<p>nuts, maize and beans while livestock includes dairy animal</p> <p>The common diseases in the county are malaria, bilharziasis, diarrhea, cholera, ringworms, flu/colds, and typhoid.</p> <p>SEAH is rife in the County. Poverty, beliefs about gender rights, and religious beliefs which allow early marriage contribute to a high rate of defilement, affecting even pre-teen girls.</p> <p>Main ethnic communities in the county include the Digo and Duruma clans of the larger Mijikenda tribe and also a significant presence of the Kamba. Common languages are Swahili, Digo and Duruma. The Waata and Wasanye vulnerable and marginalized communities are found in this county.</p> <p>Kwale County comprises of 4 sub-counties namely, Matuga, Msambweni, Kinango and Lunga Lunga. Some of the key peace and cohesion challenges in Kwale are, border dispute with Taita Taveta County radicalization and violent extremism among the youth and land related conflicts that gave rise to secessionist movements.</p> <p>Environmental Challenges Facing Agricultural Sector:</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Unsustainable natural resource management compromises productivity. The County has huge irrigation potential, yet there are only a few, small irrigation schemes. Only 2.5% of the households use irrigation. As a result, water shortage greatly affects productivity of rainfed crops and livestock. Environmental degradation is boosted by the use of unsustainable agronomic practices, such as overstocking of livestock, improper use of farm inputs (fertilisers) and disposal of farm waste, and overfishing, among others. Such practices are linked with farmers' limited skills, training, and access adequate agricultural extension (the ratio between extension officers and farmers is 1:1,886).</p> <p>Water and Sanitation</p> <p>The main resources of water in Kwale County comprise of rivers (7), shallow wells (693), springs (54, protected and unprotected), water Pans, Dams (6), rock catchments and boreholes (110). However, most of the rivers are seasonal thus cannot be relied upon to supply the much needed water in the county for both agriculture and household uses. According to the census of 2009, protected wells and boreholes were the main sources of water for 21.9% of the County's households (KNBS, 2012). The average distance to the nearest water point in the County is two (2) Kilometres. This is well above the</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>internationally required five (5) meters distance to the nearest water source.</p> <p>Water and Sewerage Company is mandated by the Coast Water Services Board to supply, control and manage all the water supply schemes within the county. Private water service providers in liaison with the Kwale water services board have been supplying water to the community to ensure water is available for all. Other water supply schemes include community owned and managed boreholes, dams and even water pans.</p> <p>Sanitation Kwale County was ranked number 23 out of 47 in the county sanitation benchmarking by the MOH with open defecation (OD) at 51.2 % (WSP 2014). Latrine coverage is a key component as far as household sanitation in disease prevention and human dignity. The main type of toilet facility in the county is the pit latrine. The latrine coverage in the County is at 55%, which is below the national target of 90%, with improved toilets accounting for 19.5%, unimproved toilets at 14.3% with open defecation reduced to 31.6 % (Agris 2017). The county is committed to deliver its rural villages and communities to open defecation free (ODF) and raise household sanitation coverage to above 85% to address the burden of diarrhoeal and related illness.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		Conflict and Tension <ol style="list-style-type: none"> 1. Politics 2. Gender Based Violence 3. Resourced based conflicts
Kilifi County		
<p>Kilifi County has a bimodal rainfall pattern. Long rains fall from April to June, with a peak in May and the short rains fall from October to December.</p> <p>The average annual rainfall ranges from 400mm in the hinterland to 1,200 mm at the coastal belt. Kilifi North Sub- County forms the southern part of the Athi catchment area draining to the Indian Ocean. Kilifi County is generally hot and humid throughout the year with average day temperatures of 24°C. The lowest temperature is experienced during the long rainy seasons. The average relative humidity along the coastal belt is 65% but with a decrease towards the hinterland.</p> <p>Kilifi County has four major topographical features with marked geological and rainfall characteristics which dictate the resource potential and land use patterns. These are the Coastal Plain, the Foot Plateau, the Coastal Range and the Nyika Plateau.</p> <p>The geology of Kilifi County consists of sediments and sedimentary rocks of several types; the Jurassic systems, the tertiary system, and the quaternary system and each of these units has several formations. The sedimentary rock systems run parallel to the coastline in a northeast-southwest direction. The sediments found in Kilifi were deposited at various stages of geological history.</p>	<p>The County has remnants of heterogeneous group of isolated evergreen or semi-green forests with high biodiversity. These forests fall within the purview of the Eastern African coastal forests. The county has 18 forests which are gazetted and 7 are non-gazetted.</p> <p>The main forests include Arabuko Sokoke, Mangrove Forest and Dakatcha woodlands.</p> <p>Mangrove swamps zone covers only a small portion of Kilifi area mainly on the sides of the Kilifi Creek at the bridge and Bofa Beach coastline. There are only a few trees such as Coconut, Mango, baobab trees commonly referred to as 'Mmbuyu' and <i>Mukurudadi</i> which is the <i>Neem</i> tree are common in Kilifi County.</p> <p>Kilifi County is characterized by brush and thicket characteristic of a lowland dry forest in the coastal</p>	<p>The population of the county is at 1,453,787 according to the census of 2019.</p> <p>Boreholes and water pipelines are the major sources of water for the population across the county. Other equally important sources of water for the communities in the county are water pans, earth dams and rivers especially in the rural areas where piped water is either not available or inadequate.</p> <p>In Kilifi County, 16% of the residents with no formal education, 23% of those with primary education and 39% of those with a secondary level of education or above are working for pay.</p> <p>The level of unemployment in the County has remained high since independence but has worsened due to recent tourism industry recession.</p> <p>A large proportion of the county population still engage in subsistence family farming and low-productivity self-employment including hawking, even as wage work has expanded.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>In general, most of the soil formations along the coast are of coral parents. The soils within Kilifi Town are typically a mixture of well drained, deep, dark red to reddish brown, friable, sandy clay loam to sandy clay, with topsoil of loamy sand and well drained, very deep, yellowish red, very friable, fine sandy loam to fine sandy clay loam.</p> <p>The main river in Kilifi is the Voi River. It originates in the Taita Hills and flows past Voi town through to Tsavo National Park before emptying into the sea in Kilifi, the river's total length is about 210 km. However, in the dry season only the last (lower) eighty kilometers has water in it. The other major rivers that empty into the ocean in the North Coastline of Kenya are River Tana and River Sabaki. River Tana is the longest originating from Mt Kenya, ending in the Indian Ocean, a distant of about 850km. The Sabaki River has its origin as Athi river in the central highlands around Nairobi. When joined by the Tsavo River in its lower basin the river is known as Galana. The river is known as Sabaki when it drains into the Indian Ocean, a few kilometers north of Malindi Town. The entire Athi-Galana-Sabaki system extends for 390 km and drains a catchment area of 70,000km²</p>	<p>region. This vegetation zone is mainly cultivated with cashewnuts, mangoes, sugar cane coconuts and food crops and is mainly grassland. Agriculture does very well in the area due to its climatic conditions.</p> <p>Kilifi County is home to various snake species, millipedes, centipedes, lizards and several domesticated animals.</p> <p>Climate change and variability: historic and future trends</p> <p>Climate has already been observed to change in the county. Since 1981, the first wet season has experienced a very high (2.0°C) increase in mean temperature and associated reduction in crop cycle, a significant increase in heat stress days, and a strong trend for decreasing precipitation (on the order of 20%). The combination of increased temperatures and decreased precipitation make for an increase in drought risk in this first wet season. The second wet season experienced a mild (~0.5o C) increase in temperature, and no change in precipitation. Looking to the future</p>	<p>Only 2% of residents in Kilifi County use liquefied petroleum gas (LPG), and 8% use paraffin. 67% use firewood and 21% use charcoal. Firewood is the most common cooking fuel by gender with 65% of male headed house- holds and 73% in female headed households using it. (Gini-Coefficient).</p> <p>Some 17% of residents in Kilifi County use electricity as their main source of lighting.</p> <p>A further 17% use lanterns, and 63% use tin lamps. 2% use fuel wood. Electricity use is mostly common in male headed households at 18% as compared with female headed households at 14%.</p> <p>Kilifi County is located within the Coconut-Cassava Agro Ecological Zone: This zone has the highest potential for crop production in the county spreading along the coastal uplands and low-level coastal plains. Major farming activities include tree cropping (mango, citrus, cashew nuts, and coconuts), vegetables (chilli, brinjals, okra etc.), food crops (maize, bananas, cowpeas, green grams etc.) and upland rice. Dairy farming also does well in this zone (Figure 3).</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>in the years of 2021-2065, both extreme precipitation and prolonged moisture stress are projected to occur, but the changes are different during different seasons. Within 30 years (by the early 2040's) temperature is projected to increase by 0.5°C, with the first wet season projected to experience even greater changes. And by this time, precipitation is projected to decrease by 13% in the first wet season, and 2% in the second wet season</p> <p>Droughts and floods compromise productivity and food security in Kilifi and are expected to pose even greater challenges in coming years, as future projections predict increasing drought risk in First Season (January-June) and increasing flood risk in Second Season (July-December). Poor infrastructure, limited coverage by extension services, poor quality and eroded soils, and low agricultural input use are some of the key factors that exacerbate the impacts of climate change and variability and at the same time limit the ability of farmers</p>	<p>Main ethnic communities in the county include the Digo and Duruma clans of the larger Mijikenda tribe and also a significant presence of the Kamba tribe. The county is predominantly inhabited by the Mijikenda community. The Waata, a vulnerable and marginalized community is found in this county.</p> <p>Sixty percent of girls suffer SEAH in Kilifi. Six out of every ten households in Kilifi County experience domestic violence due to the difficult economic situations brought by the coronavirus pandemic.</p> <p>Environmental Challenges Facing Agricultural Sector: Kilifi is among the poorest counties in Kenya with an absolute poverty rate of 71.7% (GoK, 2007). Factors that contribute to the entrenchment of extreme poverty include the limited uptake of technology, especially in the agricultural sector, and limited access to education and training. Both of these factors contribute to the limited or non-use of inputs and the perpetuation of poor farming practices, which ultimately result in low productivity and the overuse of natural resources. The County's arid zone is a major source of charcoal for the towns of Mombasa, Malindi, Kilifi and Mtwapa. Deforestation caused by the uncontrolled felling of trees has</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>and livestock keepers to cope with these impacts.</p> <p>As such, heat stress, dry spells, and drought are hazards that strongly contribute to agricultural risk in the county, especially in the central and western parts of the county. However, flooding due to intense rains has also occurred historically and as such is a risk to the county, especially in the central to eastern parts (including the coast) of the county</p> <p>Lack of rainfall, as well as the late onset and early cessation of both long and short rains, have made crop failure a recurring hazard in Kilifi. Drought has created a cycle of food insecurity, starvation, and reliance on emergency relief that has been repeated in the County every year since 2013.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Arabuko Sokoke Forest National Reserve 2. Malindi Marine Park 3. Watamu Marine Park 4. Tsavo East National Park 	<p>led to widespread destruction of the environment. This is a major contributor to soil degradation which is rampant in the County since the lands do not have adequate soil cover to protect against erosion. Poor soils cause low crop productivity due to the lack of soil nutrients that support plant growth. Low productivity is directly tied to poor soil quality, insufficient rainfall, and high incidence of pests and diseases</p> <p>Water and Sanitation</p> <p>Water Resources The county is endowed with tremendous wealth of both surface and underground water resources. River Sabaki which is the largest river within the Athi River Catchment, along with Rare, Kombeni, Mwandeje and Nzovuni Rivers drain into the Indian Ocean at various points along the coastline. Ground water resources in Kilifi range from shallow to deep wells as you move into the hinterlands. Wells and boreholes are too close to each other contrary to water regulations. Over pumping of ground water is common leading to salt water intrusion from the ocean. Some Wells and boreholes are sited too close to sewers/soak pit and latrines. Open wells are therefore prone to contamination through foreign objects in form of dead organic matters/surface runoff. Inadequate mechanism for monitoring the quality of water in wells and boreholes</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>compound the peril. The county has well fields, the major ones being: Baricho, Kadzandani and Timboni well fields.</p> <p>There are two water supply schemes in the County. These are Baricho well field, which is located in Langobaya location, along River Sabaki in Malindi Sub County. The other scheme is located in Mzima Springs, TaitaTaveta County. Collectively, the two schemes supply a total of 22,920m³ of water per day to different parts of the county. This amount of water falls short of the current demand occasioned by the fast population growth and establishment of industries, by far.</p> <p>Boreholes and water pipe lines are the major sources of water for the population across the county. The average walking distance to the nearest water point is estimated at 3.5km. According to the Department of Water Environment, Forestry Natural Resources solid waste management score Card Report, (2016), 60% of the households in the county have access to piped water distributed by Kilifi - Mariakani Water and Sewerage Company (KIMAWASCO) and Malindi Water and Sewerage Company (MAWASCO). The County Government and other stakeholders in the water sector are exploring possibilities of drilling boreholes, pipeline extensions and enhancing other water sources to meet the</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>growing water demands in both rural and urban areas. Other equally important sources of water for the communities in the county are water pans, earth dams and rivers especially in the rural areas where piped water is either not available or inadequate.</p> <p>Sanitation Access to basic sanitation facilities remains a formidable challenge across the county. The county toilet coverage is estimated at 67% while 30% of households have hand washing facilities. A significant proportion of the population in the county has no access to basic sanitation facilities, posing serious public health implications. More importantly, proportion of households with access to sanitation facilities varies across and between major urban centers and peri-urban areas and the concentration of these facilities tends to decline towards the rural areas within the county. Concerted efforts should be put in place to invest in public toilets in major towns and trading centers and establishing of sewerage facilities in coherence with existing town planning principles.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Politics 2. Gender Based Violence 3. Resourced based conflicts
Taita Taveta County		

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The county covers an area of 17,084.1km² with 10,649.9 km² (62.3 per cent) being within Tsavo East and Tsavo West National Parks.</p> <p>Taita Taveta County is mainly dry, with the exception of Taita Hills which are considerably wet. The south-easterly winds influence climate in the area, whereby hilly areas have ideal conditions for moisture condensation which then results in relief rainfall.</p> <p>Long rains are usually experienced between March and May – where on average, highlands record 265 mm as opposed to the 157 mm in lowlands. Short rains are anticipated between October and December, with annual rainfall being recorded at 1,200 mm (highlands) and 341 mm (lowlands). Rainfall distribution is usually uneven, with higher rainfall amounts being recorded in highland areas as compared to the lowlands. Annually, mean rainfall is 650 mm.</p> <p>Average temperature in Taita Taveta County is 230C, with lows of 180C in hilly areas (Sagalla, Taita ad Mwambirwa) and rising to about 250C in lower zones.</p> <p>Taita Taveta County is classified into three major topographical zones, namely:</p> <ol style="list-style-type: none"> Upper zone – which comprises Mwambirwa, Taita and Sagalla hills regions with altitudes ranging from 304 meters to 2, 208 meters above sea level. The zone is suitable for horticultural farming. Lower zone – which includes plains where the national parks, mines and ranches are found. 	<p>Taveta county is covered mainly by an ASAL vegetation, grassland, woodlands, and shrubs lands with savanna species</p> <p>In lowlands, different vegetation occurs. These are woodlands, wooded grasslands, bush lands, grasslands, and riverine forests/swamps. Different forms and savannah vegetation are found as influenced by different climatic conditions, animal and human activities.</p> <p>The Taita Hills used to be covered by montane mist forests whose remnants can still be found on the highest peaks, namely Mbololo, Ngangao, Chawia and many smaller patches in the Taita ranges and the relicts of natural forests in the Sagalla and Kasigau Ranges. These are the northern most members of the eastern arc mountains globally recognized as one of the biodiversity hotspots.</p> <p>There are different types of forests. The most important of these are the moist forests of the Taita Hills,</p>	<p>The population of the county was 340,671 persons according to the 2019 national census, with population densities ranging from 14 persons per km² to more than 117 persons per km².</p> <p>The County has five public Level-4 hospitals. These include Moi County Referral hospital in Voi, Wesu district hospital in Wundanyi and Taveta district hospital.</p> <p>The main source of energy in the county includes electricity, solar and wood fuel. Though a good number of areas have been connected to the national electricity grid some areas in Taveta and Wundanyi sub-counties are yet to be reached.</p> <p>However, firewood and charcoal are the main source of cooking fuel respectively and also lighting fuel is paraffin followed by electricity and solar. Solar energy where there is great potential has however not been exploited.</p> <p>A significant percentage of the urban areas have been connected to the national electricity grid and a growing number of the villages are being connected to the grid.</p> <p>The main crops grown in the county are cereals (Maize, sorghum, Rice), pulses (beans,</p>

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<p>iii) Volcanic foothills zone – which covers the Taveta region with underground water and springs sourcing from Mt. Kilimanjaro.</p> <p>The vast rangeland covering Tsavo National Park (Tsavo East and Tsavo West) is located in the lowlands and transitional zone and occupies about 62% of the entire county area. This forms the Tsavo Ecosystem which is constituted of plains, wildlife, springs, rivers, and vegetation. The Park is an open savannah and bush woodland supporting the famed ‘big five’ quintet of lions, elephants, buffaloes, rhinos and leopards as well as antelopes, giraffes, zebras and a host of bird life.</p> <p>The main rivers in the county are Lumi, Tsavo and Voi. Mzima Springs forms the main water supply for Voi town and Mombasa City. Smaller springs augment this supply, and include Njoro Kubwa, Sanite, Njukini, Maji Wardeni, Lemonya, Kitobo and Humas Springs. Additionally, Lake Challa and Jipe found in the Taveta area are served by springs emanating from Mt. Kilimanjaro</p>	<p>which belong to the Eastern Arc Forest Mountains of East Africa.</p> <p>The total area of forest is currently 10,233.62 ha.</p> <p>Of the total area, 41.5% are indigenous forests, 12% exotic forests, 1% contain endemic species and 46% are bush land.</p> <p>The flora of these mountains is characterized by a high level of species and generic endemism: the forest ecosystem has more the 2000 species of plants of which 25 to 30% are endemic (Lovett 1993). The Taita Hills forest fauna consists of over 400 species with at least 123 endemic plants. Ngangao and Mbololo forests have 7 of the endemic species.</p> <p>Climate change and variability: historic and future trends Reliance on rainfed agriculture remains a challenge especially with climate change. Only 10% of households have adopted irrigation (GoK, 2014). Effects of climate change include unreliable and erratic rainfall patterns with shifts in</p>	<p>cowpeas, green grams, pigeon peas), root crops (cassava, and sweet potatoes) etc.</p> <p>The main ethnic groups in the county include: Taita, Taveta, Kambas, Maasai, Luo, Kikuyu and Somalis. The Waata, a vulnerable and marginalized community is found in this county.</p> <p>The SEAH rate at the county stands at 4.8% against a national rate of 9.2%. Statistics show that in Taita Taveta County, rape is the major form of SEAH.</p> <p>Environmental Challenges Facing Agricultural Sector: The agriculture sector is greatly affected by droughts, floods, unpredictable and unreliable rainfall, and high temperatures brought about by climate change. The County is home to one of the largest national parks in the world, the Tsavo National Park, so wildlife population is exceptionally high. This, coupled with the fact that the park does not have an electric perimeter fence, has aggravated human wildlife conflicts. The animals destroy crops and harm, even kill people. This results in loss of livelihoods and food insecurity. Over the years, residents have suffered huge losses occasioned by herds of marauding elephants that invade farmlands destroying crops, besides causing injuries and death to humans.</p>

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	<p>planting time, moisture stress during the crop growing periods and heavy rains during harvesting, leading to increased post-harvest losses. Temperature fluctuations lead to increased incidences and emergence of new pests and diseases. This affects both the quantity and quality of produce.</p> <p>Historic analysis of weather in Taita Taveta County shows that both dry spells and extreme precipitation are hazards in the County. Dry spells are on average slightly longer during the second wet season with around 70-80 consecutive days of moisture stress, whereas moisture stress is experienced for 55-80 days during the first season. Extreme precipitation and flood risks are moderate to low in both seasons, with most years receiving between 10 and 25 mm of precipitation on the wettest day. Climate has already been observed to change slightly in the County. Since 1981, the First wet season - the predominant rains of the year, have experienced a 1.5°C increase in mean temperature. Temperature is projected to increase by 0.4o C in</p>	<p>Poverty is related to environmental degradation. Massive destruction of forests occurs in the County, for firewood, charcoal, and agricultural production. Reliance on rainfed agriculture remains a challenge especially with climate change. Only 10% of households have adopted irrigation (GoK, 2014). Effects of climate change include unreliable and erratic rainfall patterns with shifts in planting time, moisture stress during the crop growing periods and heavy rains during harvesting, leading to increased post-harvest losses. Temperature fluctuations lead to increased incidences and emergence of new pests and diseases.</p> <p>Water and Sanitation</p> <p>The main rivers in the county are Lumi, Tsavo and Voi. Mzima Springs forms the main water supply for Voi town and Mombasa City. Smaller springs augment this supply, and include Njoro Kubwa, Sanite, Njukini, Maji Wardeni, Lemonya, Kitobo and Humas Springs. Additionally, Lake Challa and Jipe found in the Taveta area are served by springs emanating from Mt. Kilimanjaro.</p> <p>The County has the biggest water supply scheme in the coastal region. This is the Mzima Water Project, which supplies water to Voi town and its environs through a number of major projects including Voi water supply,</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>the period 2021-2065, with the First wet season projected to experience even greater changes. By that time, precipitation is projected to increase by 0.8 % in the First wet season, and 6 % in the Second.</p> <p>Due to the fairly hot and dry conditions, dry spells and heat stress are both hazards that contribute to agricultural risk in the County.</p> <p>Protected Areas</p> <p>I. Tsavo West and East National Parks</p>	<p>Mbololo water supply, Iririma, Kimwa and Kaloleni water projects, Miasenyi water project, Manyani water supply, and Maungu-Bughuta water project. This scheme is also among the major suppliers of water in the coastal city of Mombasa. The source of the water is Mzima springs, situated in the Tsavo West National Park. Other major water schemes are found in Taveta and Wundanyi areas. In Taveta, there are four schemes. These are Taveta Lumi water supply, Challa Water Project, Chumvini water project, and Kitobo water project. The County is home to both surface and underground water sources. The surface water sources include Mzima springs, Lakes Challa and Jipe, and some rivers like Mwatate, Kishenyi, Ziwayi, Lumi, Sanga, Wanganga and Voi, Challa, Kighombo and Kishushe. Underground water resources include two springs, Homer's and Lemonya, and a number of streams including Njukini, Sanite Njoro Kubwa, Kitobo, and Maji ya Waleni. The average distance to the nearest water point is 1.25 Km. In the County, an estimated 13% of households take between 1-4 minutes one way to fetch drinking water</p> <p>Sanitation</p> <p>The majority of households in the County use pit latrines, which are 75.8% of total number of toilet facilities. 67.4% of these are covered pit latrines. The Ventilated Improved Pit (VIP)</p>

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		<p>latrines form 4.5% of total toilet facilities. The other main type of facility is flush toilets, which accounts for 5.8%. An estimated 63,981 (about 86%) of the total households in the County have access to toilet facilities while about 14% of households do not have any kind of toilet facility. The farm/garden accounts for the largest garbage/waste disposal type at 44.1%, followed by garbage pits at 23.7%, burning at 22.1%, public garbage heaps at 6.4%, collection by county government at 2.4%, and collection by private firms at 0.3%. The county government is playing a more active role in garbage collection to make the environment more habitable.</p> <p>Conflict and Tension I. Human Wildlife Conflict</p>
Tana River County		
<p>Rainfall is low, bimodal, erratic, and conventional. Mean annual rainfall varies between 350-450 mm, mean annual evaporation is 2,366 mm. Rainfall is highly variable, patchily distributed and often intense which can lead to sheet and gully erosion. Long rains occur in April and May and the short rains fall in October and November. Tana River County is hot and dry. The average annual temperature is about 30°C and a minimum of 20°C.</p> <p>Tana River County is composed of sedimentary rocks from the tertiary and quaternary periods, more specifically from the Pliocene, Pleistocene and recent epochs. The sedimentary deposits are made up of clayey soils intercalated with marine,</p>	<p>Vegetation in the area comprises of woodlands, bush land and scrubland. The harsh climate and the perennial River Tana determine the natural vegetation in the area. The vegetation can broadly be classified into three zones as follows:- The river line forest; The transitional zone; Dry bushland/thorn-bush savannah.</p> <p>The Tana river-line forest is of high diversity with 300 species recorded.</p>	<p>According to the 2019 census, Tana River County has a population of 315,943.</p> <p>The county is served by two Water Service Providers (WSP) namely Tana Water and Sanitation Company and Lamu Water and Sanitation Company and Community managed supplies with majority of these water supplies concentrated in Tana Delta Sub-County.</p> <p>Generally, the average sanitation level in the county is at 48 per cent. As much as 40</p>

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<p>deltaic, fluvial, lacustrine and coastal- lacustrine sands, silts and clays which give rise to relatively flat topography.</p> <p>Tana is the longest river in Kenya, covering a distance of about 1,012 kilometers from the farthest source to the Indian Ocean.</p>	<p>Some of the plant species found here includes: Hyphaene Conipressa; Acacia robusta; Acacia elatior; Spirostachys venenifera Cadaba farinose; Anisocycla blepharospala; Rhus quartiniana; The dry bushland or thorn-bush savannah is dominated mainly by -: Acacia indica; Acacia reciciens spp; Acacia bussenetii; Acacia mellifera.</p> <p>The county is home to various wild animals including baboons, snakes and hyenas.</p> <p>Climate change and variability: historic and future trends Tana River County has a relatively dry and hot climate throughout the year. The average temperature is greater than 25°C throughout the county, with area on the western side of the county averaging over 27°C. Much of the county receives less than 500 mm of precipitation per year, and the rest less than 1000 mm per year. As such, heat stress, dry spells, and drought are hazards that strongly contribute to agricultural risk in the county. However, flooding along the Tana River County riparian areas is also</p>	<p>percent of the households in the county have pit latrines, five percent of which are uncovered. Open defecation by adults and disposal of children faeces in the open is still rampant in most rural areas of the county.</p> <p>Majority of the population (87.5%) use wood fuel for cooking and 78.2 percent use kerosene for lighting. Only 0.9 per cent of the households are connected with electricity. There are 71 health facilities in the county with two level four public hospitals located in Hola and Ngao.</p> <p>Agriculture and livestock production are the main sources of livelihood in the Tana River. They contribute about 82% of household incomes and more than 80% of employment. County land is mostly non-arable accounting to 3,179,870 ha equivalent to 81%, with only about 6.6% equivalent to 254,700 ha being arable.</p> <p>Main cash crops and food crops grown include Rice, Mangoes, Maize, Bananas, Soya beans, Cassava, Green gram and Beans</p> <p>The main challenges to agriculture and food security are caused by recurrent droughts, floods and also ethnic clashes. The county also faces the security threat due to sporadic attacks from armed bandits which has led to loss of lives.</p>

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	<p>an issue, especially due to periods of rain upstream in the Tana River County. Experts and farmers alike acknowledge that there has been significant changes and variations in climatic conditions over the past years, affecting agricultural production and livelihoods in the County. Extreme weather events are very common in the county. Drought conditions have been experienced in 1975, 1976, 1980, 1981, 1983, 2001, 2004, and 2009 (Ngaina et al., 2014), where the Central and North regions of the county are the most prone, while areas along the River Tana are more prone to floods. Flood events in the county include those of 2002, 2003 and 2010 (Huho and Kosonei et al., 2014), and the recent flood events of 2015 and 2016 in areas such as Bura, Gubani, Masabubu and Tana Delta led to internal displacement of about 10,000 people and destruction of roads).</p> <p>The most extreme weather conditions tend to occur during July-December. Extreme precipitation above 20 mm in a day occurred in seven years since 1981 during the second wet season. In contrast,</p>	<p>The dominant language groups in the county are Language groups include Pokomo, Orma and Wardey</p> <p>The county SEAH (including Domestic Violence) stands at 9.2% against 3.2% national tally and 4.3% Child Abuse (including child neglect) other than sexual abuse against 12.9% national tally. The Waata, a vulnerable and marginalized community is found in this county.</p> <p>Environmental Challenges Facing Agricultural Sector</p> <p>As mentioned above, agriculture is the main economic activity in the county, yet it is experiencing several productivity, economic, and social challenges. Crop and livestock productivity is very low. This is mostly due to harsh climatic conditions such as droughts (Makenzi et al., 2013) and floods.</p> <p>Water and Sanitation</p> <p>River Tana is the longest river in Kenya covering about 850 Km long with catchments area of about 95,000 Km² traversing the landscape from its source in Aberdare Ranges in central Kenya to the Indian Ocean. It discharges on average 4,000 million litres of fresh water annually into the ocean near Kipini at Ungwana Bay. The Seven Folks Hydro Electric power Stations and Bura and Hola</p>

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	<p>January/June (first wet Season) experienced no years with a single day receiving over 20 mm of precipitation. This intense precipitation within Tana River County can directly contribute to flooding, especially along smaller rivers and streams, it should be noted that extreme precipitation events in upstream parts of the Tana River County outside of the county are more important in causing flooding along the main stem riparian areas of the Tana River County</p> <p>The first wet season is projected to experience no change or even a slight decrease in the single day greatest precipitation. The changes are the opposite for future drought stress. The first wet season is projected to experience an increase in consecutive days with moisture stress, whereas the second wet season is projected to experience a slight decrease. Whereas, historically the second wet season experienced 20 days longer of consecutive moisture stress, however, in the future, the first wet season is projected to experience even longer periods of consecutive</p>	<p>irrigation schemes are located upstream of the delta. Tana River supports industrial and other socioeconomic functions such as power generation upstream, agriculture, livestock, tourism and micro-enterprises found within the basin. Water in the county remains a problem for domestic use, livestock and irrigation. The county has 492 shallow wells, 120 water pans, 8 Small earth dams and 36 boreholes. The proportion of households with access to piped water is 17% while proportion of households with access to portable water is 40%. 1.19.2</p> <p>Tana River County has a total of five (5) Gazetted Water Supplies, three (3) community water supplies, 36 Boreholes, 492 shallow wells and 120 water pans. Some of these water supplies were done by the County Government and other by the National Government through development partners. The major water supplies serve a total area of 140Km², with a total production of 6610.m³ /day. The total population served is 50,000 directly by these water supplies. The number of storage tanks in these water supplies range between 10m³ to 500m³ . This gives the County a total storage capacity of 2265m³ with a total pipe network covering 200Km. The county is served by two Water Service Providers (WSP) namely Tana Water and Sanitation Company and Lamu Water and Sanitation Company and Community managed</p>

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	<p>dry periods than the first (> 90 consecutive days of moisture stress). These projections of future climate change under the two climate scenarios—RCP 2.6 and RCP 8.517—show very little difference indicating that these changes are projected to occur no matter the emission reductions that may occur in the future.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Arawale National Reserve 2. Tana River Primate National Reserve 3. Kora National Park <p>Ramsar Site</p> <ol style="list-style-type: none"> 1. Tana Delta 	<p>supplies with majority of these water supplies concentrated in Tana Delta Sub-County. In its effort to ensure an integrated water resources management and development through stakeholder's participation to ensure availability and accessibility to water.</p> <p>Sanitation</p> <p>The reference on sanitation is on housing-ventilation and rendering of floors and walls of buildings, provision of dish-racks, cloth hang-line, waste disposal at household level and public in general at market centres. At the market centre level the attention is on waste disposal. Of all the centres, only Hola has a public toilet, collection of waste is done by the county government within Hola town and there is no designated disposal point for the waste. The situation in most of our institutions especially schools, is reasonably good as they have latrines albeit not adequate. Generally, the average sanitation level in the county is at 48 per cent. As much as 40 percent of the households in the county have pit latrines, five percent of which are uncovered. Open defecation by adults and disposal of children faeces in the open is still rampant in most rural areas of the county. The use of buckets is disappearing and only three households still use them.</p> <p>Conflict and Tension</p>

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Machakos County		
<p>The County receives bimodal rainfall with short rains in October and December while the long rains from March to May. The rainfall range is between 500mm and 1250mm, which are unevenly distributed and unreliable. The altitude mainly influences rainfall distribution in the county. Temperatures vary between 18°C and 29°C throughout the year.</p> <p>The physical and topographical features in Machakos County include amongst other hills rising between 1800 – 2100 m above sea level and Yatta plateau, which is elevated to about 1700m above sea level, slopes to the Southeast and isolated hills in the Northwest.</p> <p>In the plains, the soils are well-drained, shallow, dark, and red clay soils. In addition, the vegetation across the entire County varies according to the altitude. The plains receive less rainfall and are characterized by open grassland with scattered trees as compared to high altitude areas, which receive high rainfall and have dense vegetation. The areas within the County are predominantly plains including Mutituni, Mwala, Mua, Iveti Hills and Kathiani.</p>	<p>The vegetation cover in the county entails bush land with the potential plant growth being medium to low. The main habitats within the county ecosystem are the grass plains dominated by Cynodon, Themeda, Cypress, and Digitaria species; Dry Forest, Olea africana, Croton dichogamus, Brachylaena hutchinsii, and Calodendrum; Riverine Forest/valley forest, Acacia xanthophloea, Euphorbia candelabrum, Apodytes dimidiata, Canthium schimperiana, Elaeodendron buchananii, Ficus eriocarpa, Aspilia mossambicensis, Rhus natalensis, and Newtonia species.</p> <p>Climate change and variability: historic and future trends An assessment of past climate data in the county reveals a significant change in the weather conditions over the last few decades, confirming the evidence of climate variation from the farmers. Findings from analysis of data from 1980 to</p>	<p>Improved sources of water comprise protected spring, protected well, borehole, piped into dwelling, piped and rainwater collection while unimproved sources include pond, dam, lake, stream/river, unprotected spring, unprotected well, jibia, water vendor and others.</p> <p>The County Government has greatly improved the health facilities with one Level 5 hospital located at Machakos town and four Level 4 hospitals in Kathiani, Mwala, Matuu and Kangundo. Other health facilities by ownership include 193 under the County Government, 32 owned by Faith Based Organizations (FBOs), 9 owned by Nongovernmental Organizations (NGOs) and 128 privately owned.</p> <p>Most residents in the County are self-employed. Those living in the rural areas engage in agricultural activities while those in the urban areas engage in small-scale businesses as their sources of livelihood.</p> <p>The major food crops grown in the county include maize, beans, cow peas, pigeon peas,</p>

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	<p>2005 show an increase in temperature in both the first and second season; the increase is more pronounced in the first season, where it is about 0.5° C. Precipitation on the other hand depicts a declining trend in both the first and second season; the decline is more pronounced during the first season, where it is about 25 mm. This analysis also showed that 1984, 2000, and 2009 were very dry years in the first season whereas 1997 and 2007 were very wet during the second season. These results are in agreement with those from other analyses such as those by Huho (2017). Earlier analyses such as that by Tiffen et al. (1994) for data covering 1895-1987, show that during that period, there were about 90 droughts with varying magnitudes. This result suggests climate variation rather than climate change (Mutiso et al., 1991). Looking ahead into the future (2021-2065), both the two climate scenarios namely RCP 2.6 and RCP 8.5 depict with substantial certainty an increase in temperature in both seasons, especially in season.</p>	<p>and cassava, which are grown in almost the entire county where farming is possible. The main cash crops are coffee, sorghum, mangoes, French beans, and pineapples; they are mostly grown in Kathiani, Mwala, Kangundo, and Yatta. On the other hand, the common types of livestock in the county include chicken (mostly local chicken), cattle (for beef and dairy), shoats and a few donkeys and pigs.</p> <p>The SEAH cases recorded in 2020, indicated that that the Intimate Partner Violence (IPV) is the most prevalent form of SEAH at 41.3%, followed by physical violence accounting for 31%, Psychological violence at 35% and sexual violence at 22%.</p> <p>The county is largely inhabited by the Akamba community with most of the major towns being cosmopolitan. The predominant language spoken by the community is Kikaamba and Swahili.</p> <p>Environmental Challenges Facing Agricultural Sector</p> <p>The agriculture sector faces important challenges in Machakos County. The largest challenge being the low and declining productivity. A major factor contributing to the low productivity is the erratic rainfall and harsh weather and climate conditions.</p>

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	<p>Protected Areas</p> <ol style="list-style-type: none"> 1. Chyulu Hills National Park 2. Nairobi National Park 3. Ol Donyo Sabuk National Park 	<p>Farmers face a perennial shortage of water throughout the county due to frequent and prolonged droughts. As a result, farmers and pastoralists spend much time searching for water at the expense of productive activities. The decline in crop productivity reported especially for cereals (maize) and legumes (beans) is attributable to soil degradation. Poor soil fertility, reduced soil organic matter, increased acidity, and depleted micro and macro nutrients is common in Machakos. Given that shifting cultivation and fallowing are no longer possible owing to scarcity of land, most farms have continuously (unsustainably) been cropped for over 100 years. All-year-round cultivation combined with poor land management practices lead to depletion of soil macro and micro-nutrients and acidity, which affects yields negatively.</p> <p>Water and Sanitation Water Resources</p> <p>Machakos County is a water scarce County with its water situation levels below the national natural endowment of 647m³ per capita per year. Its arid and semi-arid areas are critically limited in water endowment. This serious water stress adversely affects food production and often disrupts economic development. Furthermore, the County has two perennial rivers. One of them traverses the County namely Athi River and the other</p>

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		<p>namely Tana River forms the County boundary with Embu and Tharaka Nithi counties. The dams include Maruba, which is the main source of the water consumed in Machakos town whereas Masinga dam on Tana River is shared between Machakos and Embu counties. In addition, several earth dams and springs across the County serve as water resources. Underground water sources (boreholes and wells) supplement surface water sources. Climate change factor has played a major role in increasing the average distance to the nearest water source especially in rural areas. The prolonged dry season for instance, has led to drying up of rivers, springs, boreholes, wells and dams subsequently increasing the average distance to the nearest water source. Previously, the overall average distance to the nearest water source was 6 kilometers but with the implementation of county water programme, this has reduced to an average of 1 kilometer.</p> <p>Sanitation There are two sewer lines in Machakos and Athi River towns. However, the former is partially connected to sewer lines- this includes parts of Kariobangi and Mjini where more than 50% use pit latrines. Garbage disposal is done by the County Government, private firms and individual households.</p>

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		Conflict and Tension I. Heightened criminality
Makueni County		
<p>Makueni in general experiences homogenous climatic conditions characterized by high temperatures during the day measuring up to 32oC and low temperatures at night at an average of about 25oC.</p> <p>The County experiences two rainy seasons, the long rains occurring in March/April while the short rains occur in November/December. The hilly parts of Mbooni and Kilungu receive 800-1200mm of rainfall per year. High temperatures of 35.8oC are experienced in the low-lying areas causing high evaporation which worsens the dry conditions.</p> <p>The County is relatively undulating terrain with a general slope running in a north-easterly direction and an elevation of between 600m above sea level in the southeastern to 1,900m 76 above sea level in the northwestern (Figure).</p> <p>The geology of Makueni is characterized by Achaean gneisses of the basement system. These are the oldest rocks in the area consisting of quartz-felspathic gneisses and biotite, gneisses beneath the recent soils. Most areas around the Makueni County are generally covered by deep sandy alluvium and red sandy soils in addition to patches of black cotton soils and murram. Typical soils are sandy (eroded from the base sedimentary rock) and contain little organic matter and hence have low fertility. Athi is</p>	<p>The County has a total of 5 gazetted forests and 4 un-gazetted forest areas covering 25 km2 and 5 km2 respectively.</p> <p>Historically the area had a wide variety of wild animals. These include the Elephants, African Buffalo, Grey Duiker, Black backed jackal, lesser kudu, spotted hyena, olive baboon.</p> <p>Among the major notable plant species include Grasses– Chlorisgayana, Common star grass and Themedathriandra, Poisonous weeds–Solanumincanum and Daturastramonium, Acacia species– Acacia tortilis, Acacia melifera and Acacia Karki, Shrubs–Banalities aegypttica and Lantana kamara, Horticultural crops like pawpaw, mangoes, maize, oranges, and bananas among others, Indigenous trees like Croton megalocarpus and exotic trees.</p>	<p>According to the 2019 population census, the County had a total population of 987,633.</p> <p>All the major towns lack sewerage facilities, and the sanitation condition is worsened by water shortage.</p> <p>Only 1% of residents in Makueni County use liquefied petroleum gas (LPG), and 3% use paraffin. 85% use fire- wood and 11% use charcoal. Firewood is the major source of cooking fuel accounting for 84.8% of households, followed by charcoal at 11.1% Paraffin is the most used source of energy for lighting in the households at 69% followed by electricity and solar at 5.9% and 3.8% respectively.</p> <p>The county average distance to the nearest health facility is 6 km. There is one county referral hospital, 6 level 4 hospitals, 21 public health centers and 88 public dispensaries. The county has a bed capacity totaling 541. The private and mission/NGO health facilities include 25 hospitals and 49 dispensaries.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>the biggest river in the County. There are other semi-permanent rivers such as Kibwezi and Kiboko rivers.</p>	<p>Climate change and variability: historic and future trends</p> <p>Historic analysis of weather in Makueni county shows that both dry spells and extreme precipitation are hazards in the county. Climate has already been observed to change in the county. Since 1981, the first wet season with predominant high temperature and drought risk has experienced an approximately 10°C increase in mean temperature bringing an associated reduction in crop cycle time and an additional 3-5 days with extreme heat stress (>35°C). Although there was no significant change in precipitation in this season, there was an increase in drought risk due to hotter temperatures. The second wet season experienced a small (< 0.5°C) change in temperature, no increase in heat stress days, and no significant change in precipitation, but continued to be affected by uncertain and highly variable rains. Looking to the future in the years of 2021-2065, prolonged moisture stress is projected to occur across</p>	<p>Agriculture is the main source of income in the County. It accounts for 78% of the total household income followed by wage employment at 10% while rural and urban self-employment contribute eight and four per cent respectively.</p> <p>Agricultural activities practiced in the County include crop farming (cash crops and food crops), livestock keeping (mainly dairy and beef cattle, goats, and poultry), bee keeping, and fish farming.</p> <p>Due to the arid nature of the County, agriculture which is the main economic activity has been performing poorly.</p> <p>The SEAH cases reported in the year 2020 was 322. They include physical assault at 13.7%, sexual assault a 42.5% and emotional assault 43.8%.</p> <p>The county is largely inhabited by the Akamba community with the predominant languages spoken being Kikaamba and Swahili.</p> <p>Environmental Challenges Facing Agricultural Sector</p> <p>The agricultural sector in Makueni is faced with several challenges. Adding to the fact that the County is largely semi-arid, the sector is adversely affected by climatic variation.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>both seasons of the year analyzed especially for first wettest season, whereas intense precipitation looks to change little.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> I. Chyulu Hills National Park 	<p>Unfavourable climatic conditions such as drought, high temperatures, and poorly distributed rainfall in space and time result in low productivity and frequent crop failures. Recurrent dry spells and poor yields are disincentives for farmers to adopt new technologies such as use of improved seeds. This reduces the farmers' adaptive capacity to adverse climate.</p> <p>Drought, heat stress, increased precipitation, moisture stress, and increased temperatures are the most problematic climatic hazards in the County. Analysis of past climatic events and future climatic projections for the County indicate that these hazards are likely to increase in frequency. Past climatic events have shown that drought is more likely to occur in AEZ LH4, LH5 and LM6 which include Makindu, Kalawa, and Mtitu Andei. Increased precipitation is likely to occur in the wetter areas such as Kilungu and Mbooni, which fall under AEZ LH2.</p> <p>Water and Sanitation</p> <p>The available sources of water within Makueni County include dams (sand, earth dams), boreholes, shallow wells, water pans, rivers, springs, rock catchments and roof catchments. The County has one permanent river, the Athi. There are other semi-permanent rivers</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>such as Kibwezi, Kiboko, Kaiti, Muooni, Kikuu/Kiangini, Thange, Kambu, Makindu, Thwake, Mtito Andei and others all of which are seasonal and therefore provide limited surface water resources. There are 5 springs, luani, Umanyi, Kibwezi, Kiboko, Mzima and wetlands in places such as Kiu, Mang'elele and Thange. The County has over 159 dams, 415 boreholes and water pans including some that are privately-owned. About 39% of the County has high groundwater potential. These aquifers are however threatened by degradation of upland water catchments, encroachment and destruction of lowland riparian vegetation, lack of landscape restoration and uncontrolled sand harvesting upon riverbeds.</p> <p>Despite having a dense network of rivers, Makueni is a water scarce County, partly because most water sources are seasonal. It is estimated that the average distance to a water point, particularly in the lowlands, is 5 kilometres. The three water companies (WOWASCO, KIMAWASCO and MBONWASCO) are mandated to supply water within their areas of jurisdiction. The Nolturesh Water and Sewerage Company is shared between Makueni, Machakos and Kajiado Counties. The rural water supply in</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Makueni County is mainly through community water schemes. There are a total of 347-community water schemes in the County.</p> <p>According to the 2014 Kenya Demographic Household Survey (KDHS), majority of the population in Makueni County are using unimproved sanitation facilities with about 2.4% of the population still practicing Open defecation⁴⁷. Makueni County adopted the Open Defecation Free (ODF) Rural Kenya Campaign and initiated CLTS activities in 2016.</p> <p>Overall, majority of the households in Makueni County use pit latrines. The latrine coverage in Makueni County is estimated at 86%. About 24% of the households in the County are reported to have installed hand-washing facilities.</p>
Kitui County		
<p>The climate of Kitui County is hot and dry with unreliable rainfall. The climate falls under two climatic zones i.e., arid and semi-arid with most of the County being classified as arid. The County experiences high temperatures throughout the year, ranging from 14°C to 34°C. The hot months are between September and October to January and February. The maximum mean annual temperature ranges between 26°C and 34°C whereas the minimum mean annual temperature ranges between 14°C and</p>	<p>Kitui County has 14 gazetted forests and 15 ungazetted forests. Taking all forms of forests into account, there are about 34,544.1 ha of forest in Kitui County.</p> <p>While the County does not boast of a great variety in wildlife species, Elephants, Baboons, Buffaloes,</p>	<p>According to KNBS (2019), the county has a population of 1,012,709.</p> <p>Kitui County current water supply and demand using an average consumption of 50 liters per person in urban and 25 liters per person in rural areas stands at 32,176 cubic meters and 12,586 cubic meters respectively. The shortage in urban areas is even worse</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>22°C. July is the coldest month with temperatures falling to a low of 14°C while the month of September is normally the hottest with temperature rising to a high of 34°C. The bulk of the County falls within 1800 to 2200 mm range. The rainfall pattern is bi-modal with two rainy seasons annually.</p> <p>Kitui county has a low-lying topography with an arid and semi-arid climate.</p> <p>The topography of the county can be divided into hilly rugged uplands and lowlands. The general landscape is flat with a plain that gently rolls down towards the east and northeast where altitudes are as low as 400 metres. The altitude of Kitui county ranges between 400m and 1800m above sea level. The central part of the county is characterized by hilly ridges separated by wide low-lying areas and has slightly lower elevation of between 600m and 900 m above sea level to the eastern side of the county. To the western side of the county, the main relief feature is the Yatta Plateau, which stretches from the north to the south of the county and lies between Rivers Athi and Tana. The plateau is characterized by plain wide shallow spaced valleys.</p> <p>Generally, soils are predominantly sandy to a loamy sand texture; hence they are susceptible to erosion and are limited in their capacity to retain water and nutrients. The major soil type of the proposed project area is lixisols (red soils). Alluvial deposits (fluvisols) occur in isolated patches along rivers and on hill slopes. The soils are generally poorly drained and easily eroded by runoff (Borst and De Haas, 2006).</p>	<p>Hippos, Vervet and Sykes monkeys account for the dominant species. These wildlife species are found in Tsavo East, Kora and Mwingi National Game reserves. Elephants, Leopards, buffalos, lions, hyenas are found in South Kitui Game Reserve and Mwingi Game Reserve which borders Meru and Kora reserves. Other wildlife includes Hippos and Crocodiles in Tana River, and various bird species. The flora in the County includes Aloe Vera, Baobab, and Melia volkensii (Mukao).</p> <p>Climate change and variability: historic and future trends</p> <p>Climate projections indicate that temperature and precipitation are expected to increase along with their attendant risks of heat stress and flooding. Though the annual total rainfall trends showed a decrease in the past (1985-2015) for both seasons (Figure 8), an increase of rainfall is projected for both seasons for the periods 2020-2040 and 2041-2060. Annual mean temperatures increased in the past (1985-2015) and are expected to continue to increase in the future</p>	<p>than in rural areas with access to piped water standing at 36.1 % urban and 41.1 % rural. Water management in Kitui is under KITWASCO.</p> <p>The households in Kitui with access to improved and unimproved sanitation services stand at 56.8 % compared to a national average of 65.3 percent.</p> <p>The main sources of energy in the county are: Fuel wood which is mainly in the form of firewood in the rural areas while in urban centers it is sold and used as charcoal; Petroleum products such as kerosene/paraffin, liquefied petroleum gas (LPG), motor gasoline, diesel oil and fuel oil; Electricity of which only a small part of the county is connected to the national grid; and alternative sources of energy such as solar power, biogas and wind power whose potential is yet to be harnessed.</p> <p>Households are currently depending on different sources of income for their livelihoods. Casual labor is the main source of income across the county. Other sources of income included sale of livestock and livestock products, sale of crops especially in mixed farming livelihood zones, petty trading, remittance, and formal employment. In the mixed farming livelihood zone, sale of farm</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>for both seasons. Climate projections indicate an increase of risks of heat stress and flooding.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Tsavo East National Park 2. Mwingi Game Reserve 3. South Kitui Game Reserve 	<p>products that included green grams was pronounced.</p> <p>Kitui County has several hospitals and health centers to meet the health needs of residents, among them Kitui County Referral Hospital, Mwingi Sub-County General Hospital, Kitui Nursing Home, Neema Hospital, Jordan Hospital, mission- run hospitals such as Muthale Mission hospital and some private health centers. Kitui County has commissioned 23 new health facilities to reduce the distance, time, and cost to accessing healthcare services.</p> <p>The main food crops grown in Kitui County include cereals (sorghum, millet, maize); pulses (beans, green grams, pigeon peas, cowpeas); root crops (arrowroot, cassava, sweet potatoes); industrial crops (cotton, sisal, and sunflowers), and horticultural crops such as mangoes, pawpaw, watermelons, tomatoes, kale, onions, and bullet chilies.</p> <p>In the year 2018, the SEAH cases recorded in the county accumulated to 1% against the national average which was 9.2%</p> <p>The county is largely inhabited by the Akamba community with the predominant languages spoken being Kikaamba and Swahili.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Environmental Challenges Facing Agricultural Sector Climatic risks pose a serious challenge to the agricultural sector in the county. Floods can drown livestock and wash away food crops; they destroy farm structures like poultry sheds, cow pens, irrigation infrastructure, and greenhouses. Conversely, drought significantly reduces yields for both rain-fed and irrigated crops, as water resources are not fully recharged during dry periods. Insufficient water affects livestock water and pasture requirements, leading to premature death.</p> <p>Water and Sanitation Water and Sanitation Kitui County current water supply and demand using an average consumption of 50 liters per person in urban and 25 liters per person in rural areas stands at 32,176 cubic meters and 12,586 cubic meters respectively. The shortage in urban areas is even worse than in rural with access to piped water standing at 36.1 % urban and 41.1 % rural. Water management in Kitui is under KITWASCO which is primarily in charge of Kitui sub-counties and KIMWASCO Companies in charge of Mwingi sub-counties. KITWASCO oversees managing water supplies from the Masinga-Kitui water which is an inter-county project while KIMWASCO is</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>in charge of the Inter sub-County project of Kiambere-Mwingi. Other water points producing between 10 and 100 cubic meters daily are managed by Community Management Committees or the Community themselves. The average distance to the nearest water point of 7 kms which is way below the international Standards on access to water. The County government shall institute measures and policies that will favor improvement of the existing situation.</p> <p>Sanitation Proper sanitation and Safe human waste disposal is crucial for human health and well-being of people as it reduces the spread of disease-causing germs. Human waste disposal facilities that are considered improved/adequate include connection to main sewer, septic tanks, ventilated improved pit latrine, pit latrine with slab and composting toilets. Unimproved human waste disposal methods include flushing to other areas, using uncovered pit latrines or bucket toilets and open defecation The households in Kitui with access to improved and unimproved sanitation services stand at 56.8 % compared at a national average of 65.3 percent.</p> <p>Conflict and Tension</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		I. Land and resourced based conflicts
Nyeri County		
<p>The county experiences equatorial rainfall due to its location and being within the highland equatorial zone of Kenya. The long rains occur from March to May while the short rains fall from October to December although sometimes this pattern is occasionally disrupted by abrupt and adverse changes in climatic conditions. The annual rainfall ranges from 500 mm in dry areas of the Kieni plateau to 1,500mm in the Aberdare hills and areas of Mt. Kenya.</p> <p>The climate contains temperatures ranging from an annual minimum of 12oc to a mean of 27oc. It is densely populated with fertile soils especially in the central highland between the Eastern Base of Aberdare range and Western slope of Mount Kenya.</p> <p>The topography in Nyeri County is often characterized by steep ridges and valleys, occasionally interrupted by hills such as Karima. Nyeri and Tumutumu. To some extent these hills affect the pattern of rainfall, thus influencing the mode of agricultural production in some localized areas.</p> <p>The county's water resources consist of permanent rivers such as Sagana, Nairobi, Chania, Gura, Honi and Ragati, among others. The main catchment areas for the rivers are the Aberdare Ranges and Mount Kenya. There are 49 permanent rivers, 32 water dams, 72 boreholes and other various sources including roof catchment. The major rivers found in the county are; sagana and</p>	<p>The county has two forest ecosystems, namely Aberdare and Mt. Kenya. The county also has other Isolated forested hills under the management of County Government such as Karima and Tumutumu.</p> <p>The only dominant wildlife in the area are scavenger birds especially the dumpsite crow, marabou stork and grey heron.</p> <p>Climate change and variability: historic and future trends</p> <p>The main climatic hazards and risks in Kiambu County are droughts, flooding, extreme temperatures, and soil erosion.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Aberdare East National Park 2. Mt. Kenya National Park 	<p>The greater Nyeri county had a population of 693,558 people and a population density of 208 people per sq. as at 2009. Nyeri Town, being the largest urban center and hosting the county headquarters has the highest urban population and density, according to projected population for 2019, the town is home to 123,942 people with a population density of 739 people per sq2</p> <p>The quality of the water is good and suitable for domestic, livestock and irrigation purposes. The average distance to the nearest water point is two. The water and sewerage companies also provide sanitation services.</p> <p>Firewood is the major source of cooking fuel accounting for 84.8% of households, followed by charcoal at 11.1% Paraffin is the most used source of energy for lighting in the households at 69% followed by electricity and solar at 5.9% and 3.8% respectively.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>Chania. These rivers and other numerous streams make the country self –sufficient in surface and subsurface water resources for domestic, agricultural, and industrial development.</p> <p>The soils in the country are generally well drained. Soils at Nyeri are composed of tropical residual red clay soil developed over slightly to moderately weathered volcanic tuff, the soils are Nitisols with associated andosols that support tea and coffee growing in a humid cool temperature climate.</p>		<p>Nyeri County has one level -5 hospital, four level-4 three missions and three private hospitals.</p> <p>The main income source includes small and large, small-scale farming including, crop, livestock, fish production and beekeeping.</p> <p>The agricultural sector is the mainstay of the economy of Nyeri County. Agriculture comprises mainly cultivation of cash and food crops and rearing of livestock and fish. It employs approximately 66% of the labor force and contributes roughly 57% to household incomes (GoK, 2013). The major cash crops grown in the county include tea, mostly grown in Mathira, Othaya and Tetu, coffee is mostly grown all over the county except in Kieni, and horticultural crops (carrots and kales) mostly in Kieni. The major food crops grown in the county include maize, Irish potatoes, beans, and vegetables whereas the major livestock kept include dairy cattle, poultry, goats, pigs, sheep, and donkey.</p> <p>The domestic SEAH at the county stands at 8.6% against 9.2% national tally. Child neglect was the most prevalent at 3.5% followed by defilement at 2.1%, and rape at 1.8% and economic sabotage at 1.2%.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>The majority of Nyeri residents are members of the Kikuyu ethnic group. The most predominant language spoken is Kikuyu along with Kenya's National language, Swahili as well as Kenya's official language, English.</p> <p>Environmental Challenges in Agricultural Sector Unfavourable climatic conditions impose serious consequences on the agricultural sector in Nyeri. This is worsened by over-reliance on rainfall amid weather unpredictability especially in areas such as Kieni where droughts and floods are common. Extreme weather events tremendously reduce the quantity and quality of produce, factors that not only compromise food security and income generation capacity in the area, but also reduction in cultivated land. For example, it has been observed that areas under potato, wheat, sunflower, and beans have been reduced by 40, 70, 30 and 40% respectively due to unfavorable weather (GoK, 2013).</p> <p>Water and Sanitation Water resources The county's water resource comprises of both ground and surface water. Surface water consists of permanent rivers such as Nanyuki, Burguret, Naromoru, Thegu, UwasoNyiro, Karemno, Rwarai, Gikira, Thuti, Kururu,</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Muthira, Sagana, Nairobi, Chania, Gura, Honi and Ragati among others. The main catchment areas for these rivers are the two water towers i.e Aberdare Ranges and Mount Kenya. There are 49 permanent rivers, 77 water dams/ Pans, 72 boreholes and other various sources including roof catchment, Shallow wells, and springs. The quality of the water is good and suitable for domestic, Wildlife, livestock, and irrigation purposes. There are five major supplies of water service providers and four small ones in the county namely; Nyeri Water and Sewerage Company, Tetu-Aberdare water and sanitation company, Mathira water and sanitation company, Othaya-Mukurwe-ini water services company, Narumoru water and sanitation company, Mutitu water and sanitation company, Mwiyo water users association, Zaina Muhoya water users association and Kinaini water users association There are also other Communities based projects and Individual water projects under the department of water and irrigation. A total of 124,886 households have access to piped water.</p> <p>Sanitation</p> <p>The County has only three water and sewerage companies: namely Nyeri Water and Sewerage Company, Mathira water and Sanitation Company and Othaya-Mukurwe-ini water Services Company provide sanitation</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		services. Human waste is well disposed with 97.68 per cent of the county population using covered pit latrines while 2.32 % use conventional waste disposal methods. The peri-urban centers; Karatina, Mukurwe-ini, Chaka, Mweiga and NaroMoru have inadequate sewerage treatment facilities.
Nakuru County		
<p>The climate of Nakuru County is strongly influenced by the altitude and physical features. There are four broad climatic zones namely Zone I Zone 2 Zone 3 and Zone 4. Zone 4 covers areas with an altitude between 2300m and 2700m above mean sea level (amsl), receiving rainfall of over 1400mm per annum.</p> <p>This zone covers Mau Escarpment that is parts of both sub-counties of Kuresoi North and South. Zone 3 receives rainfall of between 1100 and 1400 mm per annum and covers areas with an altitude of between 1800-2300 m above sea level. This zone covers much of the sub-counties of Kuresoi North, Molo, Njoro, Subukia and Bahati and are very suitable for agricultural activities.</p> <p>Zone 2 occupies most parts of Nakuru County with a general elevation of between 900M and 1800m amsl. Zone I has the lowest mean annual amount of rainfall of about 500-800 mm per annum. This zone is predominantly experienced in Gilgil and Naivasha sub-counties.</p> <p>The main topographical features in Nakuru County are the Mau Escarpment covering the Western part of the County, the Rift Valley floor, Ol-Doinyo Eburru Volcano, Akira Plains and Menengai Crater.</p>	<p>Due to its proximity to major lakes and conservation areas such the lake Nakuru National Park and Lake Nakuru to the West, Lake Elementaita to the South East and Soysambu Wildlife Conservancy to the South, the area enjoys a great variety of wildlife.</p> <p>Various species of animals, big and small, inhabit the project area. Notable among these are the Warthog, Dik Dik, Hare, Zebra, Gazelle, Buffalo, Waterbuck, Columbus monkey, the Leopard, Jackal, various rodents, among others. The lion is sometimes also to be found in the park.</p> <p>The two lakes are also home to the lesser flamingo, (Phoeniconaias minor) and the Great White Pelican (Pelicanonocrotalus roseus), which</p>	<p>The County's population according to the 2019 National Population and Housing Census was approximately 2,162,202.</p> <p>The main sources of water for Nakuru County are surface water and groundwater. Surface water is mainly sourced from permanent and seasonal rivers, dams, water pans.</p> <p>There are three County owned water service providers namely Naivasha Water Sewerage and Sanitation Co. Ltd (NAIVAWASS), Nakuru Water Sewerage and Sanitation Co. Ltd (NAWASSCO) and Nakuru Rural Water and Sanitation Co. Ltd (NARUWASSCO).</p> <p>According to KIHBS 2015-16, most of the residents of Nakuru County dispose human waste through pit latrines which are covered at 76.9 percent.</p> <p>Only 30% of residents in Nakuru County use Liquefied Petroleum Gas (LPG), and 5.4% use</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The County boasts of an elaborate drainage and relief system with various inland lakes on the floor of the Rift Valley where nearly all the permanent rivers and streams in the County drain into. These rivers include river Njoro and Makalia which drain into Lake Nakuru, Malewa which drains into Lake Naivasha and Molo River which drains into Lake Baringo among others.</p> <p>Due to its location on the floor of the Rift Valley the area has developed both mature and immature volcanic soils. The current visible topsoils are sandy clay formed out of volcanic ash. Nakuru is located in the midst of a concentration of geographical features together constituting the Lake Nakuru catchment basin. These include the Menengai Crater to the north, the Bahati Highlands to the northeast, the Eburu Hills and Lake Nakuru to the south and the Mau Escarpment to the southwest.</p> <p>The major rivers are; Malewa, Molo, Igwamiti and Njoro. Underground water is sourced from boreholes, springs, and shallow wells.</p>	<p>are classified by CITES as threatened The Park is part of a most familiar national park of Kenya known for its spectacular bird fauna (495 species), particularly the vast flock of the lesser flamingo (<i>Phoeniconaias minor</i>).</p> <p>The County also houses three Ramsar sites namely; Lake Elementaita, Lake Naivasha and Lake Nakuru where various stakeholders have put efforts have been made to ensure that they are conserved.</p> <p>The project area has a variety of indigenous vegetation cover which include grassland donned with scattered trees, <i>Acacia xanthophloea</i> (also known as Naivasha thorn), <i>Euclea divinorum</i>, locally known as Mukinyai, and the <i>Rhus natalensis</i>, known as Muthigio and shrubs (<i>Tarchonanthus camphorates</i>) commonly known as Leleshwa.</p> <p>It has a few standing Warbugia Ugandensis and East Africa Cedar Pencil (<i>Juniperus procera</i>), and Red Oat grass (<i>Themenda triandra</i>), which form over 90% of</p>	<p>paraffin. 39.6% use firewood, 0.1% use solar, 0.4% use biogas and 23.9% use charcoal. Firewood is the most common cooking fuel by gender at 44% in male headed households and 50% in female headed households.</p> <p>There are about 440 health facilities inclusive of 22 level 4 and 5 hospitals.</p> <p>The main livelihood activities in the County are livestock keeping, crop farming, small businesses (retailing) with minimal mining, tourism and industry. The main livestock types in the County are dairy cattle, local poultry, and wool sheep.</p> <p>Agriculture is the backbone of the county's economy with food crops, horticulture and cash crops, dairy, and beef as common products.</p> <p>The County's population according to the 2019 National Population and Housing Census was approximately 2,162,202.</p> <p>The main sources of water for Nakuru County are surface water and groundwater. Surface water is mainly sourced from permanent and seasonal rivers, dams, water pans.</p> <p>There are three County owned water service providers namely Naivasha Water Sewerage and Sanitation Co. Ltd (NAIVAWASS),</p>

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	<p>undergrowth biomass. The national park and the conservancy (Soysambu) host the largest natural plantations of Euphorbia (Euphorbia calodendrum) in the area. The most common species of trees grown by the local residents include Grevillea (Grevillea robusta) and Eucalyptus Species,</p> <p>Climate change and variability: historic and future trends Climate has already been observed to change in the County. Since 1981, the first wet season has experienced a moderate (1°C) increase in mean temperature and associated reduction in crop cycle, a significant increase in heat stress days, and no detectable change in precipitation. The second wet season experienced a mild (~0.5°C) increase in temperature, and no change in precipitation. Looking to the future in the years 2021-2065, prolonged moisture stress is projected to occur across both seasons of the year analysed, whereas intense precipitation looks to change little. Within 30 years (by the early 2040's), temperature is projected to increase by 0.3°C, with the first wet</p>	<p>Nakuru Water Sewerage and Sanitation Co. Ltd (NAWASSCO) and Nakuru Rural Water and Sanitation Co. Ltd (NARUWASSCO).</p> <p>According to KIHBS 2015-16 most of the residents of Nakuru County dispose human waste through pit latrine which are covered at 76.9 percent.</p> <p>Only 30% of residents in Nakuru County use Liquefied Petroleum Gas (LPG), and 5.4% use paraffin. 39.6% use firewood, 0.1% use solar, 0.4% use biogas and 23.9% use charcoal. Firewood is the most common cooking fuel by gender at 44% in male headed households and 50% in female headed households.</p> <p>There are about 440 health facilities inclusive of 22 level 4 and 5 hospitals.</p> <p>The main agricultural activities in the County are livestock keeping, crop farming, small businesses (retailing) with minimal mining, tourism and industry. The main livestock types in the County are dairy cattle, local poultry, and wool sheep.</p> <p>Agriculture is the backbone of the county's economy with food crops, horticulture and cash crops, dairy, and beef as common products.</p>

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	<p>season projected to experience even greater changes. And by this time, precipitation is projected to increase by 0.3% in the first wet season, and 6% in the second wet season.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Lake Nakuru National Park 2. Hells Gate National Park 3. Mount Longonot <p>Ramsar Site</p> <ol style="list-style-type: none"> 1. Lake Nakuru National Park 2. Lake Naivasha 3. Lake Elementaita 	<p>The Kikuyu and the Kalenjin are the dominant communities in Nakuru, making about 70% of the county's population. Both communities are mainly engaged in farming, livestock rearing and trade business. The Ogiek, a vulnerable and marginalized community is found in this county.</p> <p>SEAH (including Domestic Violence) cases in Nakuru County formed 16.1% against a national tally of 9.2%. Other forms e.g., defilement and child abuse recorded 13.9% and 3.9% respectively.</p> <p>Environmental Challenges in Agricultural Sector</p> <p>Reliance on rain-fed agriculture remains a challenge especially when rains tend to be erratic and unpredictable. This affects both the quantity and quality of produce.</p> <p>Water resources</p> <p>The main sources of water for Nakuru County are surface water and ground water. Surface water is mainly sourced from permanent and seasonal rivers, dams, water pans. The major rivers are; Malewa, Molo, Igwamiti and Njoro. Underground water is sourced from boreholes, springs and shallow wells. Nakuru County is supplied with water by various schemes. These include public water companies, community water supply schemes</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>and private water vendors. The County department of Water estimates 63 percent of the population in Nakuru County have access to improved treated water, which is either piped, rainwater, borehole, protected well and protected spring. The 49.5 percent of HH access piped water although the highest percentage is among the urban dwellers.</p> <p>Sanitation According to KIHBS 2015-16 most of the residents of Nakuru County dispose human waste through pit latrine which are covered which is at 76.9 percent. Only 15.3 percent of the HH are connected to the main sewer. However, the number of HH with a place for hand washing near the toilet facility is at 18.6 percent. This poses a great danger that can lead to outbreak of water borne diseases. Therefore, the County has to create awareness on importance of hand washing facilities. Open defecation that was rampant in the rural areas is continuously being managed by the County through the help of development partners and so far, 326 villages across the county have been declared Open Defecation Free.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Land conflicts/clashes 2. Resourced based conflicts
Nyandarua County		

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>Nyandarua County has a cool and temperate climate with reliable rainfall which is generally well distributed throughout the year. In a typical year, the County experiences two rainy seasons: long rains from March to May with a maximum rainfall of 1,600 mm and short rains from September to December with a maximum rainfall of 700 mm. The average annual rainfall of the County is 1,500 mm.</p> <p>The County has a moderate temperature. High temperatures, which are low by national average, are experienced between December and March with the lowest temperatures occurring in July. The highest temperature in December has a mean average of 21.5 degrees centigrade while the lowest in July has a mean average of 7.1 degrees centigrade.</p> <p>The major relief features which consist of Kinangop plateau, the Ol'Kalou Salient Plateau, the Aberdare Ranges and the Dundori Hills influence rainfall distribution in the area, with areas like Njabini and South Kinangop receiving higher amounts of rainfall while areas of Ndaragwa and Ol'Kalou receive comparatively low rainfall. Areas near the Aberdare slopes receive sufficient rainfall with the plateau receiving scanty and erratic rainfall.</p> <p>The topography of Nyandarua County is a mixture of plateaus and hilly areas. The County's physiography was a result of volcanism and faulting that created the major landforms namely: the Great Rift Valley to the west and the Aberdare ranges to the east. The highest point of the Aberdare Ranges is about 3,999 metres above sea level.</p> <p>The Aberdare Ranges are one of the country's major water catchment areas. Moreover, the Aberdare ecosystem constitutes of a dense forest with several animal species including elephants,</p>	<p>Nyandarua County is endowed with one lake namely Lake Ol'Bolossat. It is a freshwater lake home to many flora and fauna species. The County Government plans to invest substantially in the lake after its gazettment to make it a tourist attraction and an investment center. The County Government is determined to achieve food security by ensuring conservation of its natural resources.</p> <p>The county has a rich variety of species of both indigenous and exotic trees including Jacaranda (jacaranda minosofolia), Grevillea (Brachylaena huilenis), Acacia Cypress, and 9 Eucalyptus, among many others providing beautiful sceneries all over the county.</p> <p>The County wildlife conservation areas include the Aberdare National Park and forest and Lake Ol'Bolossat. The Aberdare National Park is managed by the Kenya Wildlife Service (KWS).</p> <p>Climate change and variability: historic and future trends</p>	<p>The population of the County at the last population census of 2009 was 596,268 persons, comprising 292,155 (49%) males and 304,113 females (51%) (Kenya National Population and Housing Census, 2009). The County is categorized as water scarce. The situation has been aggravated by degradation of water catchments leading to reduced ground water recharge.</p> <p>As a result, boreholes have medium to low yields. The main source of water in the County is rainwater which ends up in dams and rivers. A total of 22 rivers flow through Nyandarua County, of which eight are permanent, namely Malewa, Ewaso Narok, Pesi, Turasha, Chania, Kiburu, Mkungi and Kitiri.</p> <p>Main source of cooking energy is firewood while electricity covers 10.5 % of the county and is mainly found in urban centers of Mairi-Inya, Ol'Kalou, Njabini and Engineer and several trading centers located in different parts of the county.</p> <p>There are currently 207 health facilities of which 73 of these are public health facilities.</p> <p>There is a county referral hospital; J.M. Memorial Hospital, a County hospital Engineer</p>

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<p>baboons, Columbus monkeys, tree and ground squirrels, porcupines and many bird species.</p> <p>Ol'Kalou Salient Plateau in the north and Kinangop Plateau to the south stretch north-south between the Aberdare ranges and a system of fault scarps which form the escarpment. Dundori Hills represent a high weathering resistant block of scarp. The two plateaus extend to about 80 km from north to south and about 40 km wide north of Ol'Kalou town.</p> <p>Gentle slopes interrupted by low hills flatten into marshlands and swamps. The rest of the land is well-drained and has fertile soils. The soils in the County are of volcanic origin and vary in both fed distributions. Soils in the Kinangop and Ol'Kalou plateau are poorly drained clay loams. However, Ndaragwa, northern part of Ol'Joro Orok and Ol'Kalou has well drained clay loams.</p> <p>Lake Ol'Bolossat, which is the only lake and the largest water mass in the County, is fed by streams and groundwater seepage from the Aberdare and Dundori hills. Human activities and clearance of the catchment areas for settlement have affected its natural replenishment system. The major rivers within the County originate in the Aberdare Forest and drain to the Ewaso Ng'iro, Rift Valley, and Tana and Athi catchments.</p>	<p>Historic analysis of weather in Nyandarua County shows that both dry spells and extreme precipitation are hazards in the County. Dry spells are longer during the second wet season averaging just over 40 consecutive days of moisture stress but ranging from 30 to 65 days in any given year. The first wet season only experienced just over 30 consecutive days of moisture stress, ranging from under 25 to over 60 in any given year. Extreme precipitation and flood risks moderate in both seasons, being about 25% greater in the first season. In the first season, approximately 50% of the years from 1981-2015 had a day that received greater than 20 mm of precipitation, whereas this only occurred in three years during the second season. Climate has already been observed to change in the County.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Aberdare East National Park 2. Lake Nakuru National Park 	<p>and one faith-based hospital N. Kinangop Catholic Hospital.</p> <p>Agriculture is the major source of livelihood and source of income that drives the county's economy. The county has high potential for agricultural production. Main cash crops and food crops grown include Coffee and tea alongside food crops such as maize, potatoes and beans.</p> <p>The dominant language group in the county include Kikuyu, Luo, Luhya, Kamba and Kisii.</p> <p>According to the county crime outlook, 3.2% of the residents are involved in SEAH against the National tally of 8.3% 4.3% are involved in child abuse against 4.8% national tally.</p> <p>Environmental Challenges in Agricultural Sector</p> <p>Since production is largely rain fed, unfavourable weather conditions resulting from climate change/variation impact heavily on productivity. Cases of total crop failure are very common, resulting from either destruction by frost, pests and diseases (for example the lethal necrosis in maize), and/or drought and floods/intense rain. As a result, farmers are required to use more inputs such as pesticides, herbicides, and fertilizers. This does not only increase the cost of production</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>but also leads to more soil degradation (causing the soil to be more acidic).</p> <p>Water and Sanitation</p> <p>Water resources</p> <p>The County is categorised as water scarce. The situation has been aggravated by degradation of water catchments leading to reduced ground water recharge. As a result, boreholes have medium to low yields. The main source of water in the County is rainwater which ends up in dams and rivers. The County has one lake, about 222 small dams, 280 boreholes, 6,244 shallow wells and 96 springs. Main source of water for domestic use is small dams and shallow wells. Most of the water used is untreated which poses a health risk to the population. About 46,400 households have access to piped water. Most of the households depend on water from shallow wells, dams, springs, roof catchment and rivers.</p> <p>Sanitation</p> <p>Sanitation encompasses maintenance of personal hygiene, safe disposal of liquid and solid waste, control of disease vectors, provision of safe drinking water and provision of hygienic shelter. The main form of disposal of human waste is pit latrines, 92 % of the households have latrines, 3% have flush toilets and there is no sewerage system in the</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>County. On the other hand, 32.8% of Nyandarua's households dispose of their solid waste at garbage pits while 28% of households burn their waste and 25% dispose it in their gardens. The County Government collects garbage for only 2% of the households.</p> <p>Conflict and Tension I. Resourced based conflicts</p>
Kisii County		
<p>The County exhibits a highland equatorial climate resulting into a bimodal rainfall pattern with average annual rainfall of 1,500mm. The long rains are between March and June while the short rains are received from September to November; with the months of January and July being relatively dry. The maximum temperatures in the County range between 21°C-30°C, while the minimum temperatures range between 15°C and 20°C.</p> <p>Kisii County is characterized by a hilly topography with several ridges and valleys. It can be divided into three main topographical zones.</p> <p>The first zone cover areas lying below 1,500m above sea level located on the western boundary and include parts of Suneka, Marani and Nyamarambe Divisions.</p> <p>The second zone covers areas lying between 1,500 -1,800m above sea level located in the Western parts of Keumbu and Sameta Divisions, Eastern Marani and Gucha River basin. The third zone covers areas lying above 1,800m above sea level in parts of Eastern and Southern Keumbu, Masaba and Mosochi Divisions.</p>	<p>There are no gazetted forests in Kisii County. Farmers for a long period of time have been planting blue gum for timber and fuel and fencing purposes. Since the county is densely populated with people practicing intensive agriculture, it is not favorable for wildlife therefore there is no registered game park in the county. Some of the wild animals that do exist like snakes and various species of birds live in the bushy river valleys. The county's landscape however offers scenic beauty.</p> <p>Climate change and variability: historic and future trends Kisii County has recently experienced climate change, such as unpredictable rainfall patterns, untimely onset and cessation of</p>	<p>Based on the 2009 Kenya Population and housing census (KPHC) the county population was 1,152,282 comprising 550,464 males and 601,818 females respectively.</p> <p>Kisii County does not have appropriate drainage systems and most towns in the County have poor drainage. Waste is not properly managed as there are no designated sites for waste disposal. Most households have pit latrines but there is need to connect households to the sewer lines especially in major towns and establish dumping sites.</p> <p>Kisii Teaching and Referral Hospital is the largest government-owned health facility in the county. The town has reputable private hospitals and medical centers.</p> <p>The major livelihood /Income source is in agriculture. The main crops produced in Kisii</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The County is traversed by permanent rivers which flow westwards into Lake Victoria and among the notable ones are Gucha, Mogusii, Riana, Mogonga, Chirichiro and lyabe Rivers.</p> <p>The county lies on a geological base comprising Bukoban, Granitic, and Nyanzian and Kavirondian rocks. The Bukoban type is the youngest and the most dominant. During the pre-cambrian era, some volcanic activity ejected lava which has formed the Nyanzian system rocks.</p> <p>The Kavirondian system consists of alternating bands of grit, sandstone, and mudstone. The rocks underlying this county are of little economic value.</p> <p>Seventy-five per cent of the county has red volcanic soils (nitosols). These soils are deep and rich in organic matter.</p> <p>The rest of the county has clay soils which are poorly drained (Phaeozems), red soils, and sandy soils. There are also black cotton soils (vertisols) and organic peat soils (phanosols) in valley bottoms. The phanosols support brick making, pottery and tile manufacturing in the valley bottoms.</p>	<p>seasonal rainfall, frequent and prolonged dry spells, increased daytime temperatures, extreme rainfall events, and the disappearance of natural water sources.</p> <p>Dry spells, extreme rainfall, moisture stress, and heat stress are the climatic hazards in Kisii County that most affect the key agricultural value chain commodities under consideration</p>	<p>County are maize, bananas, beans, potatoes, tea, sugarcane, coffee, and horticultural crops. However, due to small land holdings, the production is mainly for subsistence and not for commercial purposes.</p> <p>The acreage under cash crops in Kisii County is approximately 17,800ha while the area under food crops is about 72,500ha.</p> <p>The County is largely inhabited by the Abagusii who speak Ekegusii ('Omonwa Bwekegusii'). Among the Abagusii, circumcising boys is an important rite of passage; girls also have a similar rite of passage, undergoing female genital mutilation at an earlier age.</p> <p>The ritual typically takes place every year in the months of November and December, followed by a period of seclusion where boys are led in different activities by older boys, and girls are led by older girls.</p> <p>SEAH: The County records a 14.3 % on SEAH (including domestic violence) and 2.9% of child and other sexual abuse against the national record of 9.2% and 4.3% respectively.</p> <p>Environmental Challenges in Agricultural Sector</p> <p>Despite its key role in Kisii County's economy, the agricultural sector is dogged by</p>

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		<p>many challenges such as climate change. In the recent years, Kisii County has experienced changing weather patterns. Erratic and unpredictable rains have made it difficult to plan for agricultural production. Some of the visible changes associated with climate variability and change include moisture stress, extreme temperatures, limited rainfall, and increased frequency of extreme events such as floods and droughts (ASDSP, 2014). Climatic changes increase the vulnerability of rain-fed agriculture and make it difficult to maintain adequate production.</p> <p>Water and Sanitation Water Resources Water resources comprise of surface, ground and roof catchment. Surface water consists of permanent rivers while ground water consists of springs, wells and boreholes. There are several permanent rivers and streams in the County which drain into Lake Victoria. The major one being River Gucha which originates from Kiabonyoru Hills in Nyamira County and has adequate water for the development of a mini-hydroelectric station. Other major water streams include Mogonga, Mogusii, Riana and Iyabe. The County also has numerous springs and boreholes which are sources of water for both human and livestock. However, most of the water is untreated. There are over 61 functional water schemes in the County, with</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Kisii Water Supply being the major water supply scheme serving sections of Kisii and Nyamira Counties. In Kisii County, the activities of the scheme are limited within Kisii Town and its environs, leaving many parts of the County unsupplied with piped water.</p> <p>Water Sources and Access The average distance to the nearest water point in the County reduced from 2km in 2013 to about 1.5km in 2017. This is as result of the concerted efforts the County has made in water reticulation, drilling boreholes, protection of springs and encouraging drilling of wells and harvesting of rainwater.</p> <p>Sanitation Sanitation refers to the principles and practices relating to the collection, removal or disposal of human excreta, household waste, water and refuse as they impact upon people and the environment. Decent sanitation includes appropriate hygiene awareness and behavior as well as acceptable, affordable and sustainable sanitation services which is crucial for the health and wellbeing of people. Lack of access to safe human waste disposal facilities lead to higher costs to the community through pollution of rivers, ground water and higher incidence of air and water borne diseases. Other costs include reduced incomes because of disease and lower educational outcomes.</p>

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		<p>The focus will be to increase access to improved sanitation by all households and end all incidences of open defecation. According to KIBS (2018), 41.3 percent of households in the County use improved sanitation facilities, compared to 65.2 percent nationally.</p> <p>Conflict and Tension</p> <ol style="list-style-type: none"> 1. Land based conflicts. 2. Cattle rustling/raiding
Kakamega County		
<p>The annual rainfall in the county ranges from 1280.1mm to 2214.1 mm per year. The temperatures range from 18 0C to 29 0C. January, February and March are the hottest months with other months having relatively similar temperatures except for July and August which have relatively cold spells.</p> <p>The altitudes of the county range from 1,240 metres to 2,000 metres above sea level. The southern part of the county is hilly and is made up of rugged granites rising in places to 1,950 metres above sea level. The Nandi Escarpment forms a prominent feature on the county's eastern border, with its main scarp rising from the general elevation of 1,700 metres to 2,000 metres. There are also several hills in the county such as Misango, Imanga, Eregi, Butieri, Sikhokhochole, Mawe Tatu, Lirhanda, Kiming'ini hills among others.</p> <p>Geology of Kakamega Forest Ecosystem can be described by underlying rocks that include basalt, phenolites and ancient gneisses of the Kavirondo and Nyanzian Systems which are</p>	<p>Due to its former connection to the Guinea-Congolian rainforest ecosystem, the Kakamega County Ecosystem is home to many species that are related to the central and West African flora. There are also several endemic species, i.e., animals and plants that are not found anywhere else in the world.</p> <p>More than 120 species of trees have been recorded in the Kakamega County Ecosystem. More than 70% of all plant species are of minor or major medicinal importance. Some of the conspicuous plants are: Whitlow Root (Solanum sessilistellatum) bitter; Spiny bole (Chaetacme aristata) Planch; White Thorn (Acacia sp); Spiny (Acanthus</p>	<p>According to the Census report, the County had a population of 1,660,651 comprising 800,896 males and 859,755 females giving a population distribution of 48% male and 52% female.</p> <p>The county relies on both surface and groundwater sources for its supply. It has the following main sources of water exclusive of the boreholes and springs, Rivers: Yala, Isiukhu, Nzoia, Firatsi, Sasala, Lusumu and Kipkaren. These form the major sources of water for domestic use and irrigation. The quality of water in the county is good for domestic use however, the land use. The main water service provider in the county is Kakamega County Water and Sewerage Company Limited (KACWASCO), which is a County Corporation. The Company supplies</p>

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associated with gold bearing quartz veins. The rocks form moderately fertile clay-loam soils.	<p>Acanthus pubescence; Afromomum sp, Aneilema johnstonii; Antheroma naudinii; Desmondium repandum; Dissotis speciosa; White flowering Commelina (Comelina albiflora); Wild Fig (Ficus thonningi); Gomphocarpus semilunatus; Habenaria malcophylla; Tree Orchid (Tridactyle bicaudata); Impatiens hochstetteri; Lantana (Lantana camara); Klip Dagga (Leonotis nepetifolia); Mussaenda arcuata, Pollia condensate; Tall Woodland Sugarbush (Protea madiensis); Guava (Psidium guajava); Kakamega flame (Spathodea campanulata); Nitobe Chrysanthemum Tithonia diversifolia; Kenaf (Hibiscus cannabinus) amongst many others (Holstein et al, 2010).</p> <p>Like the flora, the fauna of the Kakamega County Ecosystem shows some peculiarities. Birds are numerous with almost over 500 different species.</p> <p>The forest is a designated Important Bird Area (IBA) and out of the 1,065 bird species found in Kenya, 44% (472 species) are found in Kakamega</p>	<p>water to Kakamega Town, Mumias, Navakholo, Butere, Malava and Lumakanda.</p> <p>Wood is the main source of solid fuel for cooking in the county.</p> <p>Kakamega County does not have a referral hospital. It has one County General Hospital, nine (9) sub-county hospitals, nine (9) mission/NGO hospitals, one (1) private hospital, eight (8) nursing homes and twenty-seven (27) public health centers. Agriculture employs over 80 percent of the population in the county mainly in the rural areas.</p> <p>The main crops grown are sugarcane, maize, bean, cassava, finger millet, and sorghum. Maize, and sugarcane are generally grown on large-scale farms while bean, millet, and sorghum are grown on small-scale farms. The main cash crops are maize, tea, and sugarcane. The total acreage under food crops is 114,053.6 ha while the land under cash crops is 141,429.7 ha, the total cropped area being 255,483.30ha</p> <p>The main challenge facing farming in the county is the collapse of the giant Mumias Sugar Company leading to massive losses of jobs. Others include the high cost of farm inputs and unreliable market for farm produce.</p>

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	<p>County. Some of these bird species like the Turner's Eremomela and Chapin's Flycatcher globally threatened species, in addition to 15 species regionally threatened, and 46 unique species recognized in Kenya that are endemic to Kakamega. The forest is also home to globally threatened bird species, Turner's Eremomela (Eremomela turnei) and Chain's Flycatcher (Musicscape lendu); a further 15 species regionally threatened, and 46 species known in Kenya only from the forest. Most of these species are found in plantations of mixed indigenous tree species.</p> <p>Climate change and variability: historic and future trends Analysis of historic climate data for Kakamega in recent decades shows that both first and second season means temperatures have increased by approximately 0.4 and 0.3°C respectively. These changes have resulted in a moderate increase in heat stress days during those periods. Analysis of rainfall over a 35- year period (1981-2015) showed that average rainfall had increased by over 15 percent in the</p>	<p>According to the county crime outlook (2018), 5.8% SEAH cases were reported against the national tally of 9.2%. The most prevalent is rape at 2.3%, followed by wife battering at 2.4 and economic sabotage at 1.1%.</p> <p>The dominant language group in the county include Luhya, Luo, Kalenjin and Kisii.</p> <p>Environmental Challenges in Agricultural Sector The main challenges to agricultural production in the county include low crop productivity due to declining soil fertility.</p> <p>Water and Sanitation The county relies on both surface and ground water sources for its supply. It has the following main sources of water exclusive of the boreholes and springs, Rivers: Yala, Isiukhu, Nzoia, Firatsi, Sasala, Lusumu and Kipkaren. These form the major sources of water for domestic use and irrigation. The quality of water in the county is good for domestic use however, the land use practices including increase in use of chemicals in agriculture sector as well as waste water by industries tend to pollute the water as it flows downstream. Additionally, our water sources are not used sustainably due to the dilapidated infrastructure of the distribution system, inadequate storage, illegal water connections,</p>

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	<p>first season and 30 percent in the second season.</p> <p>Climate projections for the period 2021-2065 based on two representative concentration pathways (RCPs15) indicate that in the future, moisture stress, extreme rainfall, and changes in the seasons are expected to occur depending on the emissions pathway.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> I. Kakamega Forest National Reserve 	<p>wasteful water use and vandalism of the infrastructure leading to approximately 53% water losses.</p> <p>The main water service provider in the county is Kakamega County Water and Sewerage Company Limited (KACWASCO), which is a County Corporation. The Company supplies water to Kakamega Town, Mumias, Navakholo, Butere, Malava and Lumakanda. Currently the water company supplies approximately 78% of the consumers mainly in the peri-urban and small towns of the county. The rural areas are mainly supplied by community water projects, NGO's, private sector actors as well as self-supply through hand dug wells and so on. The rural water sub-sector is marred by low un-functionality rates due to poor management of the water supply projects and schemes, inefficient technologies and weak governance.</p> <p>Sanitation</p> <p>Findings from a study conducted in Kakamega County by KNBS in conjunction with UNICEF (MICS) in 2013/2014 indicate that 65 % of the population are living in households using improved sanitation facilities. This proportion represents 68% in urban areas (46 % use improved pit latrines with slabs while 31 % use pit latrines without slab/open pit) and 63 % in rural areas (55 % use pit latrines with slabs</p>

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		<p>while 37 % use unimproved pit latrines without slab/open pit). Other improved sanitation facilities such as flush/pour flush facilities (12 %) and ventilated improved pit latrine (9 %) are less commonly used. The study further points out that about 1 % of the population have no toilet facilities and practice open defecation. The data indicates use of sanitation facilities as Piped Sewer (4.0 %), Septic Tank (1.9 %), Ventilated Improved Pit Latrine (7.9 %), Pit latrine with Slab (51.2 %), Pit Latrine without Slab/Open Pit (34.0%) and Open Defecation (1 %). Piped sewer system within the County is found in the urban areas of Lurambi and Mumias West sub-counties.</p> <p>Conflict and Tension I. Resourced based conflicts</p>
Busia County		
<p>Busia County receives annual rainfall of between 760 millimeters (mm) and 2000 mm. 50% of the rainfall falls in the long rain season which is at its peak between late March and late May, while 25% falls during the short rains between August and October.</p> <p>The temperatures for the whole county are homogeneous. The annual mean maximum temperatures range between 26°Celsius and 30°Celsius while the mean minimum temperature range between 14°Celsius and 22 °Celsius.</p> <p>Most parts of Busia County fall within the Lake Victoria Basin. The altitude is undulating and rises from about 1,130 metres (m) above</p>	<p>Busia County is well renowned for its wide range of biodiversity. The riverine ecosystems and their associated wetlands have a total 209 species of plants recorded belonging to 47 families and 151 genera. The dominant species in these ecosystems are Cyperus papyrus, C. latifolius and Phragmites mauritianum. Other includes C. articulatus, C. dives, Echinochloa pyramidalis, Leersia hexamer,</p>	<p>The 2009 population of Busia County was estimated to be 743,946 with females numbering 387,824 (52.13%) and the males numbering 356,122 (47.87%) respectively. By the Year 2020, the population is projected to grow to a total of 899,525 (437,291 males and 462,064 females).</p> <p>The main source of energy is firewood with 95% of the households of rural population relying on it for cooking and heating. About 60% of the population in rural areas rely on</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>sea level at the shores of Lake Victoria to a maximum of about 1,500 metres (m) in the Samia and North Teso Hills.</p>	<p>Mimosa pigra, Persicaria decipiens, P. setosula, and Typha domingensis. Most of the species (72.1%) are herbaceous while shrubs and trees or woody climbers are few.</p> <p>Busia ecosystems used to be inhabited by 20 mammalian species about 30 years ago. However, hunting of animals and birds coupled with recent landscape changes due to climate change and expansion of human settlement occasioned by increasing population, has led to some species of animal and birds disappearing or reducing in number. Antelopes, gazelles, zebras are some of the animals that have completely disappeared from the Busia ecosystem.</p> <p>Climate change and variability: historic and future trends</p> <p>Busia continues to suffer low agricultural productivity due to declining soil fertility and extreme climate events mostly drought and floods. Historical data shows that drought frequency has remarkably increased from every 10 years to every 2-5 years. The flood-prone</p>	<p>kerosene as the main source of lighting. Only 49% of the county residents have access to main grid electricity. The county has not made sufficient attempts at exploiting the available renewable energy resources.</p> <p>Households with latrines account for 34.3% of the population. The sanitation facilities used include pit latrines which account for 25.8%, uncovered pit latrines (13.5%), covered pit latrines (12.3%), VIP (6.5%) and 0.2% flush toilets. Waste/garbage disposal is done by public garbage and heap burning which accounts for 19.7%, garbage pit (12.1%), farm garden (8.9%), public garbage heap (1.9%) and 0.4% disposed of by local method. Busia has been declared an open defecation free county.</p> <p>There are 81 health facilities in the County. Malaria and Road, Traffic and Accidents (RTAs) are among the top causes of morbidity and mortality in Busia County. Other common diseases include Respiratory infections and skin diseases. Most of the diseases are caused by poor hygiene.</p> <p>Fishing is the main source of livelihood in the County and Lake Victoria is the main source of fish in the county. This is, however, facing challenges in terms of fish processing and storage.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>areas like Budalangi are expected to have more floods.</p>	<p>Being the entry points between Kenya and Uganda, agriculture, fishing, and trade are the main economic activities in the County. Crops grown within the county in small scale i.e., maize, beans, sweet potatoes, millet, cassava, cotton, tobacco, and sugar cane covers 68%. The collapse of Mumias Sugar Company leading to massive losses of jobs also affected farmers in Busia County. Others include the high cost of farm inputs and unreliable market for farm produce mainly due to cheap imports from Uganda.</p> <p>The county is predominantly inhabited by the Luhya and Teso. Other inhabitants include the Luo, Kikuyu, Somali and Kisii</p> <p>SEAH in the county stands at 15.9% against 9.2%, rape 21.8% against 12.9% and assault at 17.1% against 15.7% national tally.</p> <p>Environmental Challenges in Agricultural Sector</p> <p>Some of the drier parts of the County, such as Butula, Bunyala and Samia are also the most susceptible to soil erosion. Soils are generally thin (the bedrock is close to the surface) and have low levels of fertility. At the same time, clearing of land for agriculture in these near-ASAL zones and spiking demand for firewood have depleted vegetative cover.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Water and Sanitation</p> <p>There are two main existing water supply schemes in Busia County. The Sio River Water Supply that serves Busia Town and its environs and the Bunyala Supply Scheme that serves Port Victoria Town. The National Government has recently launched two more schemes in the county. Kocholia Irrigation Scheme on River Malakisi, which aims to supply water to 10,000 people and Ang'ololo Scheme on River Malaba that will serve residents of Kenya and part of Uganda.</p> <p>Accessibility of water by citizens in the county currently standards at 42% of which 81.6% is improved water sources. The main water sources in Busia are surface water, ground water, and runoff water. There are three main rivers in the county namely, Malakisi, Nzoia and Sio. Other sources include protected springs, dug well or rural piped schemes. Lake Victoria is an important resource for the people of Busia. The main source of drinking water in Busia County is borehole (46%) while other sources include: rivers (19.1%), springs (22.3%) and piped water (12.5%). Most of the water is not clean, therefore most people treat their water with chlorination being the most preferred method. Other methods for treating water includes boiling and decanting.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		Households with latrines account for 34.3% of the population. The sanitation facilities used include pit latrines which account for 25.8%, uncovered pit latrines (13.5%), covered pit latrines (12.3%), VIP (6.5%) and 0.2% flush toilets. Waste/garbage disposal is done by public garbage and heap burning which accounts for 19.7%, garbage pit (12.1%), farm garden (8.9%), public garbage heap (1.9%) and 0.4% disposed by local method. Busia has been declared an open defecation free county. Sanitation is a constitutional right in Kenya, the responsibility for which rests on the shoulders of the County Government.
Kiambu County		
The county experiences bi-modal type of rainfall. The long rains fall between Mid-March to May followed by a cold season usually with drizzles and frost during June to August and the short rains between mid-October to November. The annual rainfall varies with altitude, with higher areas receiving as high as 2,000 mm and lower areas of Thika Town constituency receiving as low as 600 mm. The average rainfall received by the county is 1,200 mm. The mean temperature in the county is 26°C with temperatures ranging from 7°C in the upper highlands areas of Limuru and some parts of Gatundu North, Gatundu South, Githunguri and Kabete constituencies, to 34°C in the lower midland zone found partly in Thika Town constituency (Gatunyaga), Kikuyu, Limuru and Kabete constituencies (Ndeiya and Karai).	Biodiversity of the county is highly influenced by the Aberdares ecosystem with respect to indigenous plant cover species. However, due to human activities, the indigenous plant species have been displaced by exotic species that have also acquired economic values among the communities. Such plant species include tea, coffee, Eucalyptus spp, Cypress spp, Casuarina spp and grevillea spp and wattle tree species. Other plant features include grass species, ferns, napier grass, avocado, banana, yams (mainly in the river floodplains),	According to the 2019 Kenya Population and Housing Census, Kiambu County population stood at 2,417,735, composed of 1,187,146 males and 1,230,454 females. Kiambu county 98 percent coverage of electricity with effective coverage on the last mile programme. The total household connected to electricity is 70 percent, and this number is expected to rise to 100 percent in the year 2022. The county has public and private health facilities spread across the county. In total, there are 505 health facilities; 108 are public health facilities, 64 are faith-based health

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>Kiambu County is divided into four broad topographical zones, Upper Highland, Lower Highland, Upper Midland and Lower Midland Zone.</p> <p>The Upper Highland Zone is found in Lari constituency, and it is an extension of the Aberdare ranges that lies at an altitude of 1,800-2,550 meters above sea level. It is dominated by highly dissected ranges, and it is very wet, steep and important as a water catchment area. The lower highland zone is mostly found in Limuru and some parts of Gatundu North, Gatundu South, and Githunguri and Kabete constituencies. The area is characterized by hills, plateaus, and high-elevation plains. The area lies between 1,500-1,800 meters above sea level and is generally a tea and dairy zone though some activities like maize, horticultural crops and sheep farming are also practiced.</p> <p>The upper midland zone lies between 1,300-1,500 metres above sea level, and it covers mostly parts of Juja and other constituencies with the exception of Lari. The landscape comprises volcanic middle level uplands. The lower midland zone partly covers Thika Town (Gatunyaga), Limuru and Kikuyu constituencies. The area lies between 1,200-1,360 metres above sea level. The soils in the midland zone are dissected and are easily eroded. Other physical features include steep slopes and valleys, which are unsuitable for cultivation. Some parts are also covered by forests.</p> <p>The county is covered by three broad categories of soils which are: high level upland soils, plateau soils and volcanic footbridges soils. These soils are of varying fertility levels with soils from high-level uplands, which are from volcanic rocks, being very fertile. Most parts of the county are covered by soils from volcanic</p>	<p>cassava, sugar cane, pineapple, arrowroots, and coffee).</p> <p>Kiambu County has few wildlife resources mainly in Lari Sub County. An example is Kinale forest whose ecosystem constitutes of a dense forest with elephants, hyenas, bush baby, baboons, colobus monkeys, dik-dik, bush pigs, tree and ground squirrels, porcupines, and many species of birds such as weaver, guinea fowls, sparrow among others.</p> <p>Climate change and variability: historic and future trends</p> <p>The main climatic hazards and risks in Kiambu County are droughts, flooding, extreme temperatures, and soil erosion.</p>	<p>facilities and 333 are private health facilities. The public health facilities are broken down as follows as per the KEPH levels.</p> <p>Most of the employees in Kiambu are wage earners. These people are not employed permanently and are supposed to be paid daily. Their wages are based on agricultural legal notice.</p> <p>Agriculture is the leading economic activity in Kiambu County, contributing about 17% of the population's income. The area under agricultural production is 1880 ha, which is 74% of the total land area. Agricultural productivity in Kiambu is greatly affected by land degradation, poor access to agricultural inputs, limited credit access, crop and livestock diseases, and climate hazards.</p> <p>The county is 40% rural and 60% urban owing to Nairobi's consistent growth Northwards. The Kikuyu are the dominant tribe in the county.</p> <p>The Kikuyu believe in an omnipotent creator god, Ngai, and in the continued spiritual presence of ancestors. The Waata, a vulnerable and marginalized community is found in this county.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>footbridges. These are well drained with moderate fertility. They are red to dark brown friable clays, which are suited for cash crops like coffee, tea, and pyrethrum.</p> <p>The geology of the area is part of the eastern border zone of the Rift Valley, filled with kainozonic volcanic and sediments underlying the upper Athi generating good aquifers. Soils on the other hand develop from weathering activities of the volcanic rocks and are highly fertile with high levels of perforation.</p> <p>Kiambu County is endowed with both surface and ground water resources. The county has sixteen permanent rivers originating from Aberdare Ranges, which is the main water tower for the county. The major rivers that meet the county water demand are Ndarugũ, Thiririka, Ruiru, Kamiti and Kiu, all of which eventually drain into Athi River, and five major wetlands are; Kikuyu, Lari, Theta, Kiganjo and Gacii wetlands.</p> <p>The eastern part of the county that includes Thika, Gatundu, Ruiru and Juja is well endowed with surface water from Chania, Thika, Karimenu, Ruabora, Ndarugu, Thiririka, Theta, Mukuyu, Ruiru rivers. The western part of the county that includes Limuru, Kikuyu, and Kiambu, Karuri, Lari and Githunguri areas has limited surface sources; hence rely on underground water sources mainly boreholes</p>		<p>SEAH cases reported in the county formed 5.7 % of the total cases in the county against a national average of 9.2%. Rape cases formed 8.8% of the total criminal cases.</p> <p>Environmental Challenges in Agricultural Sector</p> <p>Kiambu County's agricultural sector is faced with institutional, economic, political, geographical, and climatic challenges. Erratic weather patterns have disrupted planting calendars in the County. Overdependence on rainfall, especially in the dry areas of Juja and Thika, exacerbates the disruption of unpredictable weather.</p> <p>Water</p> <p>Kiambu County is endowed with both surface and ground water resources. The county has sixteen permanent rivers originating from Aberdare Ranges, which is the main water tower for the county. The major rivers that meet the county water demand are Ndarugũ, Thiririka, Ruiru, Kamiti and Kiu, all of which eventually drain into Athi River, and five major wetlands are; Kikuyu, Lari, Theta, Kiganjo and Gacii wetlands. The county is endowed with 16 permanent rivers; the distance covered to access water from the nearest water accessibility point differs from one Sub County to another. The shortest distance covered is less than a kilometer while the largest in about</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>2.5 kilometers. In Gatundu North, Gatundu South, Limuru, Lari, Githunguri and Kiambaa sub counties, the distance is approximately 2 kilometers. In Juja, Thika and Ruiru sub counties the distance to the nearest water point is less than a kilometer. In Kiambu and Kabete sub counties the distance is approximately 1.5 kilometers while Kikuyu records the longest distance of about 2.5 kilometers.</p> <p>Sanitation Kiambu County is considered as 60% urban with numerous peri-urban centres mushrooming rapidly due to land use changes. There are twelve main urban centres within the county out of which five, namely, Thika, Kiambu, Limuru, Ruiru and Juja urban centres have convectional sewer treatment system. Apart from Ruiru and Juja treatment works the rest of the treatment works are old and currently treating beyond their design limits. Kiambu sewer treatment works was constructed in 1974 with a design capacity of 1,000m³/day. It's currently receiving 2,200m³/day; Limuru was commissioned in 1984 with a design capacity of 540m³. It's currently receiving 2000m³/day; Thika was constructed 1978 with a design capacity of 6,100m³/day. The treatment facility is currently receiving 8,000m³/day. To address the shortfalls, Thika treatment works is</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		currently undergoing improvement through donors funding.
Embu County		
<p>The rainfall pattern is bi-modal with two distinct rain seasons. Long rains occur between March and June while the short rains fall between October and December. Rainfall quantity received varies with altitude averaging to about 1,067.5 mm annually and ranging from 640 mm in some areas to as high as 1,495 mm per annum. Temperatures range from a minimum of 12oC in July to a maximum of 30oC in March with a mean average of 21oC.</p> <p>Embu County is characterized by highlands and lowlands and slopes from North-West towards East and South-East with a few isolated hills such as Kiambere and Kiang'ombe. It rises from about 515m above sea level at the River Tana Basin in the East to 5,199m at the top of Mt. Kenya in the NorthWest. The southern part of the county is covered by Mwea plains which rise northwards, culminating in hills and valleys to the northern and eastern parts of the county.</p> <p>There are also steep slopes at the foot of Mt. Kenya. The County is served by six major rivers which are Thuci, Tana, Kii, Rupingazi, Thiba and Ena. There are also some major dams which generate hydroelectric power for the country that are partly in the county. These include Masinga, Kiambere, Kindaruma and Gitaru dams which are situated along the Tana River. The most conspicuous physical features in the county are Mt. Kenya, Kiang'ombe hills, Kiambere hills, Mwea game reserve, River Tana, Masinga dam, Kamburu dam, Kindaruma dam, Kiambere dam and Gitaru dam.</p>	<p>Two national parks namely, Mwea and Mt Kenya that are managed by KWS have great potential for the tourism industry in the county. Mwea game reserve is home to species such as the Elephant, lesser kudu, Nile crocodile, hippo, giraffe, Burchell's zebra, buffalo, leopard, grey duiker, black-backed jackal, bushbuck, waterbuck, olive baboon, sykes' monkey, serval cat, spotted hyena, warthog, rock hyrax, bush pig, impala, and hartebeest. Rare animals like; Stripped ground squirrel, Genet cat and Black backed jackal yellow baboons.</p> <p>Over 200 species of birds are also to be found in the reserve which is renowned for its waterbirds and waders.</p> <p>Exotic species mainly Eucalyptus SPP, Acacia SPP and Sena SPP are found here</p> <p>Climate change and variability: historic and future trends</p>	<p>The 2019 Population and Housing Census recorded a population of 608,599 persons for Embu County.</p> <p>The main sources of drinking water in the county include rivers, dams, piped water, boreholes, springs, wells, and pans. The County is served by six major rivers; Thuci that borders Tharaka- Nithi that borders, Tana that borders Machakos County, forms the boundary to Kirinyaga County, Rupingazi forms the boundary to Kirinyaga, Thiba and Ena. These major rivers originate from Mt. Kenya Forest in Manyatta and Runyenjes sub-counties, 30.1 percent of the population get water from rivers, 35. Percent from piped water and 21 percent from dug wells.</p> <p>Majority of the people in the county use pit latrines for human waste disposal.</p> <p>The main source of energy is firewood (80.4 percent) while electricity coverage is more confined to urban areas as compared to rural areas.</p> <p>The county has one level five hospital, 4 level four, 11 level 3 hospitals, and 77 level two</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>Embu County depicts two distinct areas with different agro-climatic and natural characteristics. The County has a typical agro-ecological profile of the windward side of Mt. Kenya, from cold and wet upper zones to hot and dry lower zones in the Tana River Basin. The average annual rainfall reflects this contrast: from more than 2200 mm at 2500 m to less than 600 mm near the Tana River at 700 m. The variation is mainly due to the mountain but also to the “water recycling” effect of the forest by evapo-transpiration. Above 2500 m, rainfall decreases due to the lower moisture content of the colder air and the stronger influence of the trade wind system, but nevertheless the area is still very wet.</p>	<p>Embu is already experiencing short term impacts from an erratic climate with cycles of droughts and crop failure in Mbeere North and Mbeere South sub-counties. Current impacts on development and livelihoods from weather events in Embu may be extrapolated into even more extreme scenarios with the future impacts of human-induced climate change.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Mwea National Reserve 2. Mt.Kenya National Park 	<p>hospitals. This gives the total of 93 county public health facilities with Mbeere South subcounty having the largest number of health facilities followed by Runyenjes sub-county with 25, Manyatta sub-county with 23 while Mbeere North Sub County has 17 public health facilities.</p> <p>Diseases of the respiratory system account for the largest share of diseases affecting the general populace accounting for 57.23 percent of the five most common diseases. Diseases of the skin account for 14.12 percent while intestinal diseases account for 11.72 percent.</p> <p>Agriculture is the mainstay of the county and livelihood of the people. The sector employs 70.1% of the population and 87.9 %of the households are engaged in agricultural activities.</p> <p>Embu County is dominated by Embu people and the Mbeere people. In essence Embu County encompasses the ethnic Kîembu dialect (Embu proper) and the Kimbere dialect spoken by their Mbeere counterparts</p> <p>Cases of SEAH reported in the county as at 2018 was 33.8% against the national tally of 9.2%. Rape and defilement recorded 4.4% and 3.1 % respectively.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Environmental Challenges in Agricultural Sector Embu County has the potential to feed itself and export surplus to neighbouring counties. However, the County faces some serious challenges in the agricultural sector that limit productivity. As much as 80% of the population is food secure, the remaining 20% of the population faces perennial food shortages and insecurity due to low productivity. This is mostly felt in the hot and dry semi-arid lower zones of the Tana River Basin, Mbeere North and South which have unreliable rainfall patterns. The cold and wet AEZ (LH1) of the County such as Manyatta and Runyenjes and the warm and humid AEZs (UM1, UM2, UM3 and UM4) also face some challenges that deter them from reaching their potential.</p> <p>Water and Sanitation Water resources: The main sources of drinking water in the county include rivers, dams, piped water, boreholes, springs, wells and pans. The County is served by six major rivers; Thuci that borders TharakaNithi that borders, Tana that borders Machakos County, forms the boundary to Kirinyaga County, Rupingazi forms the boundary to kirinyaga, Thiba and Ena. These major rivers originate from Mt. Kenya Forest in Manyatta and Runyenjes sub-counties, 30.1 percent of the</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>population get water from rivers, 35. Percent from piped water and 21 percent from dug well. In Mbeere North and Mbeere South constituencies, 40.4 percent get water from rivers, 8.2 percent from piped water, 23.7 percent from dug wells and 10.9 percent from boreholes.</p> <p>Sanitation According to the 2009 Population and Housing census, majority of the people in the county use pit latrines for human waste disposal. In Manyatta and Runyenjes sub-counties, 2,935 persons used main sewer, 3,676 used septic tanks, 412 used pools, 9,067 used VIP latrine, 63,581 used pit latrines, while 267 used other methods of human waste disposal such as bucket and bush. In Mbeere North and Mbeere South sub-counties, 329 persons use main sewer, 400 use septic tanks, 57 use cess pools, 3,173 use VIP latrines, 45,504 used pit latrines, while 2,082 persons used other methods of human waste disposal such as buckets and bush. Of all urban centres in the county, only Embu has a sewage treatment plant that does not have adequate capacity to serve the whole town. Over the years sanitation has significantly improved in the county and this can be seen from improved latrine coverage from 2016 in areas such as Evurore, Gachoka, and Kanyuambora. Manyatta sub-county has the highest number</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		of residents using improved sanitation, while in Mbeere north and Mbeere south most residents use poor sanitation methods, and this is due to inadequate water. Hand washing and use of soap remains poor in most sub-counties at around 40%. Embu County only has one sewage treatment plant which is in Embu, and it lacks the capacity to adequately serve the entire county.
Kirinyaga County		
<p>The county lies between 1,158 metres and 5,380 metres above sea level in the South and at the Peak of Mt. Kenya respectively.</p> <p>The county has a tropical climate and an equatorial rainfall pattern. The climatic condition is influenced by the county position along the equator and its position on the windward side of Mt Kenya. The county has two rainy seasons, the long rains which average 2,146 mm and occur between the months of March to May and the short rains which average 1,212 mm and occur between the months of October to November. The amount of rainfall declines from the high-altitude slopes of Mt. Kenya towards the Semi-arid zones in the eastern part of Mwea constituency. The temperature ranges from a mean of 8.10C in the upper zones to 30.3C in the lower zones during the hot season.</p> <p>The county has six major rivers namely, Sagana, Nyamindi, Rupingazi, Thiba, Rwamuthambi and Ragati, all of which drain into the Tana River.</p>	<p>The county is well endowed with a thick, indigenous forest with unique types of trees covering Mt. Kenya.</p> <p>Mt. Kenya Forest covers 350.7 Km2 and is inhabited by a variety of wildlife including elephants, buffaloes, monkeys, bushbucks, and colorful birds while the lower parts of the forest zone provide grazing land for livestock.</p> <p>Mt. Kenya National Park is a habitat to a variety of birds, elephants, buffaloes, hippos, monkeys, bushbucks, crocodiles, and snakes.</p> <p>Climate change and variability: historic and future trends</p>	<p>The population of the county stood at 610,411 persons with an annual growth rate of 1.5 percent.</p> <p>All the major towns and urban centres in the county such as Kerugoya, Sagana, Wang'uru, Kianyaga, Kimunye, Kagio, Kutus, and Kagumo are connected with electricity, however the major source of energy in the county is firewood which is used by 105,756 households followed by charcoal and gas used by 59,579 households and 28,987 households respectively.</p> <p>There are 202 health facilities in the county with a total bed capacity of 764 comprising 109 public health institutions, 39 mission/NGO institutions the largest one being Mwea Mission hospital and 54 private clinics. There are 3 level four facilities located</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The geology of the county consists of volcanic rocks, which influence formation of magnificent natural features such as “Ndarasa ya Ngai’ (God’s bridge)” along Nyamindi River, and the seven spectacular waterfalls within the county.</p>	<p>Climate has already been observed to change in the county. Since 1981, the first wet season has experienced a moderate (1°C) increase in mean temperature and associated reduction in crop cycle, a significant increase in heat stress days, and no detectable change in precipitation. The second wet season experienced a mild (~0.5°C) increase in temperature, and no change in precipitation. Looking to the future in the years of 2021-2065, both extreme precipitation and prolonged moisture stress are projected to occur, but the changes are quite different during different seasons. Within 30 years (by the early 2040's) temperature is projected to increase by 0.3 °C, with the first wet season projected to experience even greater changes. And by this time, precipitation is projected to decrease by 0.4% in the first wet season, and increase of 25% in the second wet season.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> 1. Mount Kenya National Park 2. Mwea National Reserve 	<p>in Kirinyaga Central, Gichugu and Mwea Constituencies in addition there is one private hospital namely Mt. Kenya hospital located in Kerugoya town. In addition to these, there are 10 level three facilities, 45 level two facilities and 51 level one facilities which are spread all over the county.</p> <p>Agriculture is one of Kirinyaga County’s most important economic sectors. Agriculture contributes to the income of 72% of households, and 87% of the total population depends on the sector to earn a living. Approximately 68% of all households, or 139,866, practice farming (KNBS, 2019a). Around 32% of the population, or 193,257 people, are employed in the agriculture sector, compared to 4% engaged in wage employment. The area of agricultural land under subsistence farming is 52,890 ha, while the area under commercial farming is 26,670 ha (KNBS, 2019a).</p> <p>Kirinyaga County is predominantly inhabited by the Agikuyu Community. The dominant language being Agikuyu and Swahili. SEAH formed 33.8% of all the criminal cases in the County. This was against the national average of 9.2%. Other forms of SEAH reported in the County including rape, defilement formed 4.4% and 3.1% respectively.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>Environmental Challenges in Agricultural Sector Erratic and unpredictable rains have made it difficult to plan for agricultural production. Some of the visible changes associated with climate variability and change include moisture stress, extreme temperatures, limited rainfall, and increased frequency of extreme events such as floods and droughts (ASDSP, 2014). Climatic changes increase the vulnerability of rain-fed agriculture and make it difficult to maintain adequate production</p> <p>Water and Sanitation Water resources and quality There are six main rivers in the county namely: Sagana, Nyamindi, Rupingazi, Thiba, Rwamuthambi and Ragati, which ultimately drain into the Tana River. These rivers are the principal source of water. Other resources are unprotected springs which are 29 in number, 12 water pans, 3 dams, and 208 shallow wells, boreholes, and protected springs. Water quality in the county is good in the upper parts where there are numerous springs, but in the lower parts of Mwea Constituency where the main source are rivers, Thiba and Nyamindi, the water is contaminated due to use of fertilizers and pesticides in irrigation. Water supply schemes: The water in the rivers has been harnessed through canals to provide water to the lower</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>zones of the district especially in Mwea for irrigation purposes. Domestic water has also been tapped from these rivers using piped schemes. The piped schemes supply 51,515 households.</p> <p>Sanitation There is no sewerage system in the entire county and the households with flush system construct their own septic tanks. About 90 percent of the households use a pit latrine, while 6.2 percent use VIP latrines. The proportion with flush toilets is 3.3 percent, Bucket 0.2 percent while 0.4 percent of the population has no form of sanitation.</p>
Muranga County		
<p>The County lies between 3,353m above sea level, in the West along the slopes of Aberdare Mountains and 914m ASL in the East.</p> <p>The western highlands have deep dissected topography and drain into various rivers. These rivers flow from Aberdare ranges to the West, South Eastward and drain into the Tana River. The County's geology and basement system comprises volcanic rocks of the Pleistocene age and Achaean rock type respectively. The western part of the County bordering Aberdares is characterised by volcanic rocks while Eastern part is composed of the rocks of the basement system. Porous beds and disconformities within the volcanic rock system form important aquifers, collecting and moving groundwater, thus regulating water supply from wells and boreholes.</p>	<p>The County has three climatic regions: The western region with an equatorial type of climate, the central region with a sub-tropical climate and the eastern part with semi-arid conditions. Long rains fall in the months of March, April and May. April reliably records the highest amount of rainfall.</p> <p>The short rains are in the months of October and November. The Western region covering Kangema, Gatanga, and higher parts of Kigumo</p>	<p>According to the 2019 Population census, the population of the area stood at 1,056,640 people.</p> <p>Murang'a County's water resources are rivers, shallow wells, springs, dams, boreholes and roof catchment. There are 10 permanent rivers, 400 shallow wells, 75 springs, 30 dams and 100 bore holes that supply water for domestic and agricultural use in the county. All these sources supply 60 per cent of the county population with clean and safe drinking water.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The County's rugged, dissected topography and geology is both an asset and liability to the County's development. The highest parts bordering Aberdares form the rain catchment areas, from where most of the rivers passing through the county originate. The volcanic rocks hence fertile soils result in thriving agricultural activities. The ecological conditions in the high areas provide a suitable environment for tea and coffee farming.</p>	<p>and Kandara, is generally wet and humid due to its proximity to the Aberdare Ranges and Mt. Kenya.</p> <p>Aberdares National Park is found within this County. The main wildlife in the county are elephants. Other wildlife in the county is Columbus monkeys and their related species.</p> <p>Climate change and variability: historic and future trends Muranga County has the potential to feed itself and export surplus to neighbouring counties. However, the County faces some serious challenges in the agricultural sector that limit productivity. As much as 80% of the population is food secure, the remaining 20% of the population faces perennial food shortages and insecurity due to low productivity. The cold and wet AEZ (LH1) of the County and the warm and humid AEZs (UM1, UM2, UM3 and UM4) also face some challenges that deter them from reaching their potential.</p> <p>Protected Areas</p> <ol style="list-style-type: none"> I. Aberdare East National Park 	<p>The County has 272 health facilities serving a population of 959,701. It has one County referral hospital and six sub-county hospitals, three mission and one private hospital. There are 33 public health centers, 114 dispensaries (89 public and 25 mission/NGO) and 137 private clinics.</p> <p>Five most common diseases in order of prevalence. The most prevalent diseases in the County are: malaria/fever (2 percent), flu (20.64 per cent) diarrhoea (11.45 per cent), respiratory tract infections (10.86 per cent) and stomachache (6.54 per cent). Morbidity situation in the county may change soon due to the increasing number of motorcycle accidents.</p> <p>Murang'a County has a total of 318,105 households. A majority (73%) practice agriculture. Ninety-five percent produce crops, 76% produce livestock, and less than 1% practice fishing and aquaculture Agriculture accounts for 57% of the county's employment.</p> <p>Murang'a County is intrinsically linked to the history of the Kikuyu community. Majority of the inhabitants of the county are Kikuyus.</p> <p>According to Muranga County research outlook 2018, cases of SEAH were at 9.7 %</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>against the national average of 9.2%. Defilement cases recorded in the county as per the report were 3.2%, unnatural sexual offences formed 2.2% while child abuse formed 1.1%.</p> <p>Environmental Challenges in Agricultural Sector Murang'a County has the potential to feed its population and export surplus products. The main challenges facing the county's agriculture are erratic weather patterns, pests and diseases, water shortage.</p> <p>Water and Sanitation Water resources Murang'a County's water resources are rivers, shallow wells, springs, dams, boreholes, and roof catchment. There are 10 permanent rivers, 400 shallow wells, 75 springs, 30 dams and 100 bore holes that supply water for domestic and agricultural use in the county. All these sources supply 60 per cent of the county population with clean and safe drinking water. The county has 27 water supply schemes and about 16 irrigation schemes. Water supply schemes are managed by three different entities. There are some which are managed by the water companies, the department of water and others by the community members through water project committee. In the county, the mean distance to the nearest</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>water point is 3 Km with about 29.4 per cent of the households taking five to 14 minutes. Water supply schemes such as the Gatanga community water schemes supply water directly to households at reasonable cost.</p> <p>Sanitation About 99.78 per cent of the households in the County use toilet facilities. Out of these, 4.97 per cent use flush toilets, 3.97 per cent use VIP latrines while the others use ordinary pit latrines. Many people living in the market and trading centres use ordinary pit latrines.</p>
Meru County		
<p>The distribution of rainfall ranges from 300mm per annum in the lower midlands in the North to 2500 mm per annum in the Southeast. Other areas receive on average 1250 mm of rainfall annually. There are two seasons with the long rains occurring from mid-March to May and short rains from October to December. Temperatures range from a low of 8oC to a high of 32oC during the cold and hot seasons respectively.</p> <p>The county's position on the eastern slopes of Mt Kenya and the equator has highly influenced its natural conditions. Altitude ranges from 300m to 5,199m above sea level. This has influenced the atmospheric conditions leading to a wide variety of microclimates and agro-ecological zones.</p> <p>The drainage pattern in the county is characterized by rivers and streams originating from catchment areas such as Mt. Kenya and Nyambene ranges in the North of the county. The rivers cut</p>	<p>The County is one of the few regions in the country that has the big five-the lion, elephant, rhino, leopard and buffalo. There are also a variety of wild animals not only in national parks, game reserves or conservancies but also in the northern grazing area where game has coexisted with communities for hundreds of years. These are a variety of wildlife such as baboons, giraffe, gazelle, cheetah, gray zebras and different birds' species. These wildlife species are mainly found in the gazetted game parks and forests such as the Meru National Park, Mt.</p>	<p>The County's population growth rate is estimated at 2.1 per cent per annum. The county population is projected to grow to 1,775,511 in 2022. The growth in population will be a strain on available resources such as land, water and natural resources but on the other hand provides opportunity for growth.</p> <p>The county has water supply in some urban centres mainly from rivers originating from Mt. Kenya Forest and Nyambene hills. Meru Water and Sewerage Company (MEWASS) is the only company licensed to supply water and sewerage services in Meru and Maua towns. IMETHA Water Company supplies water to all other towns and markets around the county. Other small water projects including</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>through the hilly terrain on the upper zones to the lower zones and drain into the Tana and Ewaso Nyiro Rivers. The rivers form the main source of water for both domestic and agricultural use.</p> <p>The county has varied ecological zones ranging from upper highlands, lower highlands, upper midlands, and lower midlands. This has greatly influenced the major economic activities. The upper highlands zones cover most of the county's area ranging from Imenti South, Imenti Central, Imenti North, Part of Tigania East, Part of Tigania West, Igembe Central and Igembe South constituencies. The lower midland zones are only found in lower parts of Buuri, Igembe North and Tigania East and West which borders Laikipia and Isiolo Counties.</p>	<p>Kenya National Park and Imenti forest.</p> <p>Climate change and variability: historic and future trends Climate has already been observed to change in the county. Since 1981, the first wet season has experienced a moderate (1°C) increase in mean temperature and associated reduction in crop cycle, a significant increase in heat stress days, and no detectable change in precipitation. The second wet season experienced a mild (~0.5°C) increase in temperature, and no change in precipitation. Looking to the future in the years of 2021-2065, both extreme precipitation and prolonged moisture stress are projected to occur, but the changes are quite different during different seasons. Within 30 years (by the early 2040's) temperature is projected to increase by 0.3 °C, with the first wet season projected to experience even greater changes. And by this time, precipitation is projected to decrease by 0.4% in the first wet season and increase of 25% in the second wet season.</p>	<p>church owned Diocese of Meru water and sewerage company (DOMWASCO) have been started through community initiatives due to high demand for domestic and irrigation especially in arid areas of the county.</p> <p>Agriculture (crop farming and livestock keeping) is the major economic activity in Meru County. The total acreage under food and cash crops is 161,907 ha and 15,773 ha respectively which represents 23% and 2.3% of the total land area of Meru County.</p> <p>The main people who live in Meru comprise subtribes of the Ameru community. These include the Imenti, Tigania and Igembe sub-tribes. Besides Kiswahili and English, Ki-Meru is the ethnic language spoken by this community.</p> <p>According to a study carried out by CREAW on the causes of SEAH in Meru County in 2017, the top five (5) causes of SEAH in Meru County includes - Substance abuse and addiction, especially the abuse of illicit brews and drugs at 44.64%; Peer Pressure at 14.20%, Emotional related causes at 10.43%, Resource: constraints such as financial and other property rights related issues at 9.57%, and; Complexities (inferiority/superiority complex on the part of the abuser – due to academic, social status and other factors) with 6.96%.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
	<p>Protected Areas</p> <ol style="list-style-type: none"> 1. Meru National Park 2. Mt. Kenya National Park 	<p>Environmental Challenges in Agricultural Sector</p> <p>Murang'a County has the potential to feed its population and export surplus products. The main challenges facing the county's agriculture are erratic weather patterns, pests and diseases, water shortage.</p> <p>Water Resources</p> <p>The county has eleven (11) permanent rivers with major one being River Kathita which is a tributary to River Tana. The county has several shallow wells, protected springs, water pans, Public and Private Dams and boreholes. These form the major sources of water for domestic use and irrigation. The quality of waters in the county is good hence recommended for both domestic use and irrigation as it originates from pristine catchment areas within Mount Kenya and Nyambene forests. Despite this, the land use practices and increase in use of agrochemicals in agriculture sector tend to pollute the water as it flows downstream. The county has water supply in some urban centres mainly from rivers originating from Mt. Kenya Forest and Nyambene hills. Meru Water and Sewerage Company (MEWASS) is the only company licensed to supply water and sewerage services in Meru and Maua towns. IMETHA Water Company supplies water to</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		<p>all other towns and markets around the county. Other small water projects including church owned Diocese of Meru water and sewerage company (DOMWASCO) have been started through community initiatives due to high demand for domestic and irrigation especially in arid areas of the county.</p> <p>Water Sources and Access The average distance to the nearest water point in 2009 was 1.5km. This has however been reduced following the use of county water funds and NG-CDF funds to finance community water projects aimed at bringing water closer to the people. The number of households with access to piped water stands at 25,212 while household with access to potable is 7,418. This contrasts sharply with the supply of water as only 2 per cent of the population has access to piped water.</p> <p>Sanitation Meru town is served by an old sewerage system while Makutano area of the town has no sewer system. Other major towns within the county completely lack functional sewerage systems. The major sanitation facilities are pit latrines which are used by over 69 per cent of the population. Other households using flush toilets and VIP latrines account for 7.9 per cent and 9 per cent respectively. Waste and garbage disposal is</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		mostly managed by the county government in the town centres and marketplaces.
Physiological and Topographical Features	Biodiversity	Socio- Economic features
Siaya County		
<p>Siaya County has three major geomorphological areas namely: Dissected Uplands, Moderate Lowlands and Yala Swamp. These areas have different relief, soils, and land use patterns. The altitude of the County rises from 1,140m on the shores of Lake Victoria to 1,400m above sea level on the North.</p> <p>The County experiences a bi-modal rainfall, with long rains falling between March and June and short rains between September and December. The relief and the altitude influence its distribution and amount. Siaya County is drier in the southern part towards Bondo and Rarieda sub-counties and is wetter towards the higher altitudes in the northern part particularly Gem, Ugunja and Ugenya sub-counties. On the highlands, the rainfall ranges between 800mm – 2,000mm while lower areas receive rainfall ranging between 800 – 1,600mm.</p> <p>Temperatures vary with altitude rising from 21° C in the Northeast to about 22.50° C along the shores of Lake Victoria while in the South, it ranges from mean minimum temperature of 16.3° C and mean maximum temperature of</p>	<p>The county has only two gazetted forests namely, Got Ramogi and Got Abiero. In Lake Victoria, Fish species such as —sire”, “ngege”, “fulu”, “nyamami”, “odhadho”, have declined due to a variety of reasons.</p> <p>The sitatunga majorly found in Yala Swamp, is faced with serious extinction due to poaching and hunting whereas the wild pig (mbidhi) is almost extinct as its habitat (bushes) is being cleared to pave way for agricultural activities. Hippos are another mammal species whose population is dwindling.</p> <p>Main wildlife in the county are silver backed jackals, leopards,</p>	<p>In 2009, the population of the county was 842,304 consisting of 398,986 males and 443,318 females. There are 221 active market centres in the county.</p> <p>As of 2017 the county had 434.2km of bitumen standard roads, 1297.41km gravel, 532.78 km of earth and a further 1,170 narrow roads.</p> <p>There are 18 post offices and 4 sub-post offices offering postal services across the county. Postal services are also provided by G4S, Wells Fargo and EMS</p> <p>The County currently has a total of 213 health facilities of which 147 are public health facilities. There is one County Referral hospital located in Alego- Usonga and nine Sub County hospitals spread</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>29.1° C. Humidity is relatively high with mean evaporation being between 1,800mm to 2,200mm per annum within the County. The relative humidity ranges between 73 per cent in the morning and 52 per cent in the afternoon. Climate variations are evident in all these areas due to human activity distorting some of the statistics above.</p> <p>Rivers Nzoia, Yala and major streams traversing the county form an important part of county 's natural resources with considerable provisioning, regulatory and supporting services.</p>	<p>baboons, ostriches, hyena, guinea fowls, duikers, lion, impalas, vervet monkeys, bird species, Sitatungas, crocodiles, pythons, monitor lizards and hippos.</p> <p>Other mammals and reptile species facing extinction are, Monitor Lizards, Mongoose, Hyenas and Warthogs.</p>	<p>across the six sub counties. there are 34 health centers and 102 dispensaries.</p> <p>The County Government of Siaya has 12 sports facilities namely, Siaya stadium, Migwena, Akala, Nyilima, Mahaya, Bondo sports complex, Usenge, Muhondo, Yala, Hawagaya, Uasi and Uhembo sports grounds. There are 769 primary schools and 234 secondary schools with sports grounds.</p> <p>Lake Victoria, Lake Kanyaboli, and the major rivers in the county support transport and agricultural production.</p>
Physiological and Topographical Features	Biodiversity	Socio- Economic
Kisumu County		
<p>The county lies in a down warped part of large lowland surrounding the Winam Gulf, at the tip of which is Kisumu Town. East of Kisumu Town is the Kano Plains occasionally broken by low ridges and rivers.</p>	<p>The County prides in Ndere Island National Park in Seme Sub-County, the Kisumu Impala Sanctuary in Kisumu City and the National Museum in with all types of wildlife.</p>	<p>The population of the county according to the 2009 Population and Housing Census was estimated at 968,909 persons with 474,687 males and 494,222 females.</p> <p>The county is traversed by the main trunk road (B1) linking Nairobi to Kampala,</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>The area has two rainy seasons, with the long rains occurring in March and May while the short rains occur in September to November.</p> <p>Apart from Lake Victoria, the county has a large area of wetlands, i.e., the Singida Wetland in Nyando. However, people who live around the wetlands have been affected by regular flooding.</p>	<p>Main wildlife in the county are silver backed jackals, leopards, baboons, ostriches, hyena, guinea fowls, duikers, lion, impalas, Vervet monkeys, bird species, Sitatungas, crocodiles, pythons, monitor lizards, hippos, among others.</p> <p>The county has got no gazette forest and few existing ones are on hill tops of Fort Tenan and Songoh for the purposes of soil and water conservation.</p>	<p>Uganda through Busia. Total length of bitumen surface (tarmac) road is 286km with the rest of the link roads being either gravel surface (725.6km) or earth surface (956.6km).</p> <p>The county has several financial institutions. However, these financial institutions are mainly concentrated in urban areas with a few of them in Kisumu City.</p> <p>The main source of energy for cooking in Kisumu County is firewood which accounts for 60 per cent of all energy sources. Charcoal comes second at 17.1 per cent followed by paraffin at 6.9 per cent, gas (LPG) accounts for 2.5 per cent.</p> <p>Total acreage under food and cash crops is estimated at 26,865 acres and 25,815 acres respectively. The county has 314 cooperative societies of which 183 are active and 106 are dormant.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
		population above 15 years of age, 90.8per cent can read while 83.4per cent can write.
Bungoma County		
Physiological and Topographical Features	Biodiversity	Socio- Economic
<p>Major physical features include Mt. Elgon, several hills (Chetambe, Sang'alo and Kabuchai), rivers (Nzoia, Kuywa, Sosio, Kibisi and Sio-Malaba/Malakisi), waterfalls such as Nabuyole and Teremi. Mt. Elgon and Sang'alo hill have attractive caves. The altitude of the County ranges from over 4,321m (Mt. Elgon) to 1200m above sea level. The County has only one gazetted forest, the Mt. Elgon Forest reserve which measures 618.2 SqKm, and one National park, which measures 50.683 Km2.</p> <p>The County rises from 1200M in the west and southwest to over 4,000M to the North of Mt. Elgon.</p> <p>This County experiences two rainy seasons, the long- March to July and short Rains-August to October. The annual rainfall in the County ranges from 400mm (lowest) to 1,800mm (highest). The annual temperature in the County varies between 0°c and 32°c due to different levels of</p>	<p>Main wildlife found within the county include Elephants, Buffalo, Gazelles, (antelopes, monkeys, snakes, guinea fowl, quail birds, rabbits, insects and hares, rare birds) and tree species.</p> <p>The County has one gazetted forest reserve in Mt Elgon covering an area of 618.2 km2. Other small-scale forests and woodlands are owned by individuals and institutions such as Webuye Pan Paper Mills.</p> <p>The county agroforestry practices include fruit tree gardens/orchards, home gardens,</p>	<p>14% of the residents are with no formal education, 10% of those with primary education and 19% of those with secondary.</p> <p>County has 350 market centres of different sizes spread all over the county.</p> <p>Sand harvesting, Murram/gravel, quarrying for ballast, stones and clay are found in the county.</p> <p>The County is served by a network of post offices and sub-post offices in all the major urban areas.</p>

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Physiological and Topographical Features	Biodiversity	Socio-Economic
<p>attitude, with the highest peak of Mt. Elgon recording slightly less than 0°C.</p> <p>The County has 2,880.78 Km² of arable land mainly for crop farming and livestock production.</p> <p>The main environmental hotspots in the county include Mount Elgon forest, Chetambe hills, Sang'alo hills, Riparian areas, food basket zones in Tongaren, schools and institutional spaces and Quarrying areas</p>	<p>woodlots, apiary (apiculture) and Agro-Silvofishery (aqua forestry).</p>	<p>The Mombasa – Nairobi – Eldoret – Webuye – Malaba highway (A104) traverses through the county. It is a major link road for trade and commerce.</p> <p>1% of residents use liquefied petroleum gas (LPG), 2% use paraffin, 85% use firewood and 11% use charcoal as cooking fuel. Firewood is the most common cooking fuel by gender at 85% of male headed households and 86% of female headed households.</p> <p>Financial services Commercial banks, Micro finance institutions, Insurance companies, Mpesa financial infrastructure spread all over the county.</p>
Tharaka Nithi		
Physiological and Topographical Features	Biodiversity	Socio- Economic
<p>The County has two main ecological zones namely the highlands (upper zone) comprise of Maara and Chuka which receive adequate rainfall for agriculture and the semi-arid (lower zone) covers Tharaka and receives less rainfall suitable for livestock production.</p>	<p>Some of the major wildlife found in the county include elephants, hyraxes, mongoose, duiker, mole rat, bushbucks, water bucks, elands, buffalos, leopard,</p>	<p>The county had a total population of 365,330 as per the 2009 population and housing census. Economic growth depends on agriculture, tourism and water resources. The county's unemployment rate is 63% and</p>

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<p>Temperatures in the highland areas range between 14°C to 30°C while those of the lowland area range between 22°C to 36°C</p> <p>rainfall ranges from 2,200mm in Chogoria forest to 500mm in Tharaka. The high-altitude areas experience reliable rainfall while middle areas of the county receive moderate rainfall.</p>	<p>bongo, hyenas, over 150 species of birds and over 50 species of reptiles.</p> <p>The size of gazetted forests stands at 44,617 ha and 3,344 ha for non-gazetted forests.</p> <p>Main forest products are timber, firewood, poles, charcoal, herbs, fodder, beeswax, honey, wild fruits.</p>	<p>main sources of energy in the county are firewood, paraffin, charcoal and solar.</p> <p>The county has a total road network of 1670Km of which 630Km is classified network, and 1040 is unclassified network with only 61Km of bitumen road.</p> <p>Generally mobile phone coverage with Safaricom, Equitel, Airteland Telkom networks is good.</p> <p>Key minerals being Gemstones (Beryl aquamarine, Corundum sapphire, Corundum garnet); industrial minerals (Iron deposit, Copper ore, Felspar, Quartz); and common minerals (Sand, Building stones, Ballast rocks.</p>
Physiological and Topographical Features	Biodiversity	Socio- Economic
Nyamira		
<p>The County 's topography is mostly hilly "Gusii highlands". The Kiabonyoru, Nyabisimba, Nkoora, Kemasare hills and the Manga ridge are the most predominant features in the county.</p>	<p>The county has no gazetted forest. There are 10 non-gazetted forests covering 256.2ha in the county. The un-gazetted forest includes</p>	<p>Nyamira County population is 705,317 with males being 338,419 and females at 366,899. The County has 54 small urban centres and market centres, however there are three</p>

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<p>Permanent rivers and streams found in the County include Sondu, Eaka, Kijauri, Kemera, Charachani, Gucha (Kuja), Bisembe, Mogonga, Chirichiro, Ramacha and Egesagane. All these rivers and several streams found in the County drain their water into Lake Victoria.</p> <p>Major types of soil found in the County are red volcanic (Nitosols) which are deep, fertile and well-drained accounting for 85 per cent while the remaining 15 per cent are those found in the valley bottoms and swampy areas.</p> <p>The county has a bimodal pattern of annual rainfall that is well distributed, reliable, and adequate for a wide range of crops.</p> <p>Annual rainfall ranges between 1200 mm-2100 mm per annum. The long and short rain seasons start from December to June and July to November respectively, with no distinct dry spell separating them.</p>	<p>the catchments areas and trust lands i.e. Manga Orotuba, Mageri, Inkora, Nyabogoye, Riomego, Nyairanga, Mogusii, Kiabonyoru and Ikonge.</p> <p>The main forest products in the county include fuel wood, timber, charcoal, building poles, fruit and berries, transmission poles, logs, and posts with a total of 8,600,00 m³.</p> <p>The county also has non-timber forest products that are harvested, such as Honey, Grass, Gum and Resin. The seedlings production in the county is both exotic and indigenous</p>	<p>main urban centres namely Nyamira, Keroka, and Nyansiongo.</p> <p>The county has a total road network of 1,574.59 km of classified & Unclassified Road.</p> <p>Firewood is the main source of energy for cooking in the county with 48 percent of the population using it, while gas (LPG) constitutes 22 %. Currently electricity coverage is 49.5 % with about 80,000 connections.</p> <p>Economy heavily relies in Agriculture which contributes to 80 percent of income; rural self-employment contributes 7.5 percent, wage employment 4.5 percent and urban self-employment 8 percent.</p> <p>Main livestock bred in the County are; cattle, goats, sheep, donkeys, poultry, rabbits and bee keeping. Dairy farming under zero grazing is gaining popularity due to</p>
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		<p>diminishing land size, conducive weather conditions and ready market for milling.</p> <p>There are five commercial banks which are in Nyamira and Keroka towns i.e KCB, Family, Equity, Cooperative and Post bank, additionally there are six micro-finance institutions also</p>
Physiological and Topographic Features	Biodiversity	Socio- Economic
Kajiado		
<p>Kajiado County is characterised by plains, valleys and occasional volcanic hills. The lowest altitude is about 500M above sea level at Lake Magadi while the highest is 2500M above sea level in Ngong Hills.</p> <p>The landscape within the county is divided into Rift Valley, Athi Kapiti plains and Central Broken Ground. Lays.</p> <p>The County has three geological regions namely Quaternary volcanic, Pleistocene and basement rock soils. Quaternary Volcanic soil is found in the Rift Valley. Vegetation type in the county is determined by altitude, soil type and rainfall. In many instances it has been modified by animal and human activity.</p>	<p>The County hosts a variety of wildlife including leopard, cheetah, wild dog, buffalo, elephant, giraffe, zebra, lion, hippos, hyenas, blue wildebeest, crocodile, mongoose, hyrax, gerenuk, lesser kudu, porcupine and a prolific birdlife that features over 600 species among others</p> <p>The total size of gazetted forests is 16,866.88 Ha</p>	<p>Population stands at 1,112,823 with male population constituting of 50.2 percent and female population constituting of 49.8 percent of the total population.</p> <p>The total length of roads in the county is 2,419.2 Km which include 1,111.9 Km of earth roads, 932.3 Km of murrum and 375 Km of bitumen. Mobile telephony connectivity in the county is at 60 percent with major signal instabilities in parts of Kajiado West, South and Central.</p>

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<p>The county has a bi-modal rainfall pattern. The short rains fall between October and December while the long rains fall between March and May</p>	<p>comprising of indigenous and exotic forests comprising of 1,240 Ha of trust land. The forests include Entarara forest in Kajiado South (765.8 Ha), Ngong Forest in Kajiado North (3,077 Ha) and Ol Donyo Orok Forest in Kajiado Central (11,784 Ha). Forest in trust land includes Embakasi (573 Ha) and Oloolua (667 Ha).</p> <p>Main forests have a large variety of plants, herbs and also several animal species not found in the surrounding semi-arid lowlands.</p> <p>There are 24 wildlife conservancies sitting on 314,691Ha with Amboseli ecosystem in Kajiado</p>	<p>Ngong Hills wind power station is connected to the national power grid with a capacity of 25.5 MW. Kipeto 1&2 wind power project, Magadi solar project and Mt. Suswa geothermal project are also underway.</p> <p>The land tenure system in the county has greatly changed, from 56 group ranches across the county to only 10 grouped where private ownership.</p> <p>Main food crops produced are maize, beans, irish potatoes, tomatoes, capsicum, water melon, cow peas, vegetables and bananas.</p> <p>There are four (4) sub county hospitals; Kajiado, Loitokitok, Ngong and Kitengela; sixteen (17) health centres and seventy-eight (78) dispensaries run by the county government.</p> <p>Hunger and inadequate food supply are still affecting large parts of the County's population</p>
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		with serious consequences for health and well-being, especially in children
Physiological and Topographic Features	Bio diversity	Socio - Economic
Kericho		
<p>The county is characterized by undulating topography. The overall slope of the land is towards the West, consequently drainage is in that direction. The county forms a hilly shelf between the Mau Escarpment and the lowlands of Kisumu County.</p> <p>County is surrounded by Tinderet Hills to the North and to the North-East is the Mau Escarpment and between them is the gently rolling land which forms Londiani hills (Tuluap-sigis).</p> <p>Central part of the county rises eastward towards 3,000m above sea level. The county is well drained with a good number of rivers that include Chemosit, Kiptaret, Kipsonoi, Timbilil, Maramara, Itare, Nyando, Kipchorian and Malaget. Some of the rivers with the waterfalls include Maramara, Itare and Kiptaret.</p> <p>Temperatures range between 100C - 290C. The rainfall pattern is such that the central part of the county, where tea is grown, receives the highest rainfall of about 2,125mm p.a while the</p>	<p>The County has the following notable tourist attraction sites: - Forternan Museum, Chebulu Conservancy, Reresik Caves , Tulwap Kipsigis , Bagao Caves , Chagaik Arboretum , Kapkatet Kipsigis Cultural Museum , Mau Forest , Agro tourism (Tea Plantation Areas) , Tagabi Monkey Sanctuary and other private farms offering camping facilities e.g. Chesumot Farm.</p> <p>The County has conservation areas namely; Tagabi Monkey Sanctuary; Mau Forest and Fort-Ternan museum.</p> <p>The County is endowed with five main forest reserves consisting of the south</p>	<p>The county's population was 758,339 in 2009 as per the 2009 National Population and Housing Census.</p> <p>There is 2,417 km of rural road networks across the county opened up and 357.2kms of existing roads maintained across the county.</p> <p>There are two major land tenure systems in Kericho County namely the Leasehold Tenure and the Freehold Tenure. The Freehold Tenure is governed under the Land Registration Act of 2012 and is mainly utilized for farming.</p> <p>Dairy production is the leading livestock enterprise in the county as well as poultry (mainly local chicken), hair sheep, wool sheep, meat goat rearing, beekeeping, pig production and rabbit rearing.</p>

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lower parts of Soin and parts of Kipkelion receive the least amount of rainfall of 1,400 mm p.a.	Tinderet, Londiani, western Mau and South West Mau covering a total of 63,878 ha which are divided into 8 forest stations. These forests are also a host to the Chelimo and Chagaik arboreta among other leisurely open space	<p>Total number of CGOK facilities is currently at 136.</p> <p>The County has got 214 public and 15 private secondary schools with a total enrollment of 69,081 students. Bureti sub-county has the highest number of schools and students, while Soin/Sigowet has the least schools and number of students</p>
Physiological and Topographic Features	Bio diversity	Socio - Economic
Vihiga		
<p>The county's altitude ranges between 1300M and 1800M above sea level. It slopes gently from East to West with undulating hills and valleys. The streams flow from northeast to southwest draining into Lake Victoria.</p> <p>The County is categorized into two main agro-ecological zones, the upper and lower midlands.</p> <p>The county experience equatorial type of climate with fairly well distributed rainfall throughout the year with an average annual precipitation of 1900 mm.</p>	<p>The main forest is tropical rain forest covering a total area of 4,160.9 hectares. These are Kibiri forest consisting of indigenous and exotic tree species on a 3,691.3ha, Maragoli forest consisting of 469.3ha of exotic tree species and Kaimosi forest which is also facing destruction due to human activities.</p>	<p>High percentage of wage earners in the County is in agriculture and rural development sector. Agriculture provides 70% of employment opportunities.</p> <p>The total road network in the County is 1,058.2 Km: of that, bitumen surface covers 201.5 Km, gravel surface 373.7 Km and earth surface 483 Km. The County has a railway length of 20 Km and has one railway station at Luanda that is not in operation.</p>

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<p>Temperatures range between 14°C – 32°C with a mean temperature of 23°C. Long rains are experienced in the months of March, April and May while short rains are experienced in the months of September, October and November.</p> <p>The driest and hottest months are December, January and February with an average humidity of 41.75%.</p> <p>River Yala is the only major river passing through the county with major tributaries, namely Edzava, Zaaba and Garagoli.</p>	<p>Forest products in the county include timber, fuel wood, charcoal, construction poles, and medicine among others.</p> <p>Main forests have a large variety of plants, herbs and also several animal species not found in the surrounding semi-arid lowlands.</p> <p>Main wildlife in the county are silver backed jackals, leopards, baboons, ostriches, hyena, guinea fowls, duikers, Gazeles, monkeys, and many bird species,</p>	<p>There are 16 post offices and four private couriers, spread across the county. The mobile telephone network coverage is 80%</p> <p>The county has one tea processing factory situated at Mudete and milk cooling plants. Total tea production is estimated to be 10.6 million Kilograms annually.</p> <p>The county has one public county referral facility, Vihiga County Hospital at Mbale. The other major health facility is Jumuia Hospital in Kaimosi. There are three level 4 facilities in Sabatia, Hamisi and Emuhaya. There are also 18 health centres, 32 dispensaries and 34 private and mission-based facilities.</p>
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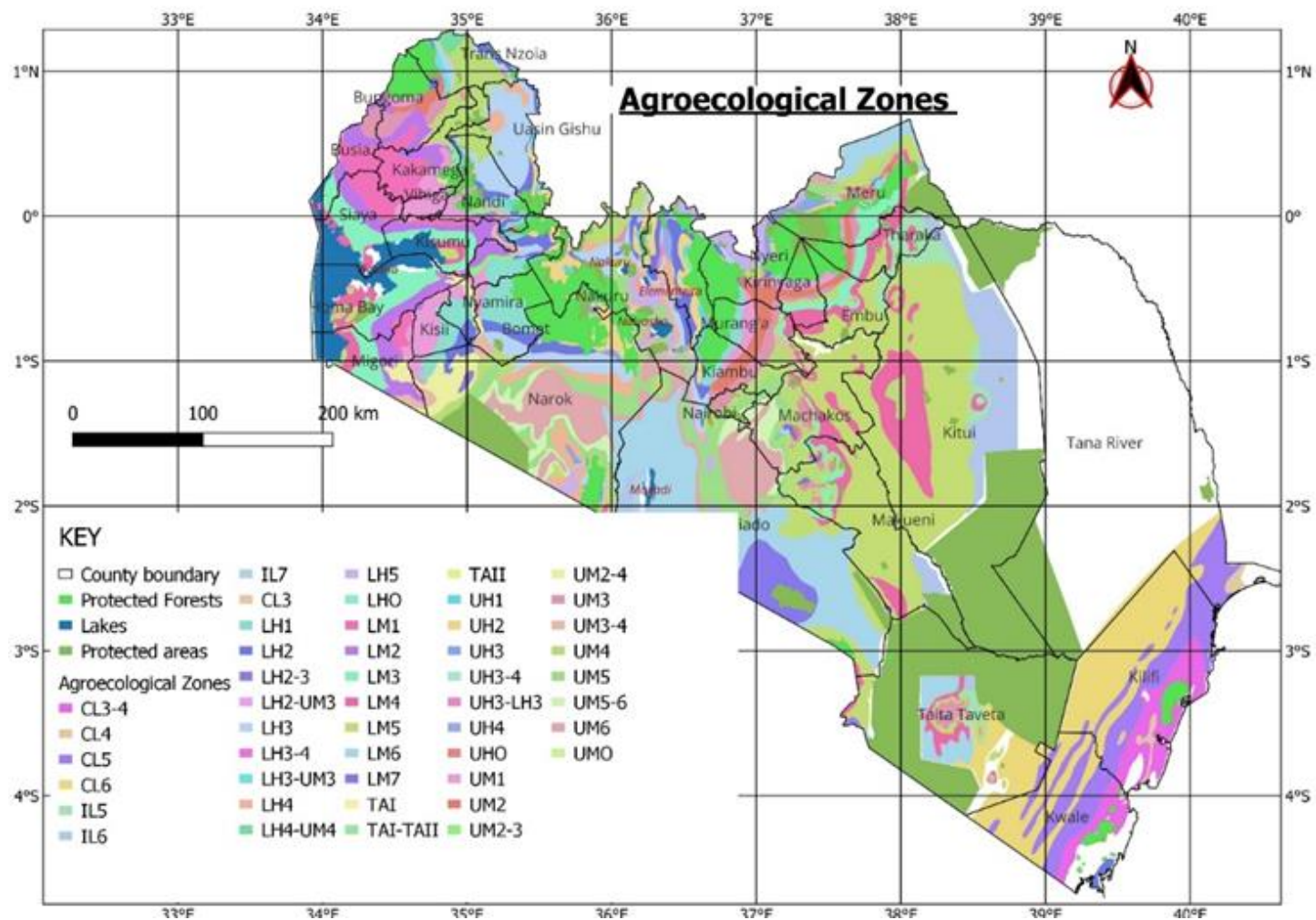


Figure 3: Agroecological zones in the Project Area

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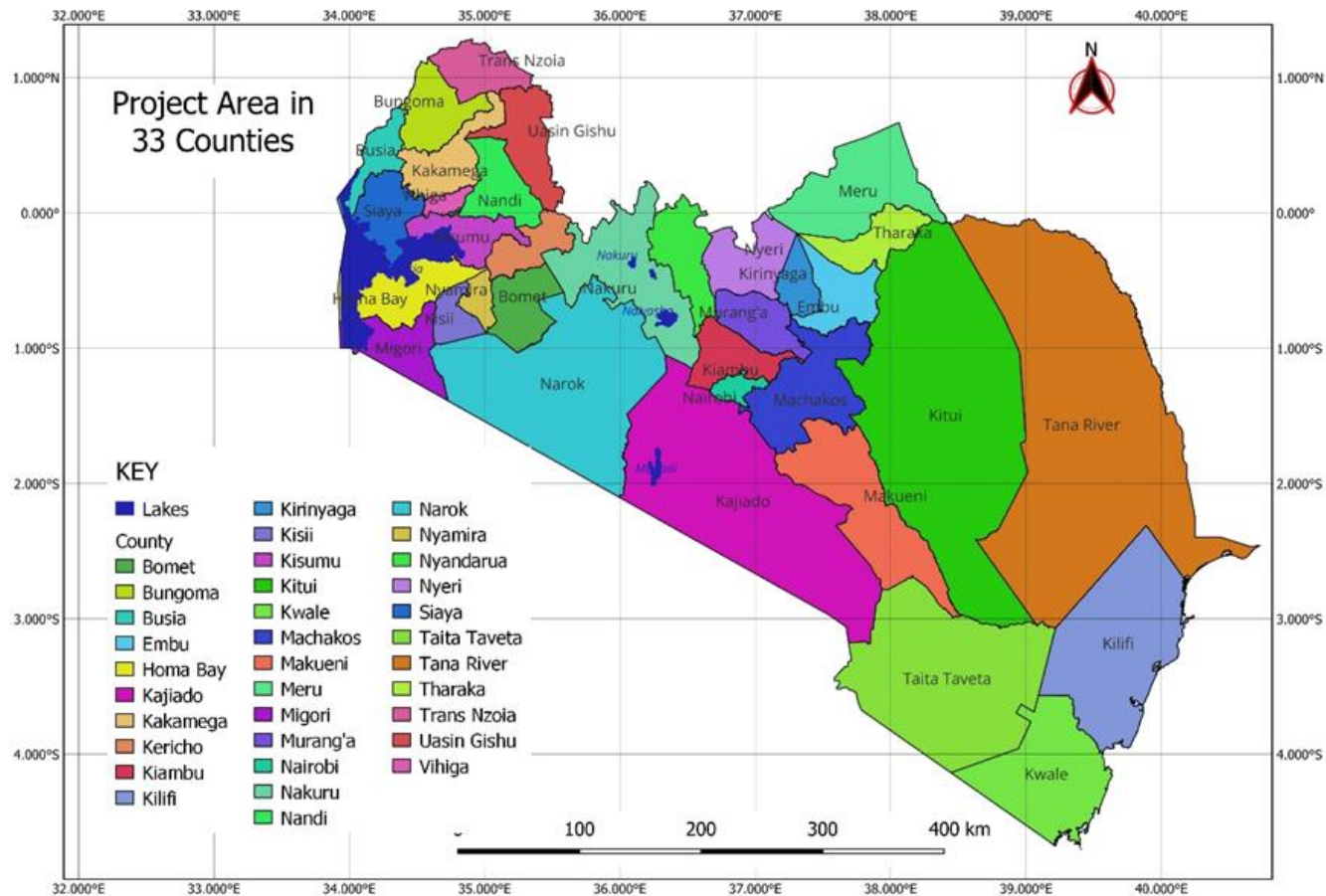


Figure 4: Map of NAVCDP Participating Counties

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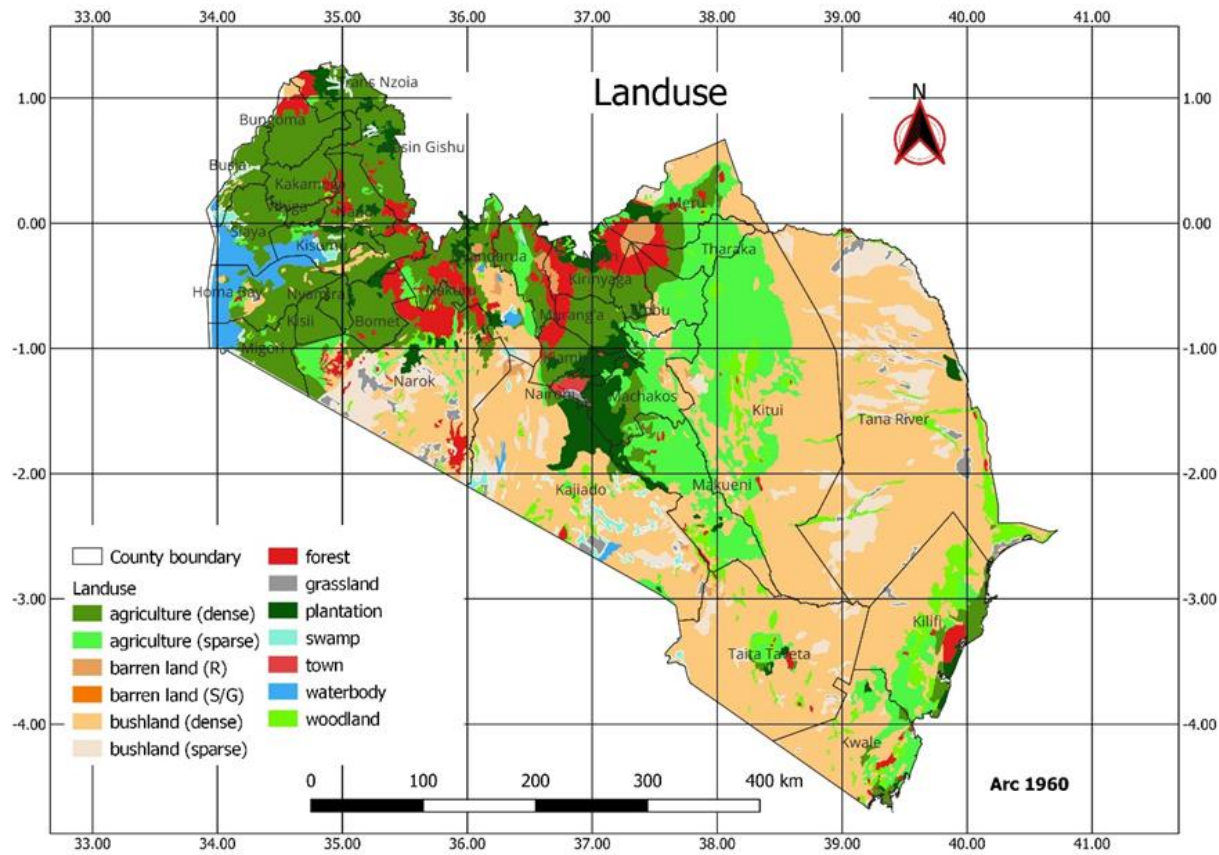
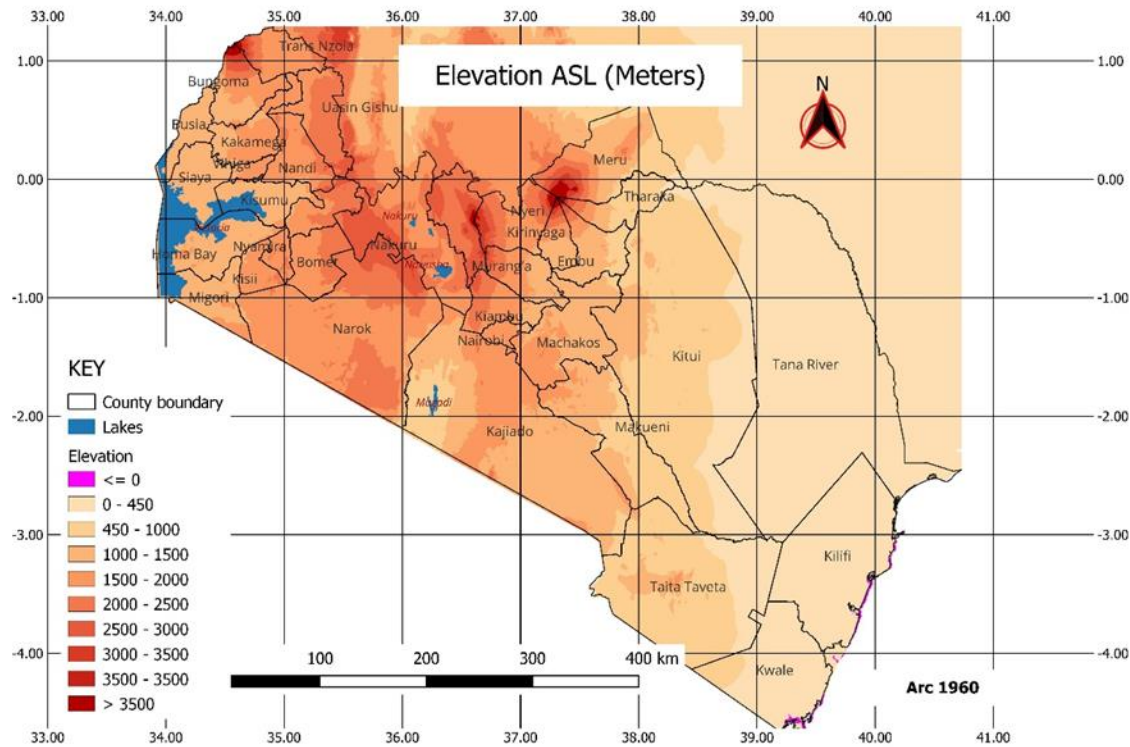


Figure 5: Land Use and Land Cover in NAVCDP Counties

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Figure 6. Elevation of NAVCDP Counties



DESCRIPTION OF POLICY AND LEGAL FRAMEWORK

87) This chapter outlines and highlights the relevant policy, legal and institutional framework in Kenya which has a direct bearing on the NAVCDP. The chapter further highlights the World Bank Environmental and Social Standards (ESSs) relevant to the project including a comparative analysis and gaps existing between the ESSs and host country regulations and suggestions on bridging the gaps. Finally, a section on international laws and conventions that bear relevance to the implementation of this project have also been highlighted in this chapter.

RELEVANT SECTOR POLICIES

Kenya Vision 2030

88) The Sessional Paper Number 10 of 2012 on the Kenya Vision 2030 under the economic pillar identifies specific interventions which in the agricultural sector include increasing productivity of crops and livestock, introducing land use policies for better utilization of high and medium potential lands (Figure 5), developing more irrigable areas in arid and semi-arid lands for both crops and livestock, and improving market access for smallholders through better post-harvest and supply chain management. It also prioritizes flagship projects in the sector, specifically: enactment of the consolidated agricultural reform bill, fertilizer cost-reduction investment, disease-free zones, land registry, land-use master plan and arid and semi-arid lands development project. The Policy makes reference to climatic change and directs responses. The Policy under the social pillar, with respect to environmental management proposes to intensify conservation of natural resources, such as establishing voluntary carbon markets, intensify research on impact of and response to climatic change and pilot adaptation programmes.

National Policy on Environment and Development Sessional Paper No. 6 of 1999

89) Currently, a far-reaching initiative towards an elaborate national environmental policy is contained in the Sessional Paper No. 6 of 1999 on Environment and Development. It advocates for the integration of environmental concerns into the national planning and management processes and provides guidelines for environmentally sustainable development. The challenge of the document and guidelines is to critically link the implementation framework with statutory bodies namely, the National Environmental Management Authority (NEMA), Kenya Wildlife Service (KWS), Kenya Forestry Service (KFS); the National Environment Complaints Committee (NPCC) and the National Environmental Tribunal (NET).

Agricultural Sector Transformation and Growth Strategy

- 90) The Agricultural Sector Transformation and Growth Strategy (ASTGS) 2019-2029 sets out to implement the Kenya Vision 2030 in the agricultural sector. It identifies two strategic thrusts for its vision of a food-secure and prosperous nation, i.e., increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises and developing and managing the key factors of production. It commits government to implement “National Climate Change Response Strategy” which would include mainstreaming of tradition early warning and mitigation systems, identification of priorities for climate adaptation and mitigation with specific measures for vulnerable groups, awareness creation, conducting of periodic climate change threat and risk assessments and their mitigation as well as research and development in the area.

National Climate Change Strategy

- 91) The Strategy sets out to reduce the vulnerability to impacts of climatic change and to catalyze transition to cleaner, lower emission and less carbon-intensive development in the country. The Government commits in the Strategy to enhance climatic resilience and adaptive capacity and put in place mechanisms for sustainable utilization of natural resources. The Strategy directs integration of climate change risk and vulnerability assessment in the Environment Impact Assessment and the Strategic Environment Assessment. It lays the blame for emissions of green-house gases largely to agriculture, more so livestock, and in land-use change and suggests deterrent taxation and friendly regulatory environments for low carbon-pollutant activities.

National Agricultural Research Systems Policy

- 92) This policy provides the foundation for research in the agricultural sector. It aims at achieving reforms in the Kenyan agricultural research systems to support the development of an innovative, commercially oriented, and modern agricultural sector. The Policy aims at achieving objectives that include problem-solving and impact driven research agenda, fast-tracking national adoption of available technologies and knowledge and enhancing capacity to access and adopt knowledge and appropriate technologies available world-wide. It directs re-focusing of research to solve problems, the harnessing of indigenous knowledge while upholding professional ethics and the adoption of innovative methods of knowledge transfer.

National Agricultural Sector Extension Policy

- 93) The National Agricultural Sector Extension Policy (NASEP) spells out modalities for effective management and organization of agricultural extension in a pluralistic

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system where both public and private service providers are active participants. Further, the policy provides a point of reference for service providers and other stakeholders on standards, ethics and approaches, and guides all players on how to strengthen coordination, partnership and collaboration. The policy requires extension service providers to apply sustainable, dynamic, innovative, and effective extension approaches and methods, especially those promoting demand-driven, and beneficiary led approaches in the selection of technologies and extension messages. It promotes decentralization of extension by using clientele groups (e.g., common interest groups, smallholder associations and primary cooperatives) and public outreach for cost-effectiveness, taking into consideration the importance of indigenous knowledge and technologies.

National Productivity Policy

- 94) The Sessional Paper Number 3 of 2013 on the National Productivity Policy responds to low productivity and directs corrective measures. The Policy aims to achieve accelerated economic growth through high investment and productivity growth, being the incremental growth of 5% per year up from current less than 1%. It also aims to increase productivity awareness and consciousness level in the country from the current level of about 1 percent to 60 percent of the population. It proposes training programmes outside the formal education system for skills transfer to the labor force. It will also support technological change and innovation.

National Food and Nutritional Security Policy

- 95) The Sessional Paper Number 1 of 2012 on the National Food and Nutritional Security Policy aims at achieving safe food in sufficient quantity and quality to satisfy the nutritional needs for optimal Agricultural Policies and Legislation: The Policy directs the promotion of sustainable food production systems with particular attention to increasing soil fertility, agro-biodiversity, organic methods and proper range and livestock management practices. The Policy also directs that different approaches to food production are adopted based on the agro-ecological diversity which should include promoting.

Kenya National Youth Policy 2018

- 96) The policy aimed at ensuring that youth play their role in the development of the country. The policy goal is to promote youth participation in community and civic affairs to ensure that youth programmes are youth centre. The policy seeks to promote not only the rights of the youth, but also encourage them to understand and fulfill their responsibilities, to the development of society.

National Gender Policy 2011

- 97) The policy articulates the policy approach of gender mainstreaming and empowerment of women at the ministry level. It seeks to have a society where women, men, children, and persons with disabilities enjoy equal rights, opportunities, and a high quality of life. This report has in depth addressed matters to do with gender and development and in the concession period the entire project period the project shall be governed under this principle.

National Gender and Development Policy

- 98) The Policy recognizes that traditional development theories have not facilitated the participation of women in strategic areas and positions of power and influence because they are based on traditional assumptions of the roles and responsibilities of women and men. The approach also recognizes that without quality gender disaggregated data, the planning and programming process cannot be efficient and productive. Regarding the environment, the policy advocates for programmes that take into consideration environment and natural resource management issues that concern women, men, girls and boys.

RELEVANT LEGISLATIONS

Kenyan Constitution 2010 Provisions

- 99) Kenya has a National Constitution promulgated on the 27th of August 2010, and which takes supremacy over all aspects of life and activity in the Country. About environment, the Constitution states as follows: -
- 100) In Sections 69 and 70, the Constitution has inter alia identified National Obligations in respect of the environment and Enforcement of Environmental Rights respectively as follows: -
- 101) Section 69 (1): The State shall—
- i. Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;
 - ii. Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;
 - iii. Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
 - iv. Encourage public participation in the management, protection and conservation of the environment;
 - v. Protect genetic resources and biological diversity;

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- vi. Establish systems of environmental impact assessment, environmental audit and monitoring of the environment;
- vii. Eliminate processes and activities that are likely to endanger the environment; and
- viii. Utilize the environment and natural resources for the benefit of the people of Kenya.

102) Section 69 (2) States that: -Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

103) Section 70 provides for enforcement of environmental rights thus:

- a) If a person alleges that a right to a clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter.
- b) On application under clause (1), the court may make any order, or give any directions, it considers appropriate—
 - i. To prevent, stop or discontinue any act or omission that is harmful to the environment;
 - ii. To compel any public officer to take measures to prevent or discontinue any act or omission that is harmful to the environment; or
 - iii. To provide compensation for any victim of a violation of the right to a clean and healthy environment.

(3) For the purposes of this Article, an applicant does not have to demonstrate that any person has incurred loss or suffered injury.

104) Essentially, the new Constitution has embraced and provided further anchorage to the spirit and letter of EMCA 1999 and EMCA (amendment) Act, 2015 whose requirements for environmental protection and management have largely informed Sections 69 through to 71. In Section 72 however, the new constitution allows for enactment of laws towards enforcement of any new provisions of the Supreme Law.

Environment Management and Coordination Act (No. 8 of 1999), EMCA (Amendment) Act 2015.

105) This is an Act of Parliament providing for the establishment of an appropriate legal and institutional framework for the management of the

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environment and for matters connected therewith and incidental thereto. This Act is divided into 13 Parts, covering main areas of environmental concern as follows: Preliminary (I); General principles (II); Administration (III); Environmental planning (IV); Protection and Conservation of the Environment (V); Environmental impact assessments (EIA), audits and monitoring (VI); Environmental audit and monitoring (VII); Environmental quality standards (VIII); Environmental Restoration orders, Environmental Easements (IX); Inspection, analysis and records (IX); Inspection Analysis and Records (X); International Treaties, Conventions and Agreements (XI) National Environment Tribunal (XII); Environmental Offences (XIII). The Act provides for the setting up of the various ESIA Regulations and Guidelines which are discussed below:

1.1.1.1 Environmental (Impact Assessment and Audit) (Amendment) Regulations 2019

- 106) The Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 states that these Regulations may be cited as the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019. L. N. 101/2003. The “Regulations should apply to all policies, plans, programmes, projects and activities specified in Part III and V of the Regulations” and lists the guidelines of undertaking, submission, and approval of the ESIA Reports, a key requirement outlined in this ESMF.
- 107) The Environmental (Impact Assessment and Audit) Regulations, 2003 are amended by deleting regulation 7 and substituting therefor the following new regulation — Preparation of project report. 7. (1) Every proponent undertaking a project specified in the Second Schedule of the Act as being a low-risk project or a medium risk project, shall submit to the Authority a summary project report (SPR) of the likely environmental effect of the project. (2) The project report submitted under sub regulation (1) shall specify — (a) the nature of the project; (b) the location of the project including — (i) proof of land ownership, where applicable (NARIGP NLC Guidelines, 2021 and annex 11 in this ESMF); (ii) any environmentally sensitive area to be affected; (iii) availability of supportive environmental management infrastructure; and (iv) conformity to land use plan or zonation plan; and (c) potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project. (3) Upon receipt of the project report under sub regulation (1), the Authority shall, within five days, undertake screening and assessment thereof for completeness and— (a) where the Authority considers that the proposed project may have a significant Kenya Subsidiary Legislation, 2019 203 adverse environmental impact, it shall recommend that the proponent should

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prepare and submit a comprehensive project report; or (b) where the Authority considers that the proposed project is not likely to have any significant adverse environmental impact, it shall exempt the proponent from submitting a comprehensive project report and issue the proponent with an approval to proceed with the project.

- 108) The comprehensive project report (CPR) prepared pursuant to a recommendation under sub regulation (3) (a), shall specify — (a) the nature of the project; (b) the location of the project including — (i) proof of land ownership (NARIGP NLC Guidelines, 2021 and annex II in this ESMF); (ii) the Global Positioning System coordinates; and (iii) the physical area that may be affected by the project's activities; (c) the activities that shall be undertaken during the project construction, operation and decommissioning phases; (d) a description of the international, national and county environmental legislative and regulatory frameworks on the environment and socio-economic matters; (e) the preliminary design of the project; (f) the materials to be used, products and byproducts, including waste to be generated by the project and the methods of their disposal; (g) the potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project; (h) an analysis of available alternatives including an alternative — (i) project site; (ii) design; (iii) technologies and Kenya Subsidiary Legislation, 2019 (iv) processes and the reasons for preferring the proposed site, design, technologies and processes; (i) an action plan

1.1.1.2 Environmental Management and Coordination (Waste Management)
Regulations 2006

- 109) These are described in Legal Notice No. 121 of the Kenya Gazette Supplement No. 69 of September 2006. These Regulations apply to all categories of waste as provided in the Regulations.

- 110) These include:

- *Industrial wastes;*
- *Hazardous and toxic wastes;*
- *Pesticides and toxic substances;*
- *Biomedical wastes; and*
- *Radio-active substances.*

- 111) The proposed project will have to abide by these regulations in dealing with waste management, especially the provisions of wastes which may be generated during their construction, operation and decommissioning phases of the sub-project investments including pesticide wastes.

1.1.1.3 Environmental Management and Coordination, (Water Quality) Regulations 2006

112) These are described in Legal Notice No. 120 of the Kenya Gazette Supplement No. 68 of September 2006. These Regulations apply to drinking water, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife and water used for any other purposes.

113) This includes the following:

- *Protection of sources of water for domestic use;*
- *Water for industrial use and effluent discharge;*
- *Water for agricultural use.*

114) These Regulations outline:

- a) *Quality standards for sources of domestic water;*
- b) *Quality monitoring for sources of domestic water;*
- c) *Standards for effluent discharge into the environment;*
- d) *Monitoring guide for discharge into the environment;*
- e) *Standards for effluent discharge into public sewers;*
- f) *Monitoring for discharge of treated effluent into the environment.*

115) In fulfilling the requirements of the regulations, the project proponent will have to undertake monitoring of both domestic water and wastewater and ensure compliance with the acceptable discharge standards.

1.1.1.4 Environmental Management and Coordination, Conservation of Biological Diversity (BD) Regulations 2006

116) These regulations are described in Legal Notice No. 160 of the Kenya Gazette Supplement No. 84 of December 2006. These Regulations apply to conservation of biodiversity which includes Conservation of threatened species, Inventory and monitoring of BD and protection of environmentally significant areas, access to genetic resources, benefit sharing and offenses and penalties.

1.1.1.5 Environmental Management and Coordination (Wetlands, Riverbanks, Lake Shores and Sea Shore Management) Regulations 2009

117) These regulations provide for the protection and management of wetlands, riverbanks, lakeshores and sea-shore management and detail guidelines on the same. The project will not support any investments that contravene these regulations.

1.1.1.6 Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009

- 118) These regulations prohibit making or causing any loud, unreasonable, unnecessary, or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. It also prohibits the contractor from excessive vibrations which annoy, disturb, injure, or endanger the comfort, repose, health or safety of others and the environment or excessive vibrations which exceed 0.5 centimeters per second beyond any source property boundary or 30 meters from any moving source. Under the regulation the contractor will be required to undertake daily monitoring of the noise levels within the project area during construction period to maintain compliance.

Occupational Health and Safety Act, 2007

- 119) This is an Act of Parliament to provide for the safety, health and welfare of workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act has the following functions among others:
- *Secures safety and health for people legally in all workplaces by minimizing exposure of workers to hazards (gases, fumes and vapors, energies, dangerous machinery/equipment, temperatures, and biological agents) at their workplaces.*
 - *Prevents employment of children in workplaces where their safety and health is at risk.*
 - *Encourages entrepreneurs to set achievable safety targets for their enterprises.*
 - *Promotes reporting of work-place accidents, dangerous occurrences and ill health with a view to finding out their causes and preventing similar occurrences in future.*
 - *Promotes creation of a safety culture at workplaces through education and training in occupational safety and health.*
- 120) Failure to comply with the OSHA, 2007 attracts penalties of up to KES 300,000- or 3-months jail term or both or penalties of KES 1,000,000-or 12-months jail term or both for cases where death occurs and is in consequence of the employer. The Occupational Safety and Health Act (OSHA) 2007 repealed the Factories and Other Places of Work Act. Anything done under the provisions of the Factories and Other Places of Work Act including subsidiary legislation issued before the commencement of the OSHA 2007 shall be deemed to have been done under the provisions of this Act.
- 121) The Factories and Other Places of Work Act had over the years passed several subsidiary rules and regulations for effective implementation of the Act. All shall, as long as it is not inconsistent with OSHA 2007 remain in force until

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repealed or revoked by subsidiary legislation under the provisions of OSHA 2007 and shall for all purposes be deemed to have been made under this Act.

122)

123) These regulations include:

- *The Factories (Cellulose Solutions) Rules 1957;*
- *The Factories (Wood Working Machinery) Rules 1959;*
- *The Factories (Dock) Rules 1962;*
- *The Factories (Eye Protection) Rules 1978;*
- *The Factories (Electric Power) (Special) Rules 1978;*
- *The Factories (Building Operations and Works of Engineering Construction) Rules 1984;*
- *The Factories and Other Places of Work (Health & Safety Committees) Rules 2004;*
- *The Factories and Other Places of Work (Medical Examination) Rules 2005;*
- *The Factories and Other Places of Work (Noise Prevention and Control) Rules 2005;*
- *The Factories and Other Places of Work (Fire Risk Reduction) Rules 2007;*
- *The Factories and Other Places of Work (Hazardous Substances) Rules 2007.*

124) The scope of OSHA 2007 has been expanded to cover all workplaces including offices, schools, academic institutions, and plantations. It establishes codes of practices to be approved and issued by the Director, Directorate of Occupational Safety and Health Services (DoSHS) for practical guidance of the various provisions of the Act.

125) Other parameters within the Act relevant to the project include:

1. *Duties of employers, owners or occupiers of workplace;*
2. *Establishment of safety and health committees;*
3. *Annual safety and health audit of workplaces;*
4. *Safety and Health obligations for persons who may come to premises for work and are not employees of that particular workplace;*
5. *Reporting of any accident, dangerous occurrence or occupational poisoning caused in the workplace to the area Occupational Health and Safety Office. These incidents should be entered in the General Register. In case of fatal accident information to the area Safety and Health Office should be within 24 hrs. and a written notice to the same within 7 days;*
6. *The duties of manufactures, designers, importers and suppliers to ensure that all articles and substances for use at workplace are safe and will not cause injury to health and the environment;*
7. *Duties of self-employed persons;*
8. *Duties of employed persons;*

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9. *Prohibition of interference or misuse of any appliance, convenience or any other facility provided to secure Safety, Health and Welfare at work by any person (occupier, self-employed person or employed);*
10. *The administration of the Act is the responsibility of a Director and other appointed and gazetted officials (Occupational Health and Safety Officers);*
11. *The registration of all workplaces by the Director Directorate of Occupational Health and Safety (DOHS) forming the basis of his work statistics;*
12. *Machinery safety to include:*
 - *Safe use of machinery, plant and equipment;*
 - *Prime makers and transmission machines;*
 - *The maintenance, construction of fencing safeguards; and*
The statutory requirements of various machines, plants and equipment (hoists and lifts, chains and ropes, cranes, steam receivers and containers, air receivers, cylinders for compressed liquefied and dissolved gases and refrigeration plants).
13. *Chemical safety including:*
 - (i) *Handling, transportation and disposal of chemicals and other hazardous substances;*
 - (ii) *Importance of Materials Safety Data Sheets (MSDS);*
 - (iii) *Labeling and marking of chemical substances;*
 - (iv) *Classification of hazardous chemicals and substances;*
 - (v) *Establishment and adoption of exposure limits on hazardous substances in a workplace.*
 - (vi) *Control of air pollution, noise and vibrations;*
 - (vii) *Redeployment on medical advice.*
- 126) The project will guide the contractors and proponents on how to comply with these regulations.

Public Health Act Chapter 242, 2012

- 127) The Public Health Act provides for the protection of human health through prevention and guarding against introduction of infectious diseases into Kenya from outside, to promote public health and the prevention, limitation or suppression of infectious, communicable or preventable diseases within Kenya, to advice and direct local authorities in regard to matters affecting the public health to promote or carry out researches and investigations in connection with the prevention or treatment of human diseases. This Act provides the impetus for a healthy environment and gives regulations to waste management, pollution, and human health. The Public Health Act regulates activities detrimental to human health. The owner(s) of the premises responsible for environmental nuisances such as noise and emissions, at levels that can affect human health, are liable to prosecution under this act. An environmental nuisance is defined in the act as one

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that causes danger, discomfort, or annoyance to the local inhabitants or which is hazardous to human health. This Act controls the activities of the project about human health and ensures that the health of the workers and surrounding community is not jeopardized by the activities of the project such as water development.

Pest Control Products Act Chapter 346, 2012

128) This Act covers the use, application, importation, and trade in pest products. It includes regulation on:

- Prescribing for the purposes of this Act the nomenclature of pests, classes and kinds of pests and pest control products;
- Prescribing the form in which applications for registration shall be made and the information to be furnished therewith;
- Respecting the registration of pest control products and establishments in which any pest control products are and led by manufacturers or dealers and prescribing the fees therefore, and respecting the procedures to be followed for the review of cases involving the refusal, suspension or cancellation of the registration of any such product or establishment;
- Prescribing the form, composition, and all other standards relating to the safe use of pest control products, including toxic residue effects;
- Respecting the manufacture or treatment of any pest control product to facilitate its recognition by change in coloration or other means;
- Respecting the standards for efficacy and safety of any pest control product;
- Respecting the manufacture, storage, distribution, display and use of any pest control product;
- Respecting the packaging, labelling and advertising of pest control products;
- Respecting the taking of samples and the making of analyses for the purposes and provisions of this Act;
- Prescribing the information to be supplied and the form of such information in respect of any pest control product that is to be imported into Kenya;
- Prescribing the circumstances and conditions under which pest control products that have met the requirements of the Cattle Cleansing Act may be deemed to be registered as prescribed under this Act;

1.1.1.7 Pest Control Products (Licensing of Premises) Regulations, 1984

129) **The Pest Control Products (Licensing of Premises) Regulations, 1984** [Section 15, L.N. 45/1984, L.N. 124/2006.] – Section 2 prohibits any person from using any premises for purposes of manufacturing, formulating, packaging,

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and storing pest control products without a license issued under these regulations.

1.1.1.8 Pest Control Products (Labeling, Advertising and Packaging) Regulations, 1984

- 130) **The Pest Control Products (Labeling, Advertising and Packaging) Regulations, 1984** [L.N. 89/1984, L.N. 127/2006.] – address the design of pesticide packages (packaging and labeling). Regulation 3 requires all pest control products to bear a label which has been approved by the PCPB. In addition, the regulation specifies the information required on the label. Regulation 9 provides for cases where the physical properties of a pest control product may not be recognized when it is being used. In such circumstances the pest control product must be denatured by means of color, odor or other methods the PCPB may approve so as to provide a signal or warning of its presence. Regulation 11 specifies the conditions under which a pest control product shall be distributed. Regulation 13 specifies the technical requirements for packaging (e.g., packaging material shall be sufficiently durable and manufactured to contain the pest control product safely under practical conditions of storage, display and distribution). Regulation 14 states the general prohibitions (e.g., words stating, implying or inferring that a pest control product is approved, accepted or recommended by the government shall not appear on a package or label in any advertisement respecting a pest control product).

1.1.1.9 Pest Control Products (Importation and Exportation) Regulations, 1984

- 131) **The Pest Control Products (Importation and Exportation) Regulations, 1984** [L.N. 146/1984, L.N. 125/2006.] contain provisions specifically addressing the import and export of pesticides. Regulation 2 prohibits the importation and exportation of pest control products unless licensed. Regulations 4 and 5 establishes the application process for a license in respect of importation or exportation of a pest control product and how the PCPB will deal with applications and issue of licenses respectively. Regulation 8 provides for instances where the PCPB may cancel or suspend a license (e.g., where the licensee has been convicted of an offense/has committed a breach of any of the terms or conditions of the license).

1.1.1.10 Pest Control Products (Disposal) Regulations, 2006

- 132) **Pest Control Products (Disposal) Regulations, 2006-Regulation 2** provides that those disposing pesticides for commercial purposes must be in

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possession of a license, and the use of any pesticide disposal method must be approved by the PCPB. Further, the Guidelines for on-farm Disposal of Pesticide Wastes and Containers, PCPB prescribe best practice when it comes to the disposal of unwanted or unused pesticide concentrates (obsolete stock). Further, guidelines for on-farm disposal of pesticide wastes and containers, PCPB. The guidelines prescribe that pesticide containers and packaging materials should never be used to contain water, food or feed stuffs for human or animal use. Additionally, while cleaning containers, the following guidelines must be noted:

- wear protective clothing
- avoid spillages and leaks
- completely empty containers and packages before disposing
- take care to avoid splashing or creating dust
- place cleaned containers in a dry secure compound prior to disposal
- At the container disposal site:
 - Containers should be punctured after rinsing to make them unusable, and crushed to reduce bulk
 - Combustible packaging materials should be burnt in a licensed incinerator. If not possible, containers should be made unusable, reduced in bulk and buried
 - Integrity of containers to be buried should be destroyed
 - Aerosols should not be punctured

Pharmacy and Poisons Act Chapter 244, 2012

- 133) **The Pharmacy and Poisons Act contains** provisions addressing the sale of poisons for agriculture and horticulture. Section 28 prescribes the manner in which a person intending to trade in pesticides may apply to the Pharmacy and Poisons Board for a license to deal with pesticides. The section further prescribes instances when the Board may refuse to issue or renew or may revoke a license to trade in pesticides. Section 13 prescribes the safe custody of poisons. The section provides that no person engaged in a trade, business or profession shall knowingly have in their possession or under their control a poison.

Employment Act, 2007

- 134) This Act declares and defines the fundamental rights of employees; minimum terms and conditions of employment; to provide basic conditions of employment of employees; and to regulate the employment of children, among other rights. Key sections of the Act elaborate on the employment relationship; protection of wages; rights and duties in employment; termination and dismissal and protection of

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children, among others. This Act will guide the management of workers, especially during the construction period.

135) While the EMCA supersedes all other environmental legislation, numerous other laws and regulations in addition to those described above influence the various aspects and activities of the Project, which include the following among others:

- i) *Trade License Act, Cap 497;*
- ii) *Penal Code Cap 63 (rev. 1985) ;*
- iii) *Standards Act, Chapter 496 (1974);*
- iv) *Work Injury and Benefits Act (2007);*
- v) *Food, Drugs and Chemical Substances Act, Cap 254 (rev 1992);*
- vi) *Use of Poisonous Substances Act, Cap 247(rev. 1983);*
- vii) *Transport Licensing Board Act (Cap. 404).*

HIV and AIDS Prevention and Control Act 2011

136) The object and purpose of this Act is to (a) promote public awareness about the causes, modes of transmission, consequences, means of prevention and control of HIV and AIDS; (b) Extend to every person suspected or known to be infected with HIV and AIDS full protection of his human rights and civil liberties by (i) prohibiting compulsory HIV testing save as provided in this Act; (ii) guaranteeing the right to privacy of the individual; (iii) outlawing discrimination in all its forms and subtleties against persons with or persons perceived or suspected of having HIV and AIDS; (iv) ensuring the provision of basic health care and social services for persons infected with HIV and AIDS; (c) promote utmost safety and universal precautions in practices and procedures that carry the risk of HIV transmission; and (d) positively address and seek to eradicate conditions that aggravate the spread of HIV infection.

137) Section 7 of the Act focuses on HIV and AIDS education in the workplace and states that (1) The Government shall ensure the provision of basic information and instruction on HIV and AIDS prevention and control to (a) employees of all Government Ministries, Departments, authorities and other agencies; and (b) employees of private and informal sectors. (2) The information provided under this section shall cover issues such as confidentiality in the workplace and attitudes towards infected employees and workers.

Sexual Offences Act 2006

138) An Act of Parliament that makes provision about sexual offences, aims at prevention and the protection of all persons from harm from unlawful sexual acts,

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and for connected purposes. Section 15, 17 and 18 below are mainly focused on sexual offenses on minor (children).

- 139) Under Section 15 it is an offense for Any person who -
- (a) knowingly permits any child to remain in any premises, for the purposes of causing such child to be sexually abused or to participate in any form of sexual activity or in any obscene or indecent exhibition or show;
 - (b) acts as a procurer of a child for the purposes of sexual intercourse or for any form of sexual abuse or indecent exhibition or show;
 - (c) induces a person to be a client of a child for sexual intercourse or for any form of sexual abuse or indecent exhibition or show, by means of print or other media, oral advertisements or other similar means;
 - (d) takes advantage of his influence over, or his relationship to a child, to procure the child for sexual intercourse or any form of sexual abuse or indecent exhibition or show;
 - (e) threatens or uses violence towards a child to procure the child for sexual intercourse or any form of sexual abuse or indecent exhibition or show;
 - (f) intentionally or knowingly owns, leases, rents, manages, occupies or has control of any movable or immovable property used for purposes of the commission of any offence under this law
- 140) Under Section 17 it is an offence for Any person who -
- (a) intentionally causes or incites another person to become a prostitute; and
 - (b) intentionally controls any of the activities of another person relating to that person's prostitution; and does so for or in expectation of gain for him or herself or a third person, is guilty of an offence and is liable upon conviction to imprisonment for a term of not less than five years or to a fine of five hundred thousand shillings or to both.
- 141) Under Section 18 it is an offense for Any person who -
- (1) Any person who intentionally or knowingly arranges or facilitates travel within or across the borders of Kenya by another person and either -
 - (a) intends to do anything to or in respect of the person during or after the journey in any part of the world, which if done will involve the commission of an offense under this Act; or
 - (b) believes that another person is likely to do something to or in respect of the other person during or after the journey in any part of the world, which if done will involve the commission of an offence under this Act, is guilty of an offence of trafficking for sexual exploitation.
 - (2) A person guilty of an offense under this section is liable upon conviction, to imprisonment for a term of not less than fifteen years or to a fine of not less than two

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million shillings or to both.

Labour Relations Act 2012

- 142) An Act of Parliament to consolidate the law relating to trade unions and trade disputes, to provide for the registration, regulation, management and democratization of trade unions and employers organizations or federations, to promote sound labor relations through the protection and promotion of freedom of association, the encouragement of effective collective bargaining and promotion of orderly and expeditious dispute settlement, conducive to social justice and economic development and for connected purposes. This Act in Section II Part 6 provides for freedom of employees to associate; section 7 provides for protection of rights of employees; Part 9 provides for adjudication of disputes and Part 10 provides for protection of the employees to hold strikes and lockouts.

National Gender and Equality Commission Act 2011

- 143) The over-arching goal for NGEC is to contribute to the reduction of gender inequalities and the discrimination against all; women, men, persons with disabilities, the youth, children, the elderly, minorities and marginalized communities.

Persons with Disabilities Act, 2014

- 144) This Act of Parliament prohibits discrimination in employment under section 15, education under section 18, accessibility, and mobility under section 21. Section 16 (1) obligates all private employer's persons with a disability with the required skills or qualifications either as a regular employee, apprentice or learner shall be entitled to apply for a deduction from his taxable income equivalent to twenty-five per cent of the total amount paid as salary and wages to such employee.

Children Act, 2010

- 145) The Children Act is an act of parliament that addresses provision for parental responsibility, fostering, adoption, custody, maintenance, guardianship, care and protection of children; provision for the administration of children's institutions; and giving effect to the principles of the Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child.

National Museums and Heritage Act 2006

- 146) The National Museums and Heritage Act 2006 is an act of Parliament that consolidates the law relating to national museums and heritage; to provide for the

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establishment control, management and development of national museums and the identification, protection, conservation and transmission of the cultural and natural heritage of Kenya; to repeal the Antiquities and Monuments Act and the National Museums Act.

Fire Arms Act

- 147) The Firearms Act is an act of parliament established for regulating, licensing, and controlling the manufacture, importation, exportation, transportation, sale, repair, storage, possession and use of firearms, ammunition, air guns and destructive devices.

National Police Service Act 2014

- 148) The National Police Act 2014 was established to Regulate and coordinate duties to be performed by police officers; regulating the granting of leave to police officers; prescribing arrangements and procedures for providing, assisting in or coordinating staff development programmes; and. the employment of civilian staff within the Service.

National Government Coordination Act

- 149) The National Government Coordination Act was established to ensure administrative and institutional framework for coordination of National government functions at the national and county levels of governance; to give effect to Articles 131(1) (b) and 132 (3) (b) of the Constitution.

Independent Policy Oversight Authority

- 150) The Independent Policing Oversight Authority was established through an Act of Parliament published in November 2011 to provide for civilian oversight over the work of the police in Kenya. The inaugural Board was sworn into office in June 2012.

RELEVANT INSTITUTIONS - ENVIRONMENTAL

National Environment Management Authority

- 151) The responsibility of the National Environmental Management Authority (NEMA) is to exercise general supervision and coordination 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.

County Environmental Committees

- 152) The County Environmental Committees also contribute to decentralized environmental management and enable the participation of local communities. These environmental committees consist of the following:
- i) *Representatives from all the ministries;*
 - ii) *Representatives from local authorities within the county*
 - iii) *Two farmers / pastoral representatives;*
 - iv) *Two representatives from NGOs involved in environmental management in the province/district;*
 - v) *A representative of each regional development authority in the province/district.*

National Environment Complaints Committee on Environment

- 153) The National Environmental Complaints Committee (NECC) was established under Section 31 of the Environmental Management and Co-ordination Act, 1999. It was formerly known as the Public Complaints Committee (PCC), but its name changed in the EMCA (Amendment) No. 5 of 2015). It is an important institution in the assessment of the condition of the environment in Kenya. It plays an important role in the facilitation of alternative dispute resolution mechanisms relating to environmental matters. The NECC makes recommendations to the Cabinet Secretary and thus contributes significantly to the formulation and development of environmental policy.

National Environmental Tribunal

- 154) The NET is established under Section 125 of EMCA for the purpose of hearing appeals from administrative decisions by organs responsible for enforcement of environmental standards. An appeal may be lodged by a project proponent upon denial of an EIA license or by a local community upon the grant of an EIA license to a project proponent. NEMA may also refer any matter that involves a point of law or is of unusual importance or complexity to NET for direction. The proceedings of NET are not as stringent as those in a court of law and NET shall not be bound by the rules of evidence as set out in the Evidence Act. Upon the making of an award, NET's mandate ends there as it does not have the power to enforce its awards. EMCA provides that any person aggrieved by a decision or award of NET may within 30 days' appeal to the High Court.

Environment and Land Court

- 155) The Kenya Constitution establishes an Environment and Land Court. Article 162 of the constitution provides for the creation of specialized courts to handle all

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matters on land and the environment. Such a court will have the status and powers of a High Court in every respect. Article 159 on the principles of judicial authority, indicates that courts will endeavor to encourage application of alternative dispute resolution mechanisms, including traditional ones, so long as they are consistent with the constitution. Section 20, of the Environment and Land Court Act, 2011 empowers the Environment and Land Court, on its own motion, or on application of the parties to a dispute, to direct the application of including traditional dispute resolution mechanisms.

Table 4-1. Other Institutions

Agency	Role	Specific functions list (relating to pest and pesticide management)
Ministry of Agriculture		
Pest Control Products Board (PCPB)	➤ Regulates the importation, exportation, manufacture, distribution, transportation, sale, disposal and use of products used for the control of pests and mitigate potential harmful effects to the environment.	<ul style="list-style-type: none"> ➤ Enhance compliance of pest control products to set standards and facilitate trade. ➤ Ensure safe, quality and efficacious pest control products are available to users ➤ Enhance responsible use of pest control products and food safety ➤ Improve management of pest control products lifecycle
KALRO	➤ Research in plant health issues related to pesticide	➤ Efficacy trials of agricultural pesticides for field and stored crops and fertilizers
Ministry of Health		
Directorate of Occupational Safety and Health Services (DoSHS)	➤ Ensures safety, health and welfare of workers predisposed to pesticides.	➤ Identify, evaluate and control biological and chemical factors in the work environment which may affect the safety and health of employed persons and the general environment.

INSTITUTIONAL RESPONSIBILITIES WITH RESPECT TO SOCIAL ISSUES

156) The constitution provides for a number of institutions to address issues of vulnerable and marginalized groups including Grievance Mechanisms. Key constitutional mechanisms for redress of issues related to marginalization include the (a) Commission on Administrative Justice-Office of the Ombudsman; (b) National Land Commission; and (c) Committee on Revenue Allocation.

Commission on Administrative Justice-Office of the Ombudsman

157) Kenya has a formal Feedback and Complaints Handling Mechanism. The Commission is the national/constitutional stakeholder instrument for grievance redress. Its mandate is to receive and address complaints against public officers and public institutions to improve service delivery. Three types of complaints can be made to the office of the Ombudsman including: (i) Citizen against State/public officers and institutions; (ii) Public officers against fellow public officers; and (iii) Public institutions against other public institutions. Table 4-2 below provides the steps and process for feedback and complaints redress by the Ombudsman. The Ombudsman has a three step and time bound mechanism for feedback and grievance redress, as shown below.

Table 4-2. Feedback and Complaints Redress by the CAJ

Step 1	<p>Complainant fills in a Complaint Form</p> <ul style="list-style-type: none"> Complaint is assessed for compliance with CAJ Mandate; If within mandate, CAJ commences inquiries and complainant is issued with copy of communication – CAJ 2 [Sec. 43]; If NOT within CAJ mandate, Complainant is advised accordingly and/or referred to appropriate government agencies; If a response is not received from the respondent after 14 working days, CAJ sends a first reminder giving the respondent 7 days to comply; If no response is received after this, a final reminder of 7 days is sent; If there is still no response after 28 days, summonses are issued to the respondent in line with [Sec. 27(a)].
Step 2	<p>If after the summonses the respondent still fails to comply, the Ombudsman proceeds to:</p> <ul style="list-style-type: none"> Determines the complaint in the absence of the respondent; Institutes legal proceedings against the respondent [according to Sec. 52]; Cites the respondent as an unresponsive State or Public Office or Officer, and/or declares such State or Public Officer to be unfit to serve in the Public Service;
Step 3	<p><i>How the Ombudsman undertakes grievance redress action:</i> In resolving a complaint, the Ombudsman may:</p> <ul style="list-style-type: none"> Conduct investigations according to articles [A.59 (2)(i)] [Sec 8 b)] [A.252(1)(g)] [Sec. 53 (1)]; Demand and obtain information or documents [S.26 (d)]; Conduct an inquiry [A.252(1)(g)] Undertake mediation, negotiation and conciliation [A.252 (1) (b)]; Constitute a hearing panel; Invite or summon any person or persons to attend to the Commission [S.26 (f)]; Obtain orders from the Court authorizing Searches or Seizures [Sec.26 (e)]. Obtain warrants of arrest for breach of any summons or orders of the Commission.

National Gender Equality Commission

158) National Gender Equality Commission is a constitutional Commission established by an Act of Parliament in August 2011, as a successor commission to the Kenya National Human Rights and Equality Commission pursuant to Article 59 of the Constitution. NGECE derives its mandate from Articles 27, 43, and Chapter Fifteen of the Constitution; and section 8 of NGECE Act (Cap. 15) of 2011, with the objectives of promoting gender equality and freedom from discrimination. The overarching goal for NGECE is to contribute to the reduction of gender inequalities and the discrimination against all; women, men, persons with disabilities, the youth, children, the elderly, minorities and marginalized communities.

Kenya National Commission on Human Rights

159) The Kenya National Commission on Human Rights (KNCHR) is an autonomous national Human rights institution established under article 59 of the Constitution of Kenya 2010 with the core mandate of furthering the promotion and protection of human rights in Kenya. The Commission plays two key broad mandates;

- It acts as a watchdog over the Government in human rights.
- Provides key leadership in moving the country towards a human rights state.

160) The main goal of KNCHR is to investigate and provide redress for human rights violations, to research and monitor the compliance of human rights norms and standards, to conduct human rights education, to facilitate training, campaigns and advocacy on human rights as well as collaborate with other stakeholders in Kenya.

WORLD BANK GROUP EHS GUIDELINES

161) The Environmental Health and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines contain the performance levels and measures that are normally acceptable to the WB Group, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology. The EHS General Guidelines remain relevant to this project and were utilized in the development of the ESMF and IPMF. Sub project IPMPs will during implementation include the EHS General guidelines that are available at www.ifc.org/ehsguidelines.

WORLD BANK COVID-19 PUBLIC CONSULTATIONS AND ENGAGEMENT GUIDELINES

162) The COVID-19 pandemic has led to development of procedures, protocols, and guidelines by the World Bank that Borrowers are required to follow when

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implementing bank projects until such a time that the pandemic will be managed. The Technical Note: Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings will be employed in this project.

**INTERNATIONAL ENVIRONMENTAL AND SOCIAL MANAGEMENT
REQUIREMENTS**

- 163) Kenya is a signatory to several international treaties and conventions and guidelines that are relevant to this project as described below.

Convention on Biological Diversity

- 164) The Convention on Biological Diversity adopts a broad approach to conservation. It requires Parties to the Convention to adopt national strategies, plans and programs for the conservation of biological diversity, and to integrate the conservation and sustainable use of biological diversity into relevant sectoral and cross-sectoral plans, programs and policies. The proposed program is expected to conserve biodiversity, especially the rare and endangered species in the project area and its environs. In addition, the United Nations Convention on Biological Diversity (CBD) provides a regulatory framework for the conservation of biological resources at the international level.

International Plant Protection Convention (IPPC) of FAO

- 165) The IPPC is an international treaty to secure action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control.

**Basel Convention on the Control of Transboundary Movements of
Hazardous Wastes and their Disposal, 1998**

- 166) The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as “hazardous wastes” based on their origin and/or composition and their characteristics, as well as two types of wastes defined as “other wastes”- household waste and incinerator ash. Based on the concept of prior informed consent, it requires that, before an export may take place, the authorities of the State of export notify the authorities of the prospective States of import and transit, providing them with detailed information on the intended movement. The movement may only proceed when all States concerned have given their written consent (articles 6 and 7). The Basel Convention also provides for cooperation between parties, ranging from exchange of information on

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issues relevant to the implementation of the Convention to technical assistance, particularly to developing countries (articles 10 and 13).

Bamako Convention, 1992

- 167) The Bamako Convention is a treaty of African nations prohibiting the import into Africa of any hazardous waste. The convention came into force in 1998 and includes the need to dispose of wastes in an environmentally sound manner.

International Plant Protection Convention (IPPC) of FAO, 1952

- 168) The IPPC is an international treaty to secure action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control.

United Nations Framework Convention on Climate Change, 1992

- 169) The convention seeks to regulate levels of greenhouse gases (GHGs) concentration in the atmosphere, to avoid the occurrence of climate change at levels that would harm economic development, or that would impede food production activities.

FAO Guidelines on Good Practice for Ground Application of Pesticides, 2001

- 170) The guidelines are aimed at decision-makers, managers, field supervisors and spray operatives. However, it must be emphasized that in some countries, legislation is already in place to control safe and efficient pesticide use and application. Accordingly, local legislation, or voluntary codes must be the first point of reference with this set of guidelines offered as additional information. This is an important point, as compliance with local legislation may have legal significance in the event of a claim against the poor field performance of a pesticide.

FAO Guidelines on Management Options for Empty Pesticide Containers, 2001

- 171) This guideline provides advice on the management of one-way pesticide containers following the deployment of their contents. Unless empty pesticide containers are managed correctly, they are hazardous to both mankind and the environment. There is a danger that empty containers could be reused for storing food and water, which could result in pesticide poisonings. Containers abandoned in the environment can lead to pesticide pollution in soil and groundwater. A container management scheme

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can minimize these risks and is part of the “life-cycle concept” as addressed in the international Code of Conduct on the Distribution and Use of Pesticides.

ILO Conventions

172) The following are the ILO Conventions and an indication of their ratification status:

- a) Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87). This is about freedom of association which Kenya has not yet ratified.
- b) Right to Organize and Collective Bargaining Convention, 1949 (No. 98). This was ratified in Kenya in 1964 and it is also about freedom of Association.
- c) Forced Labor Convention, 1930 (No. 29) (and its 2014 Protocol) – Kenya ratified this convention on forced labor in 1964.
- d) Abolition of Forced Labor Convention, 1957 (No. 105) - This is also on forced labor and ratified in Kenya in 1964.
- e) Minimum Age Convention, 1973 (No. 138) – This is a convention on child labor on age, and it was ratified in Kenya in 1979
- f) Worst Forms of Child Labor Convention, 1999 (No. 182) – This is a convention on child labor, and it was ratified in Kenya in 2001
- g) Equal Remuneration Convention, 1951 (No. 100). This is under discrimination and Kenya ratified the convention in 2001.
- h) Discrimination (Employment and Occupation) Convention, 1958 (No. 111) – The convention is also on discrimination and Kenya ratified it in 2001.

RELEVANT WORLD BANK ENVIRONMENTAL & SOCIAL STANDARDS

173) This chapter describes the World Bank Environmental and Social Standards (ESS) that are applicable to this project. Table 5-1 shows the Banks Environmental and Social Standards that are applicable as a result of the proposed project which are elaborated in Table 5-2.

APPLICABLE WORLD BANK'S ENVIRONMENTAL AND SOCIAL STANDARDS

174) The NAVCDP is a program targeting 33 Counties in Kenya and is expected to have sub-project investments for as long as the selected sites are feasible. However, the likely or potential locations of many of the proposed investments are unknown now. To reduce, minimize and mitigate adverse risks and impacts and undue harm of its development projects to the environment, all Bank-financed projects are guided by applicable environmental and social standards (ESS) under the Environmental and Social Framework (ESF). Both the project environmental and social risk assessments are Substantial due the expanded county coverage and the ward saturation approach adopted in the revised project design.

7Table 5-1. Applicable ESS

E & S Standards	Relevance
ESS1-Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10-Stakeholder Engagement and Information Disclosure	Relevant
ESS2-Labor and Working Conditions	Relevant
ESS3-Resource Efficiency and Pollution Prevention and Management	Relevant
ESS4-Community Health and Safety	Relevant
ESS5-Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS6-Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant ¹
ESS7-Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant

¹ This ESS is relevant, even though risks of impacts on sensitive habitats and/or protected areas is low, some of the subcomponents infrastructures can have an impact on the biodiversity namely the investments

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ESS8-Cultural Heritage	Relevant
ESS9-Financial Intermediaries	Not Currently Relevant
ESS 10 Stakeholder Engagement and Information Disclosure	Relevant

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Table 5-2. Relevant Environmental and Social Standards

ESS	Rationale
Assessment and Management of Environmental and Social Risks and Impacts. (ESS1)	<p>The project activities will include demonstrative micro-projects, small scale infrastructure for primary aggregation, small duration storage and value addition, provision of high-quality climate resilient inputs, access to irrigation and improved water management practices. The implementation of these activities is likely to result to potential negative environmental risks and impacts that include soil erosion, soil and water pollution, dust emissions, community health and safety risks and occupational, health and safety (OHS) risks, generation of hazardous and non-hazardous wastes, disease outbreak, eutrophication, salinization as well as potential use of pesticides. These impacts are expected to be temporary, site specific, reversible and easy to mitigate.</p> <p>The negative social impacts that could arise from the sub project activities are: (i) Conflict among communities due to site selection and investments; (ii) Difficulty in accessing land and temporary loss of income for enabling investments; (iii) Inadequate consultations with the local populations due to the vastness of the areas being targeted by the project; (iv) Inadequate input into the selection of value chains and sites for infrastructure investment; (v) Interruptions in production and livelihoods – some farmers may shift production towards the commodities being supported by the value chain development; (vi) Community health and safety; (vii) Gender Based Violence/Sexual Exploitation, Abuse and Harassment (GBV/SEAH) and sexual exploitation and abuse and harassment ((SEAH); (viii) Labour conflicts; (ix) Child labor;. (x) Elite capture of the investments or controlled access to products; (xi) Exclusion of disadvantaged and vulnerable groups from participating and benefiting from the investments such as selection of value chains, joining SACCOs, FPOs, and CDDCs that do not recognize the traditional practices and (xi) Limited access to outlets/extension support services/benefits especially in the far-flung counties; the project has prepared an ESMF</p>
Labor and Working Conditions (ESS2)	<p>This project will have the following types of workers: (i) direct workers, (ii) contracted workers, (iii) primary supply workers, and (iv) community workers. The project shall involve use of civil servants in the management and supervision of project activities. The direct workers will include Consultants who would be brought to support the Project on specific deliverables. The Project will involve the use of contracted workers in the construction of civil works. The project will also use community workers engaged by the FPOs and CIGs for farm level community-based activities. The project anticipates the use of community labor only for specific sub projects e.g. water related, NRM related or cottage industry. The use of community labor will be undertaken through two mechanisms: (i) when the community voluntarily contributes labor as their part of the beneficiary (counter-part) contribution; (ii) when the local youth will provide unskilled labour for off-season employment programs and will be paid for the work done. The risk of child labour and forced labour cannot be ruled out as the agriculture value chains such as coffee and cotton have faced similar allegations in the past. The Community labor agreements, bidding and contract documents shall include clauses forbidding child and forced labour as well as maintaining workers health and safety. Moreover, all government staff, Consultants and Contracted</p>

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ESS	Rationale
	workers will be required to sign a code of conduct (CoC) against sexual exploitation, in relevant languages, acceptable to the World Bank, to mitigate the risk of GBV/SEAH or misconduct in the workplace and in contact with community members. The CoC shall include zero tolerance policy on GBV/SEAH. They will also ensure that national labor-related laws are upheld, such as public service act, employment act, occupational health and safety act, workers injury benefits act, public health provisions, and public service human resource policy et al and institutional roles related to enforcement of the laws, and recruitment, discipline, appraisals, and dismissals. The contractors will provide full PPEs to the workers. The project has also prepared a Labour Management Plan.
Resource Efficiency and Pollution Prevention and Management (ESS3)	The project will finance procurement of agricultural inputs that will include pesticides. The pesticides may include both synthetic chemical pesticides and biopesticides and equipment to support the application of the pesticides and livestock vaccinations. The project has prepared An IPMP.
Community Health and Safety (ESS4)	<p>There are additional risks of SEAH that may extend to communities being served by the project. The project has prepared an Integrated Pest Management Plan to manage the Community health and safety risks of use of pesticides in farming.</p> <p>Given the Project will be implemented in counties that often witness inter/intracommunity conflicts based on competition for natural resources, the project has prepared Security Management Plan (SMP) as part of the ESMF to guide on the management of conflict and security risks during implementation. The project will not be implemented in counties that border Somalia or South Sudan with potential attacks from the Al Shabab militants or encountering unexploded ordinance (UXO), thus the security risk is assessed to be medium to low for the participating 33 counties. The project will not use the armed public security forces for its activities. However, the project may use unarmed private security personnel to guard infrastructure under the project during construction and operation phase.</p>
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS5)	NAVCDP will undertake infrastructural sub-projects, whose exact type, number, location, and designs are yet to be determined, for improved market access and value addition by smallholder farmers at farm, FPO, County, Regional and National levels that will require access to land. When project implementation activities commence, there will be environmental and social screening of all sub-projects proposed by beneficiaries to exclude from approval and eventual funding any that will: lead to involuntary resettlement and or physical displacement. Also, any activity that may involve income loss/economic displacement of more than 200 PAPs would be excluded under the project to keep the impact low and manageable. The farm investments will involve CIGs/VMGs group level demonstrative micro-project and small-scale infrastructure investments that will require small private or communally owned land obtained through voluntary donations or lease following the principles, procedures and processes provided in the Resettlement Policy Framework (RPF). At FPO level, the investments approved for funding will be small-scale capital investments established on private FPO land for which they must provide proof of ownership. Further, some FPO and value chain ecosystem investments maybe established on public land in compliance with the National Land Commission guidelines on change of use, reservation and lease. Loss of Land, Assets and Income: Since the project require small portions of farming land and will affect less than 10% of the

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ESS	Rationale
	land (fencing, crops and trees), hence the loss would be economic. Similarly, there is possible disruption of income of vendors until the market is rehabilitated/improved on the land already allocated for market. This economic loss to PAPs would be mitigated/restored through income restoration plan in ESMPs to be prepared for the specific activity. In case of community land, the plan shall be based on community level agreement on the potential scale of impact and mitigation measure agreed specific to the sub project. A RPF is prepared that details the mitigation and management measures to manage potential risks and impacts.
Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS 6)	This ESS is relevant, even though risks of impacts on sensitive habitats and/or protected areas is low, some of the sub-components infrastructures can have an impact on the biodiversity namely the investments aiming at improving the irrigation infrastructures (aquatic and riparian fauna), new storage areas for pesticides products, presence of machinery during the works on water pans and other water structures (on small terrestrial mammals) and pollution to water bodies by pesticides which can affect aquatic fauna. The project has prepared an ESMF and IPMP to mitigate on any project risk and impact.
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS7)	Due to the high number of counties targeted by the project (33), the investments will affect people meeting the criteria of ESS7 in 11 out of the 33 project counties (referred to as VMGs in Kenya). A VMGF has been prepared that outlines the procedure to prepare 11 VMGPs at county level. The VMGPs will then ensure that the county Development Plans (DPs) for selected value chains and Community Development Plans are meaningfully consulted, that VMG have equitable access to benefits of these plans and that VGMs concerns on the plans are addressed.
Cultural Heritage (ESS8)	Minor construction works have been proposed under components 1, 2,3. Thus, there is the potential for a chance to find cultural or archeological significance during construction. And the project has prepared an ESMF With a Chance Finds Procedure.
Stakeholder Engagement and Information Disclosure (ESS 10)	A key risk under this standard, relates to potential inadequate, ineffective, insufficiently inclusive, and inappropriate stakeholder and community engagements and disclosure of information leading to exclusion of truly vulnerable, marginalized and minority members of the community from expressing their views and concerns relating to the project and to their exclusion from sharing in project benefits, amplified by the context of limited resources against widespread need. Others include elite capture where project benefits are diverted to less-needy individuals and locations and poor access to beneficiaries for meaningful community engagements and difficulty in monitoring for social harm. The project has also prepared a SEP.

**WORLD BANK'S ASSESSMENT AND MANAGEMENT OF
ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS**

- 175) The Bank will classify all projects (including projects involving Financial Intermediaries (FIs)) into one of four classifications: High Risk, Substantial Risk, Moderate Risk or Low Risk. In determining the appropriate risk classification, the Bank will consider relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the borrower (including any other entity responsible for the implementation of the project) to manage the environmental and social risks and impacts in a manner consistent with the ESSs. Other areas of risk may also be relevant to the delivery of environmental and social mitigation measures and outcomes, depending on the specific project and the context in which it is being developed.
- 176) The Project activities are relevant in 9 out of the 10 World Bank ESF. Table 5.3 is a gap analysis of the World Bank ESF and the Kenyan National Laws including suggestions to address identified gaps.

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p><u>Social and Environmental Assessment and Management System (ESSI)</u></p> <p><i>Use of Borrower's Environmental and Social Framework</i> When a project is proposed for Bank support, the Borrower and the Bank will consider whether to use all, or part, of the Borrower's ES Framework in the assessment, development, and implementation of a project. Such use may be proposed provided this is likely to address the risks and impacts of the project and enable the project to achieve objectives materially consistent with the ESSs.</p> <p><i>Environmental and Social Assessment</i> The Borrower will carry out an environmental and social assessment of the project to assess the environmental and social risks and impacts of the project throughout the project life cycle. The assessment will be proportionate to the potential risks and impacts of the project, and will assess, in an integrated way, all relevant direct, indirect, and cumulative environmental and social risks and impacts throughout the project life cycle, including those specifically identified in ESSs2–10.</p> <p><i>Environmental and Social Commitment Plan</i> The Borrower will develop and implement an ESCP, which will set out measures and actions required for the project to achieve compliance with the ESSs over a specified time frame. The ESCP will be agreed upon with</p>	<p><i>Use of Borrower's Environmental and Social Framework</i></p> <p><u>Environmental Management and Coordination Act 1999;</u> Provides for protection and conservation of the environment, environmental impact assessment, and environmental auditing and monitoring.</p> <p><u>Environmental Management and Coordination (Amendment) Act 2015</u> (<i>legal Notice No 5 of 2015</i>) and provides for a full ESIA study for high-risk projects.</p> <p><u>Environmental Impact Assessment Guidelines and Administrative Procedures, 2002.</u> The guidelines provide the steps in implementation of an EIA, Monitoring and Environmental Audit Provides for carrying out an EIA Study where a Project will have significant environmental impacts.</p>	<p>No significant gaps between ESS I and the various national laws except that the project will refocus on reducing community vulnerability through inclusion, targeting, and participation of all without discrimination.</p>

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>the Bank and will form part of the legal agreement. The draft ESCP will be disclosed as early as possible, and before project appraisal.</p> <p>Project Monitoring and Reporting The Borrower will monitor the environmental and social performance of the project in accordance with the legal agreement (including the ESCP). The extent and mode of monitoring will be agreed upon with the Bank and will be proportional to the nature of the project, the project's environmental and social risks and impacts, and compliance requirements. The Borrower will ensure that adequate institutional arrangements, systems, resources, and personnel are in place to carry out monitoring. Where appropriate and as set out in the ESCP, the Borrower will engage stakeholders and third parties, such as independent experts, local communities, or nongovernmental organizations (NGOs), to complement or verify its own monitoring activities. Where other agencies or third parties are responsible for managing specific risks and impacts and implementing mitigation measures, the Borrower will collaborate with such agencies and third parties to establish and monitor such mitigation measures.</p> <p>Stakeholder Engagement and Information Disclosure As set out in ESS10, the Borrower will continue to engage with, and provide sufficient information to</p>	<p>Project Monitoring and Reporting The Environmental Management and Coordination Act provides for ESIA studies including as part of ESMP clear procedures to monitor and measure the effectiveness of the management program, as well as compliance with any related legal and/or contractual obligations and regulatory requirements.</p> <p>Environmental (Impact Assessment and Audit Regulations), 2003 Environmental Audit (EA) is the systematic documentation, periodic and objective evaluation of activities and processes of an ongoing project. The purpose of EA is to determine the extent to which the activities and programs conform to the approved environmental management plan. An initial environmental audit and a control audit are conducted by a qualified and authorized environmental auditor or environmental inspector who is an expert or a firm of experts registered by NEMA. In the case of an ongoing project NEMA requires the proponent to undertake an initial environmental audit study to provide baseline information upon which subsequent environmental audits shall be based. The proponent shall be issued with an acknowledgement letter and an improvement order where necessary.</p> <p>Stakeholder Engagement and Information Disclosure</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>stakeholders throughout the life cycle of the project, in a manner appropriate to the nature of their interests and the potential environmental and social risks and impacts of the project.</p>	<p>The Environmental Management and Coordination Act provides for ESIA studies to include stakeholder engagement and disclosure of information.</p>	
<p><u>Labour and Working Conditions (ESS2)</u> recognizes that the pursuit of economic growth through employment creation and income generation should be balanced with protection for basic rights of workers.</p> <ul style="list-style-type: none"> • ESS2 provides specific requirements on occupation health and safety, expanding upon the World Bank Group's Environmental, Health and Safety Guidelines. • It introduces labor management procedures. • It requires non-discrimination and equal opportunity. • ESS2 includes provisions on the treatment of direct, contracted, community, and primary supply workers, and government civil servants. • ESS2 recognizes workers' organizations. It requires a grievance mechanism for all project workers. • ESS2 includes protection of project workers, including vulnerable workers, such as women, and persons with disabilities. • Prevents the use of all forms of forced labor and child labor 	<p><u>Occupational Safety and Health Act (OSHA), 2007;</u></p> <ul style="list-style-type: none"> • Provides for the safety, health and welfare of workers and all persons lawfully present at workplaces. • Provides for the registration of workplaces. • provides for maintenance of cleanliness of workplaces, adequate lighting and ventilation, provision of sanitary conveniences, • Outlines safety requirements in use of machinery to prevent accidents and injuries. <p><u>The Factories and Other Places of Work (Noise Prevention and Control) Rules, 2005</u> Rules provide for the maximum noise exposure levels for workers in places of work and for the provision of protective equipment for those exposed to high noise levels.</p> <p>Provide that an occupier shall also institute noise reduction measures at the source of noise in the workplace.</p> <p><u>Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009</u></p> <ul style="list-style-type: none"> • Prohibits the generation of unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. 	<p>No significant gaps between ESS 2 and the various national laws, but the project will have a keen eye on reducing child protection and sexual exploitation, abuse and harassment at the point of employment especially for women</p>

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>Working Conditions and Management of Workers Relationship The Borrower will 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 law and this ESS 9. The procedures address the way in which this ESS will apply to different categories of project workers, including direct workers, and the way in which the Borrower will require third parties to manage their workers.</p> <p>Non-Discrimination and Equal Opportunity Decisions relating to the employment or treatment of project workers will not be made on the basis of personal characteristics unrelated to inherent job requirements. 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,</p>	<ul style="list-style-type: none"> Provides for the maximum noise levels permissible in various environmental set ups such as residential areas, places of worship, commercial areas and mixed residential <p>Working Conditions and Management of Workers Relationship Kenya's employment and labor laws workers are guided by clear labor management procedures.</p> <p>Non-Discrimination and Equal Opportunity The constitution of Kenya does not allow discrimination of any form and prohibit discrimination on race, sex, ethnicity, religion, and several other criteria, and further the labor laws also provide for equal opportunity and non-discrimination of any form for workers with respect to employment including any form of intimidation or harassment. However, the laws do not explicitly prohibit discrimination based on sexual orientation or gender identity."</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>or disciplinary practices. The labor management procedures will set out measures to prevent and address harassment, intimidation, and/or exploitation. Where national law is inconsistent with this requirement, the project will seek to carry out project activities in a manner that is consistent with the requirements to the extent possible. The borrower will take measures to prevent and address harassment, intimidation, and/or exploitation, especially in regard to women. The principles of non-discrimination apply to migrant workers.</p> <p>Workers Organisation In countries where national law recognizes workers' rights to form and to join workers' organizations of their choosing and to bargain collectively without interference, the project will be implemented in accordance with national law. In such circumstances, the role of legally established workers' organizations and legitimate workers' representatives will be respected, and they will be provided with information needed for meaningful negotiation in a timely manner. Where national law restricts workers' organizations, the project will not restrict project workers from developing alternative mechanisms to express their grievances and protect their rights regarding working conditions and terms of employment. The Borrower should not seek to influence or control these alternative mechanisms. The Borrower will not discriminate or retaliate against project workers who participate, or seek to participate,</p>	<p>Workers Organisation Kenya's employment and labor laws fully provide for Grievance Mechanism establishment in all workplaces through freedom to join associations or trade unions and enter into collective bargaining agreements.</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>in such workers' organizations and collective bargaining or alternative mechanisms.</p> <p>The Borrower will provide a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns and inform the workers of the grievance mechanism at the time of recruitment and make it easily accessible to them.</p> <p>Protecting the Workforce Child Labour and Minimum Age A child under the minimum age will not be employed or engaged in connection with the project. The labor management procedures will specify the minimum age for employment or engagement in connection with the project, which will be the age of 14 unless national law specifies a higher age.</p> <p>Forced Labor The borrower will not employ forced labor, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor-contracting arrangements. The borrower will not employ trafficked persons.</p> <p>Grievance Mechanisms</p>	<p>Child Labour and Minimum Age Employment Act, 2007 defines a “child” to mean a person who has not attained the age of eighteen years. This is the same definition in the children Act, 2001 and the Industrial Act. The law does not prohibit employment of children between the ages of 16-18 per se. It prohibits child labour which occurs when certain factors accompany such employment apply.</p> <p>Forced Labor Any form of forced labor, including trafficking, is prohibited by the labor laws.</p> <p>Grievance Mechanisms Kenya's employment and labor laws provide for all workers the freedom and right to join associations and trade unions where they can air their grievances without fear of victimization.</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>A grievance mechanism will be provided for all direct workers and contracted workers (and, where relevant, their organizations) to raise workplace concerns. Such workers will be informed of the grievance mechanism at the time of recruitment and the measures put in place to protect them against reprisal for its use. Measures will be put in place to make the grievance mechanism easily accessible to all such project workers.</p> <p>Occupational Health and Safety The Borrower to provide a safe and healthy work environment taking into account inherent risks in its particular sector and specific classes of hazards in the work areas. Measures relating to occupational health and safety will be applied to the project. The OHS measures will take into account the General Environmental Health and Safety Guidelines (EHSGs) and, as appropriate, the industry specific EHSGs and other Good International Industry Practice (GIIP). The OHS measures applying to the project will be set out in the legal agreement and the Environmental and Social Commitment Plan (ESCP).</p> <p>Contracted Workers The Borrower will make reasonable efforts to ascertain that third parties who engage contracted workers are legitimate and reliable entities and have in place labor management procedures applicable to the project that will allow them to operate in accordance with the requirements of this ESS.</p>	<p>Occupational Health and Safety The Occupational Safety and Health Act has clear provisions and requirements for ensuring health and safety of workers and stipulates the requirements of the employer with respect to the same.</p> <p>Contracted Workers Kenya's employment and labor laws provide for protection of the rights of all categories of workers, including contracted workers.</p> <p>Community Workers Kenyan labor laws do not interfere with agreements made between workers and employers for as long as the agreement is in line with the employment act.</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>Community Workers Projects may include the use of community workers in a number of different circumstances, including where labor is provided by the community as a contribution to the project, or where projects are designed and conducted for the purpose of fostering community-driven development, providing a social safety net or providing targeted assistance in ecologically sensitive and conflict-affected situations. Given the nature and objectives of such projects, the application of all requirements of ESS2 may not be appropriate. In all such circumstances, the Borrower will require measures to be implemented to ascertain whether such labor is or will be provided on a voluntary basis as an outcome of individual or community agreement.</p> <p>Primary Supply Workers As part of the environmental and social assessment, the Borrower will identify potential risks of child labor, forced labor, and serious safety issues which may arise in relation to primary suppliers.</p>	<p>Primary Supply Workers Kenya's labor laws provide and ensure that rights of all categories of workers are protected including workers employed by primary suppliers. Child labour, forced labour and workers safety are considered a criminal offence by the labour and employment laws as well as occupational safety and health legislation.</p>	
<p><u>Resource Efficiency and Pollution Prevention and Management (ESS3)</u> recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services, and the environment at the local, regional, and global levels. The</p>	<p>Kenya has a variety of legal and regulatory statutes that address and enforce Pollution Prevention and Management including (Air, Water, Hazardous and Non-Hazardous Waste, Chemical and Hazardous Materials, Pesticides) as described below.</p>	<p>No significant gaps between ESS 3 and the various national laws.</p>

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention, and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable.</p> <p>The Borrower will consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention measures in accordance with the mitigation hierarchy. The measures will be proportional to the risks and impacts associated with the project and consistent with GILP, in the first instance the Environmental Health and Safety Guidelines (EHSGs).</p> <ul style="list-style-type: none"> • Include requirements on management of wastes, chemical and hazardous materials. • Provides for avoidance or minimization and/generation of hazardous and non-hazardous waste • Minimize and manage the risks and impacts associated with pesticide use • Provides for measures to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • Provides for measures to promote more sustainable use of resources, including energy 	<p><u>Environmental Management and Coordination (Water Quality) Regulations 2006</u></p> <ul style="list-style-type: none"> • Provides for the protection of ground and surface water resources. • Provides the water quality standards for sources of domestic water. • Provides that an EIA shall be carried out and license obtained to abstract water or carry out activities that may have adverse impacts on the quantity or quality of water in lakes, rivers, streams, springs and wells • Provides the water quality standards for effluent discharged into the aquatic environment. <p><u>Environmental Management and Coordination (Waste Management) Regulations 2006</u></p> <ul style="list-style-type: none"> • Provides for standards for handling, transportation and disposal of various types of wastes including pesticide wastes and other hazardous wastes. • Requirements to ensure waste minimization or cleaner production, waste segregation, recycling or composting. • Provides for licensing of vehicle transporting waste. • Provides for the licensing of waste disposal facilities. <p><u>Environmental Management and Coordination (Controlled Substances) Regulations 2007 (Legal Notice No 73 of 2007)</u></p> <ul style="list-style-type: none"> • Provides for measures for storage, handling packaging and disposal of products with ozone-depleting substances. 	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>and water.</p> <ul style="list-style-type: none"> • Requires that project that involving significant pest management issues, the Project will prepare IPMP • Requires that the Ministry will not use pesticides or pesticides products or formulations unless such use is in compliance with WBG EHSGs • Requires not to use any pesticides products that contain active ingredients that are restricted under applicable international conventions or protocols • Provides for measures to reduce project related GHG emissions. <p>Pollution Prevention and Management The Borrower will avoid the release of pollutants or, when avoidance is not feasible, minimize 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. This applies to the release of pollutants to air, water, and land due to routine, nonroutine, and accidental circumstances, and with the potential for local, regional, and transboundary impacts.</p> <p>Air Pollution Management In addition to the resource efficiency measures described above, the Borrower will consider alternatives and implement technically and financially feasible and cost-effective options to avoid or minimize project-</p>	<p><u>Environmental Management and Coordination (Air Quality) Regulations, 2014</u></p> <ul style="list-style-type: none"> • Provides for ambient air quality tolerance limits. • Prohibits air pollution in a manner that exceeds specified levels. • Prohibits air pollution in controlled areas including residential areas, hospitals, National Parks, reserves and sanctuaries, conservation areas and central business districts • Provides for the control of vehicular emissions. • Provides for prevention of dispersion of visible particulate matter or dust from any material being transported. 	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>related air emissions during the design, construction, and operation of the project.</p> <p>Management of Hazardous and Non-hazardous Waste. The Borrower will avoid the generation of hazardous and non-hazardous waste. Where waste generation cannot be avoided, the Borrower will minimize the generation of waste, and reuse, recycle and recover waste in a manner that is safe for human health and the environment. Where waste cannot be reused, recycled or recovered, the Borrower will treat, destroy, or dispose of it in an environmentally sound and safe manner that includes the appropriate control of emissions and residues resulting from the handling and processing of the waste material.</p> <p>Management of Chemicals and Hazardous Materials The Borrower will avoid the manufacture, trade, and use of chemicals and hazardous materials subject to international bans, restrictions or phaseouts unless for an acceptable purpose as defined by the conventions or protocols or if an exemption has been obtained by the Borrower, consistent with Borrower government commitments under the applicable international agreements.</p> <p>Management of Pesticides</p>	<p>Management of Pesticides Pest Control Products Act Chapter 346, 2012 This Act covers the use, application, importation, and trade in pest products. The Pest Control Products (Licensing of Premises) Regulations prohibits any person from using any premises for purposes of manufacturing, formulating, packaging, and storing pest control products without a license issued under these regulations. The Pest Control Products (Labeling, Advertising and Packaging) Regulations, 1984– address the design of pesticide packages (packaging and labeling). The Pest Control Products (Importation and Exportation) Regulations, 1984 contain provisions specifically addressing the import and export of pesticides. Pest Control Products (Disposal) Regulations, 2006-Regulation 2 provides that those disposing pesticides for</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>Where projects involve recourse to pest management measures, the Borrower will give preference to integrated pest management (IPM) or integrated vector management (IVM) approaches using combined or multiple tactics.</p>	<p>commercial purposes must be in possession of a license, and the use of any pesticide disposal method must be approved by the PCPB.</p>	
<p>Community Health and Safety (ESS4) recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.</p> <p>ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.</p> <p>ESS 4 Objectives include:</p> <ul style="list-style-type: none"> • To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and no routine circumstances. • To promote quality and safety, and considerations relating to climate change in the design and construction of infrastructure, including dams. 	<p>Kenya has a number of legal and regulatory statutes that address community health and safety, hazard material management and safety, safety services, traffic and road safety, ecosystem services, community exposure to diseases, emergency preparedness and security personnel.</p> <p><u>The Public Health Act (Cap 242)</u></p> <ul style="list-style-type: none"> • Provides for the prevention of the occurrence of nuisance or conditions dangerous/injurious to humans. • Provides that the relevant local authority shall take all lawful, necessary and reasonably practicable measures. <p><u>Environmental Management and Coordination Act 1999;</u></p> <p>Provides for protection and conservation of the environment, environmental impact assessment, and environmental auditing and monitoring.</p> <p><u>Environmental Management and Coordination (Amendment) Act 2015</u> (legal Notice No 5 of 2015) and provides for a full ESIA study for high-risk projects.</p> <p><u>Environmental Impact Assessment Guidelines and administrative procedures, 2002.</u> The guidelines provide</p>	<p>No significant gaps between ESS 4 and the various national laws.</p>

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<ul style="list-style-type: none"> • To avoid or minimize community exposure to project-related traffic and road safety risks, diseases, and hazardous materials. • To have in place effective measures to address emergency events. • To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities. <p>Community Health and Safety The Borrower will evaluate the risks and impacts of the project on the health and safety of the affected communities during the project life cycle, including those who, because of their particular circumstances, may be vulnerable. The Borrower will identify risks and impacts and propose mitigation measures in accordance with the mitigation hierarchy.</p> <p>Infrastructure, Equipment Design and Safety The Borrower will design, construct, operate, and decommission the structural elements of the project in accordance with national legal requirements, the EHSGs and other GIIP, taking into consideration safety risks to third parties and affected communities. Structural elements of a project will be designed and constructed by competent professionals and certified or approved by competent authorities or professionals. Structural design will take into account climate change considerations, as appropriate.</p>	<p>the steps in implementation of an EIA, Monitoring and Environmental Audit</p> <p>Provides for carrying out of an EIA Study where a Project will have significant environmental impacts and the Project Report does not disclose adequate mitigation measures</p> <p><u>Environmental Management and Coordination (Water Quality) Regulations 2006</u></p> <ul style="list-style-type: none"> • Provides for the protection of ground and surface water resources. • Provides the water quality standards for effluent discharged into the aquatic environment. <p><u>Environmental Management and Coordination (Waste Management) Regulations 2006</u></p> <ul style="list-style-type: none"> • Provides for standards for handling, transportation, and disposal of various types of wastes including hazardous wastes. • Requirements to ensure waste minimization or cleaner production, waste segregation, recycling, or composting. • Provides for licensing of vehicle transporting waste. • Provides for the licensing of waste disposal facilities. <p><u>Environmental Management and Coordination (Controlled Substances) Regulations 2007 (Legal Notice No 73 of 2007)</u></p> <ul style="list-style-type: none"> • Provides for measures for storage, handling packaging and disposal of products with ozone-depleting substances. 	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>Hazardous Materials Management and Safety The Borrower will avoid or minimize the potential for community exposure to hazardous materials and substances that may be released by the project.</p> <p>Safety of Services Where the project involves provision of services to communities, the Borrower will establish and implement appropriate quality management systems to anticipate and minimize risks and impacts that such services may have on community health and safety. In such circumstances, the Borrower will also apply the concept of universal access, where technically and financially feasible.</p> <p>Traffic and Road Safety The Borrower will identify, evaluate, and monitor the potential traffic and road safety risks to workers, affected communities, and road users throughout the project life cycle and, where appropriate, will develop measures and plans to address them. The Borrower will incorporate technically and financially feasible road safety measures into the project design to prevent and mitigate potential road safety risks to road users and affected communities.</p> <p>Ecosystem Services</p>	<p><u>Environmental Management and Coordination (Air Quality) Regulations, 2014</u></p> <ul style="list-style-type: none"> • Provides for ambient air quality tolerance limits. • Prohibits air pollution in a manner that exceeds specified levels. • Prohibits air pollution in controlled areas including residential areas, hospitals, National Parks, reserves and sanctuaries, conservation areas and central business districts • Provides for the control of vehicular emissions. • Provides for prevention of dispersion of visible particulate matter or dust from any material being transported. <p><u>Traffic and Road Safety</u> Kenya has a Traffic Act and National Transport and Safety Authority (NTSA) Act which ensures the implementation of all traffic rules and regulations including protecting communities from road safety hazards and risks.</p> <p><u>Ecosystem Services</u></p>	

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<p>The project's direct impacts on ecosystem services may result in adverse health and safety risks to and impacts on affected communities. With respect to this ESS, ecosystem services are limited to provisioning and regulating services as defined in ESS1. Where appropriate and feasible, the Borrower will identify the project's potential risks and impacts on ecosystem services that may be exacerbated by climate change. Adverse impacts will be avoided, and if they are unavoidable, the Borrower will implement appropriate mitigation measures.</p> <p>Community Exposure to Disease The Borrower will avoid or minimize the potential for community exposure to waterborne, water based, water-related, and vector-borne diseases, and communicable and non-communicable diseases that could result from project activities, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. Where specific diseases are endemic in communities in the project area, the Borrower is encouraged to explore opportunities during the project life cycle to improve environmental conditions that could help minimize their incidence.</p> <p>Emergency Preparedness and Response The Borrower will identify and implement measures to address emergency events. An emergency event is an</p>	<p><u>Environmental Management and Coordination Act Environmental Management and Coordination Act 1999;</u> Provides for protection and conservation of the environment, environmental impact assessment, and environmental auditing and monitoring. <u>Environmental Management and Coordination (Amendment) Act 2015</u> (legal Notice No 5 of 2015) and provides for a full ESIA study for high-risk projects.</p> <p><u>Community Exposure to Disease</u> <u>The Public Health Act (Cap 242)</u></p> <ul style="list-style-type: none"> • Provides for the prevention of the occurrence of nuisance or conditions dangerous/injurious to humans. • Provides that the relevant local authority shall take all lawful, necessary and reasonably practicable measures. • Kenya Guidelines on Management of COVID-19 provides for approaches towards managing the spread of COVID-19 including social distancing and quarantine. <p><u>Emergency Preparedness and Response</u> <u>Environmental Management and Coordination Act 1999;</u></p>	

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<p>unanticipated incident, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks, or spills, which may occur for a variety of different reasons, including failure to implement operating procedures that are designed to prevent their occurrence, extreme weather, or lack of early warning. The measures will be designed to address the emergency event in a coordinated and expeditious manner; to prevent it from injuring the health and safety of the community; and to minimize, mitigate, and compensate for any impacts that may occur.</p> <p>Security Personnel When the Borrower retains direct or contracted workers to provide security to safeguard its personnel and property, it will assess risks posed by these security arrangements to those within and outside the project site. In making such arrangements, the Borrower will be guided by the principles of proportionality and GIIP, and by applicable law in relation to hiring, rules of conduct, training, equipping, and monitoring of such security workers. The Borrower will not sanction any use of force by direct or contracted workers in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat. The Borrower will (i) make reasonable inquiries to verify that the direct or contracted workers retained by the Borrower to provide security are not implicated in past abuses; (ii) train them adequately (or determine that they are properly trained) in the use of force (and</p>	<p>Provides for development of emergency preparedness and response plans for minimizing risks to communities and ensuring participation of communities in response.</p> <p>Security Personnel The Private Security Regulation Act 2016 provides for conduct of contracted security personnel including hiring, training, use of force and association with communities. The regulations include and require that security personnel undergo mandatory background checks by the National Intelligence Service (NIS) and obtain a certificate of good conduct form NIS before consideration for employment.</p> <p>The National Police Act 2014 was established to Regulate and coordinate duties to be performed by police officers; regulating the granting of leave to police officers; prescribing arrangements and procedures for providing, assisting in or coordinating staff development programmes; and. the employment of civilian staff within the Service.</p> <p>The Firearms Act is an act of parliament established for regulating, licensing, and controlling the manufacture, importation, exportation, transportation, sale, repair, storage,</p>	

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<p>where applicable, firearms) and appropriate conduct toward workers and affected communities; and (iii) require them to act within the applicable law and any requirements set out in the Environmental and Social Commitment (ESCP).</p>	<p>possession and use of firearms, ammunition, air guns and destructive devices.</p> <p>The Independent Policing Oversight Authority was established through an Act of Parliament published in November 2011 to provide for civilian oversight over the work of the police in Kenya.</p>	
<p><u>Land Acquisition, Restrictions on land use and Involuntary Resettlement (ESS5) -</u> <u>includes situations where project makes land physically unusable or inaccessible, even when there is no land acquisition. It covers restrictions on access to communal property and natural resources, including marine and aquatic, timber, freshwater, hunting and gathering ground, grazing, and cropping areas. It contains criteria on voluntary transactions, land donations, forced eviction and eminent domain; as well as a definition of replacement cost, including where inflation exists. ESS5 provides some flexibility where a party derived substantial income from multiple illegal rental units. It includes provisions to protect and support women, including documentation, training, access to credit and jobs.</u></p> <p><u>Objectives:</u> <u>The Environmental and Social Standard on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS5), requires Borrowers to:</u> • Avoid or minimize involuntary resettlement by exploring project design alternatives • Avoid forced eviction • Mitigate</p>	<p>Kenya has several land statutory policies and laws governing land ownership, use, transfer, buying and selling, change of land use, land dispute resolution, etc.</p> <ul style="list-style-type: none"> • Environment and Land Court. Section 20, of the Environment and Land Court Act, 2011 empowers the Environment and Land Court, on its own motion, or on application of the parties to a dispute, to direct the application of including traditional dispute resolution mechanisms. • Land Act No. 6 Of 2012 Revised Edition 2016 [2012] Provide for the sustainable administration and management of land and land-based resources, and for connected purposes. • Community Land Act 2016 Presents an unprecedented opportunity for communities to legally claim rights to their land and have complete decision-making power about how their land is used and managed. 	<p>The main gap is the definition of encroachers and squatters. In the national laws both have no legal basis while in the ESS5, encroachers are compensated (where applicable).</p>

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<p><u>unavoidable adverse impacts from land acquisition or restrictions on land use through timely compensation for loss of assets at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher • Improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure • Ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and informed participation.</u></p> <p><u>Requirements/application:</u> <u>This ESS applies to permanent or temporary physical and economic displacement resulting from the following types of land acquisition or restrictions on land use undertaken or imposed in connection with project implementation: (a) Land rights or land use rights acquired or restricted through expropriation or other compulsory procedures in accordance with national law; (b) Land rights or land use rights acquired or restricted through negotiated settlements with property owners or those with legal rights to the land, if failure to reach settlement would have resulted in expropriation or other compulsory procedures;8 (c) Restrictions on land use and access to natural resources that cause a</u></p>		

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p><u>community or groups within a community to lose access to resource usage where they have traditional or customary tenure, or recognizable usage rights. This may include situations where legally designated protected areas, forests, biodiversity areas, or buffer zones are established in connection with the project;</u>⁹ <u>(d) Relocation of people without formal, traditional, or recognizable usage rights, who are occupying or utilizing land prior to a project-specific cut-off date; (e) Displacement of people as a result of project impacts that render their land unusable or inaccessible; (f) Restriction on access to land or use of other resources including communal property and natural resources such as marine and aquatic resources, timber and non-timber forest products, fresh water, medicinal plants, hunting and gathering grounds, and grazing and cropping areas; (g) Land rights or claims to land or resources relinquished by individuals or communities without full payment of compensation;</u>¹⁰ <u>and (h) Land acquisition or land use restrictions occurring prior to the project, but which were undertaken or initiated in anticipation of, or in preparation of a project.</u></p>		
<p><u>Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS6)</u> recognises protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development.</p> <p>ESS6 recognizes the importance of maintaining core ecological functions of habitats, including forests, and the</p>	<p>Kenya has a number of legal and statutory laws that govern biodiversity including conservation, and sustainable management as described below.</p> <p><u>The Wildlife Conservation and Management Act, 2013</u></p> <ul style="list-style-type: none"> • Prohibits pollution of wildlife habitats and ecosystems. <p><u>The Forest Conservation and Management Act, 2016</u></p>	<p>No significant gaps between ESS 6 and the various national laws.</p>

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<p>biodiversity they support. Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment. All habitats support complexities of living organisms and vary in terms of species diversity, abundance, and importance.</p> <p>ESS 6 also addresses sustainable management of primary production and harvesting of living natural resources.</p> <p>ESS6 recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, whose access to, or use of, biodiversity or living natural resources may be affected by a project. The potential, positive role of project-affected parties, including Indigenous Peoples, in biodiversity conservation and sustainable management of living natural resources is also considered.</p> <p><u>Objectives</u></p> <ul style="list-style-type: none"> • To protect and conserve biodiversity and habitats. • To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity. • To promote the sustainable management of living natural resources. 	<ul style="list-style-type: none"> • Prohibits the destruction of protected tree species or family of trees • Provides for the sustainable management of indigenous forests and woodlands <p><u>The Environmental Management and Coordination (Wetlands) Regulations, 2009</u> applies to all wetlands in Kenya whether occurring in private or public land. The objective of the regulations is to provide for the conservation and sustainable use of wetlands and their resources in Kenya and promote the integration of sustainable use of resources in wetlands into the local and national management of natural resources for socio-economic development.</p>	

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<ul style="list-style-type: none"> To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities. <p><u>Requirements</u></p> <p><u>General</u></p> <p>The environmental and social assessment as set out in ESS1 will consider direct, indirect, and cumulative project-related impacts on habitats and the biodiversity they support. This assessment will consider threats to biodiversity, for example, habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, pollution and incidental take, as well as projected climate change impacts. It will determine the significance of biodiversity or habitats based on their vulnerability and irreplaceability at a global, regional, or national level and will also take into account the differing values attached to biodiversity and habitats by project-affected parties and other interested parties.</p> <p><u>Assessment of Risks and Impacts</u></p> <p>Through the environmental and social assessment, the Borrower will identify the potential project related risks to and impacts on habitats and the biodiversity that they support. In accordance with the mitigation hierarchy, the Borrower will make the initial assessment of project risks and impacts without taking into account the</p>	<p><u>Assessment of Risks and Impacts</u></p> <p><u>Environmental Management and Coordination Act 1999;</u></p> <p>Provides for protection and conservation of the environment, environmental impact assessment, and environmental auditing and monitoring.</p> <p><u>Environmental Management and Coordination (Amendment) Act 2015</u> (legal Notice No 5 of 2015) and provides for a full ESIA study for high-risk projects.</p>	

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<p>possibility of biodiversity offsets. The assessment undertaken by the Borrower will include identification of the types of habitats potentially affected and consideration of potential risks to and impacts on the ecological function of the habitats. The assessment will encompass any areas of potential biodiversity importance that may be affected by the project, whether or not they are protected under national law. The extent of the assessment will be proportional to the risks and impacts, based on their likelihood, significance, and severity, and will reflect the concerns of project affected parties and other interested parties.</p> <p>Primary Suppliers</p> <p>Where a Borrower is purchasing natural resource commodities, including food, timber, and fiber, that are known to originate from areas where there is a risk of significant conversion or significant degradation of natural or critical habitats, the Borrower's environmental and social assessment will include an evaluation of the systems and verification practices used by the primary suppliers.</p>	<p>Primary Suppliers</p> <p><u>Environmental Management and Coordination Act 1999;</u></p> <p>Provides for protection and conservation of the environment, environmental impact assessment, and environmental auditing and monitoring.</p> <p><u>Environmental Management and Coordination (Amendment) Act 2015</u> (legal Notice No 5 of 2015) and provides for a full ESIA study for high-risk projects.</p>	
<p>Indigenous peoples/Sub-Saharan African historically underserved traditional local communities (ESS7) recognizes that the situation of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities varies from region to region and from country to country. The national and regional contexts and the different historical and cultural backgrounds will form part of the environmental and social assessment of the project. In</p>	<p>While the term "Indigenous Peoples" is not used in Kenya, the legal framework recognizes particular concerns and rights of minorities and marginalized groups. The Constitution defines a marginalized community as:</p> <p>"A community that, because of its <i>relatively small population</i> or for any other reason, has been unable to fully participate in the integrated social and economic life of Kenya as a whole;</p>	<p>Gaps between ESS 7 and the various National laws mainly with regards to Free, Prior Informed Consent (FPIC).</p>

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<p>this way, the assessment is intended to support identification of measures to address concerns that project activities may exacerbate tensions between different ethnic or cultural groups.</p> <ul style="list-style-type: none"> • To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. • To avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate, and/or compensate for such impacts. • To promote sustainable development benefits and opportunities for Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities in a manner that is accessible, culturally appropriate, and inclusive. • To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities affected by a project throughout the project's life cycle. • To obtain the Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local 	<p><i>A traditional community</i> that, out of a need or desire to preserve its unique culture and identity from assimilation, has remained outside the integrated social and economic life of Kenya as a whole;</p> <p><i>An indigenous community</i> that has retained and maintained a traditional lifestyle and livelihood based on a hunter or gatherer economy; or</p> <p><i>Pastoral persons and communities</i>, whether they are (i) nomadic; or (ii) a settled community that, because of its relative geographic isolation, has experienced only marginal participation in the integrated social and economic life of Kenya as a whole" (Article 260; emphasis added).</p> <p>The Constitution of Kenya adopted in 2010 requires the State to address the needs of vulnerable groups, including "minority or marginalized" and "particular ethnic, religious or cultural communities" (Article 21.3). Specific provisions include: affirmative action programs and policies for minorities and marginalized groups (Articles 27.6 and 56); rights of "cultural or linguistic" communities to maintain their culture and language (7, 44.2 and 56); protection of community land, including land that is "lawfully held, managed or used by specific communities as community forests, grazing areas or shrines," and "ancestral lands and lands traditionally occupied by hunter-gatherer communities" (63); promotion of representation in Parliament of "... (d) ethnic and other minorities; and (e) marginalized communities" (100); and an</p>	

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<p>Communities in the three circumstances described in this ESS.</p> <ul style="list-style-type: none"> • To recognize, respect, and preserve the culture, knowledge, and practices of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, and to provide them with an opportunity to adapt to changing conditions in a manner and in a time frame acceptable to them. <p>Requirements General A key purpose of this ESS is to ensure that Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities present in or with collective attachment to the project area are fully consulted about, and have opportunities to actively participate in, project design and the determination of project implementation arrangements. The scope and scale of consultation, as well as subsequent project planning and documentation processes, will be proportionate to the scope and scale of potential project risks and impacts as they may affect Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p> <p>Projects Designed Solely to Benefit Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities Where projects are designed to provide benefits only to Indigenous Peoples/Sub-Saharan African Historically</p>	<p>equalization fund to provide basic services to marginalized areas (204).</p>	

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<p>Underserved Traditional Local Communities, the Borrower will proactively engage with the relevant Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities to ensure their ownership and participation in project design, implementation, monitoring, and evaluation. The Borrower will also consult with them as to the cultural appropriateness of proposed services or facilities and will seek to identify and address any economic or social constraints (including those relating to gender) that may limit opportunities to benefit from, or participate in, the project.</p> <p>When Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities are the sole, or the overwhelming majority of, project beneficiaries, the elements of the plan may be included in the overall project design, and preparation of a stand-alone Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities Plan is not necessary.</p> <p>Projects Where Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities Are Not the Sole Beneficiaries</p> <p>When Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities are not the only beneficiaries of the project, planning requirements will vary with circumstances. The Borrower will design and implement</p>		

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<p>the project in a manner that provides affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities with equitable access to project benefits. The concerns or preferences of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities will be addressed through meaningful consultation and project design, and documentation will summarize the consultation results and describe how Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' issues have been addressed in project design. Arrangements for ongoing consultations during implementation and monitoring will also be described.</p> <p>The Borrower will prepare a time-bound plan, such as an Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities plan setting out the measures or actions proposed. In some circumstances, a broader integrated community development plan will be prepared, addressing all beneficiaries of the project and incorporating necessary information relating to the affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p> <p>Avoidance of Adverse Impacts Adverse impacts on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities will be avoided where possible. Where</p>	<p>Avoidance of Adverse Impacts The Constitution of Kenya adopted in 2010 requires the State to address the needs of vulnerable groups, including “minority or marginalized” and “particular ethnic, religious or cultural communities” (Article 21.3).</p> <p><u>Environmental Management and Coordination Act 1999;</u></p>	

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<p>alternatives have been explored and adverse impacts are unavoidable, the Borrower will minimize and/or compensate for these impacts in a culturally appropriate manner proportionate to the nature and scale of such impacts and the form and degree of vulnerability of the affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p> <p>Mitigation and Development Benefit The Borrower and affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities will identify mitigation measures in alignment with the mitigation hierarchy described in ESS1, as well as opportunities for culturally appropriate and sustainable development benefits. The scope of assessment and mitigation will include cultural impacts as well as physical impacts. The Borrower will ensure the timely delivery of agreed upon measures to affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p> <p>Meaningful Consultation Tailored to Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. To promote effective project design, to build local project support or ownership, and to reduce the risk of</p>	<p>Requires undertaking of ESIA studies and identification of risks and impacts including on communities.</p> <p><u>Environmental Management and Coordination (Amendment) Act 2015</u> (legal Notice No 5 of 2015) and provides for a full ESIA study for high-risk projects.</p> <p>Mitigation and Development Benefits The Constitution of Kenya adopted in 2010 requires the State to address the needs of vulnerable groups, including “minority or marginalized” and “particular ethnic, religious or cultural communities” (Article 21.3).</p> <p><u>Environmental Management and Coordination Act 1999</u>; Requires undertaking of ESIA studies and identification of risks and impacts including on communities.</p> <p><u>Environmental Management and Coordination Act 1999</u> (legal Notice No 31 and 31 of 2019) and provides for a preparation of SPR for low and medium risk project and CPR for high-risk projects.</p> <p>Meaningful Consultation Tailored to Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p> <p><u>Environmental Management and Coordination Act 1999</u>; <u>Environmental Management and Coordination (Amendment) Act 2015</u> (legal Notice No 5 of 2015)</p>	

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<p>project-related delays or controversies, the Borrower will undertake an engagement process with affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, as required in ESS10. This engagement process will include stakeholder analysis and engagement planning, disclosure of information, and meaningful consultation in a culturally appropriate and gender and intergenerationally inclusive manner. For Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, the process of meaningful consultation will also: (a) Involve Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' representative bodies and organizations (e.g., councils of elders or village councils, or chieftains) and, where appropriate, other community members; (b) Provide sufficient time for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' decision-making processes; and (c) Allow for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' effective participation in the design of project activities or mitigation measures that could potentially affect them either positively or negatively.</p> <p>Circumstances Requiring Free, Prior, and Informed Consent (FPIC) Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities may be</p>	<p>Requires that while undertaking ESIA studies meaningful consultations be undertaken with the stakeholders and project affected persons.</p> <p>Article 204 of the Constitution establishes the Equalisation Fund in Kenya into which should be paid one half per cent (0.5%) of all the revenue collected by the national government each year. The national government should use the Equalisation Fund only to provide basic services to marginalized areas.</p> <p>Circumstances Requiring Free, Prior, and Informed Consent (FPIC) Environmental Management and Coordination Act 1999; Environmental Management and Coordination (Amendment) Act 2015 (<i>legal Notice No 5 of 2015</i>). Requires that while undertaking ESIA studies meaningful consultations be undertaken with the stakeholders and project affected persons. Does not Free, Prior, Informed Consent.</p>	

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<p>particularly vulnerable to the loss of, alienation from, or exploitation of their land and access to natural and cultural resources. In recognition of this vulnerability, in addition to the General Requirements of this ESS (Section A) and those set out in ESSs I and IO, the Borrower will obtain the FPIC of the affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in circumstances in which the project will: (a) Have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation; (b) Cause relocation of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities from land and natural resources subject to traditional ownership or under customary use or occupation; or (c) Have significant impacts on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' lives. In these circumstances, the Borrower will engage independent specialists to assist in the identification of the project risks and impacts.</p> <p>Grievance Mechanism The Borrower will ensure that a grievance mechanism is established for the project, as described in ESS10, which is culturally appropriate and accessible to affected</p>	<p>Grievance Mechanism <u>National Environment Tribunal-</u> Established under EMCA provides avenue for grievances redress on environment related matters.</p> <p><u>National Environment Complaints Committee-</u> Established under EMCA provides avenue for grievances redress on environment related matters.</p> <p><u>Environment and Land Court Act-</u>Establishes environment and land courts across the country for the sole purpose of addressing grievances related to environment and land.</p>	

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<p>Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and takes into account the availability of judicial recourse and customary dispute settlement mechanisms among Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p> <p>Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and Broader Development Planning. The Borrower may request Bank technical or financial support in the context of a specific project or as a separate activity, for preparation of plans, strategies, or other activities intended to strengthen consideration and participation of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (as they may be referred to in the national context) in the development process. This may include a variety of initiatives designed, for example, to: (a) strengthen local legislation to establish recognition of customary or traditional land tenure arrangements; (b) address the gender and intergenerational issues that exist among Indigenous Peoples/Sub-Saharan African</p>	<p><u>Kenya National Commission for Human Rights-</u> Established to address grievances related to human rights including historical injustices on land, culture etc.</p> <p><u>Commission for Administration of Justice Act-</u> Established office of the Ombudsman-The Commission is the national/constitutional stakeholder instrument for grievance redress.</p> <p><i>Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and Broader Development Planning.</i> The Constitution of Kenya adopted in 2010 requires the State to address the needs of vulnerable groups, including “minority or marginalized” and “particular ethnic, religious or cultural communities” (Article 21.3). Specific provisions include: affirmative action programs and policies for minorities and marginalized groups (Articles 27.6 and 56); rights of “cultural or linguistic” communities to maintain their culture and language (7, 44.2 and 56); protection of community land, including land that is “lawfully held, managed or used by specific communities as community forests, grazing areas or shrines,” and “ancestral lands and lands traditionally occupied by hunter-gatherer communities” (63); promotion of representation in Parliament of “...(d) ethnic and other minorities; and (e) marginalized communities” (100); and an equalization fund to provide basic services to marginalized areas (204).</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>Historically Underserved Traditional Local Communities; (c) protect indigenous knowledge including intellectual property rights; (d) strengthen the capacity of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities to participate in development planning or programs; and (e) strengthen the capacity of government agencies providing services to Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.</p>		
<p>Stakeholder Engagement and Information Disclosure. (ESS 10).</p> <p>This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.</p> <p>Objectives</p> <ul style="list-style-type: none"> • To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties. • To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in 	<p>The Environmental Management and Coordination Act provides for ESIA studies to conduct robust stakeholder engagement and information disclosure. Public participation is a key requirement during the ESIA process and outlined in the EIA/EA regulations 2003.</p> <p>The EIA/EA regulations require that:</p> <p>(1) During the process of conducting an environmental impact assessment study under these Regulations, the proponent shall in consultation with the Authority, seek the views of persons who may be affected by the project. (2) In seeking the views of the public, after the approval of the project report by the Authority, the proponent shall - (a) publicize the project and its anticipated effects and benefits by - (i) posting posters in strategic public places in the vicinity of the site of the proposed project informing the affected parties and communities of the proposed project; (ii) publishing a notice on the proposed project for two successive weeks in a newspaper that has a</p>	<p>No significant gaps between ESS 10 and the various national laws.</p>

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>project design and environmental and social performance.</p> <ul style="list-style-type: none"> • To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them. • To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format. • To provide project-affected parties with accessible and inclusive means to raise issues and grievances and allow Borrowers to respond to and manage such grievances. <p>Engagement during Project Preparation Stakeholder Identification and Analysis The Borrower will identify the different stakeholders, both project-affected parties and other interested parties. As set out in paragraph 5, individuals or groups that are affected or likely to be affected by the project will be identified as 'project-affected parties' and other individuals or groups that may have an interest in the project will be identified as 'other interested parties'.</p> <p>Stakeholder Engagement Plan In consultation with the Bank, the Borrower will develop and implement a Stakeholder Engagement Plan (SEP)</p>	<p>nation-wide circulation; and (iii) making an announcement of the notice in both official and local languages in a radio with a nation-wide coverage for at least once a week for two consecutive weeks; (b) hold at least three public meetings with the affected parties and communities to explain the project and its effects, and to receive their oral or written comments; (c) ensure that appropriate notices are sent out at least one week prior to the meetings and that the venue and times of the meetings are convenient for the affected communities and the other concerned parties; and (d) ensure, in consultation with the Authority that a suitably qualified coordinator is appointed to receive and record both oral and written comments and any translations thereof received during all public meetings for onward transmission to the Authority</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>proportionate to the nature and scale of the project and its potential risks and impacts. A draft of the SEP will be disclosed as early as possible, and before project appraisal, and the Borrower will seek the views of stakeholders on the SEP, including on the identification of stakeholders and the proposals for future engagement. If significant changes are made to the SEP, the Borrower will disclose the updated SEP.</p> <p>Information Disclosure The Borrower will disclose project information to allow stakeholders to understand the risks and impacts of the project, and potential opportunities. The Borrower will provide stakeholders with access to the following information as early as possible before the Bank proceeds to project appraisal, and in a time frame that enables meaningful consultations with stakeholders on project design.</p> <p>Meaningful Consultation The Borrower will undertake a process of meaningful consultation in a manner that provides stakeholders with opportunities to express their views on project risks, impacts, and mitigation measures, and allows the Borrower to consider and respond to them. Meaningful consultation will be carried out on an ongoing basis as the nature of issues, impacts, and opportunities evolves.</p>	<p>Information Disclosure THE ENVIRONMENTAL (IMPACT ASSESSMENT AND AUDIT) REGULATIONS, 2003 PART IV 21. (1) The Authority shall, within fourteen days of receiving the environmental impact assessment study report, invite the public to make oral or written comments on the report. (2) The Authority shall, at the expense of the proponent - (a) publish for two successive weeks in the Gazette and in a newspaper with a nation-wide circulation and in particular with a wide circulation in the area of the proposed project, a public notice once a week inviting the public to submit oral or written comments on the environmental impact assessment study report; and (b) make an announcement of the notice in both official and local languages at least once a week for two consecutive weeks in a radio with a nation-wide coverage. (3) The invitation for public comments under this regulation shall state - (a) the nature of the project; (b) the location of the project; (c) the anticipated impacts of the project and the proposed mitigation measures to respond to the impacts; (d) the times and place where the full report can be inspected; and (e) the period within which the Authority shall receive comments. (4) The notice to be published in the newspaper as specified under sub regulation (3) shall be in Form 8 set out in the First Schedule to these Regulations. 22.</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
	<p>(1) Upon receipt of both oral and written comments as specified Public hearing. by section 59 and section 60 of the Act, the Authority may hold a public hearing</p> <p>(2) A public hearing under these Regulations shall be presided over by a suitably qualified person appointed by the Authority.</p> <p>(3) The date and venue of the public hearing shall be publicized at least one week prior to the meeting - (a) by notice in at least one daily newspaper of national circulation and one newspaper of local circulation; (b) by at least two announcements in the local language of the community and the national language through radio with a nationwide coverage.</p> <p>(4) The public hearing shall be conducted at a venue convenient and accessible to people who are likely to be affected by the project.</p> <p>(5) A proponent shall be given an opportunity to make a presentation and to respond to presentations made at the public hearing.</p> <p>(6) The presiding officer shall in consultation with the Authority determine the rules of procedure at the public hearing.</p> <p>(7) On the conclusion of the hearing, the presiding officer shall compile a report of the views presented at the public hearing and submit the report to the Director General within fourteen days from the date of the public hearing.</p> <p>Engagement during Project Implementation and External Reporting</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>Engagement during Project Implementation and External Reporting The Borrower will continue to engage with, and provide information to, project-affected parties and other interested parties throughout the life cycle of the project, in a manner appropriate to the nature of their interests and the potential environmental and social risks and impacts of the project.</p> <p>Grievance Mechanism The Borrower will respond to concerns and grievances of project-affected parties related to the environmental and social performance of the project in a timely manner. For this purpose, the Borrower will propose and implement a grievance mechanism to receive and facilitate resolution of such concerns and grievances.</p> <p>Organizational Capacity and Commitment</p>	<p>NEMA's EIA/EA regulations 2003 provide for annual environmental audits of all projects during implementation and throughout project life cycle. Further, the regulations require that the reporting (audits) be undertaken by external parties registered with NEMA.</p> <p>Grievance Mechanism The Environmental Management and Coordination Act provides for ESIA studies establishment of a robust Grievance Mechanism.</p> <p>National Environment Tribunal- Established under EMCA provides avenue for grievances redress on environment related matters.</p> <p>National Environment Complaints Committee- Established under EMCA provides avenue for grievances redress on environment related matters.</p> <p>Environment and Land Court Act- Establishes environment and land courts across the country for the sole purpose of addressing grievances related to environment and land.</p> <p>Kenya National Commission for Human Rights- Established to address grievances related to human rights including historical injustices on land, culture etc.</p> <p>Commission for Administration of Justice Act- Established office of the Ombudsman-The Commission is the</p>	

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Table 5-3. Gap Analysis of Environmental and Social Standards and Kenyan National Laws and ESS Requirements	National Laws and Requirements	Gaps
<p>The Borrower will define clear roles, responsibilities, and authority, as well as designate specific personnel to be responsible for the implementation and monitoring of stakeholder engagement activities and compliance with this ESS.</p>	<p>national/constitutional stakeholder instrument for grievance redress.</p> <p>Organizational Capacity and Commitment Roles and responsibilities including clear authority lines and personnel for implementation of stakeholder engagement is required in preparation of ESIA and part of ESMP.</p>	

ENVIRONMENTAL AND SOCIAL RISKS CLASSIFICATION

Environmental Risk Classification

Substantial

- I77) The environmental risk rating for NAVCDP is assessed as **substantial** because the potential environmental risks and impacts from the project activities are expected to be medium in magnitude, temporary, site specific, predictable, and reversible. Further, the project will cover a significantly wide geographical area (33 counties) and thus making the risk rating substantial. The project will also support value chain ecosystem investments targeted at addressing any gaps identified along all the segments of the value chain for the selected commodities in addition to micro-projects under components 2 and 1 respectively. The implementation activities are likely to result into potential negative environmental impacts that include soil erosion and soil water pollution, dust emissions, community health and safety risks and occupational, health and safety (OHS) risks, generation of hazardous and non-hazardous wastes as well as potential use of pesticides.
- I78) It is anticipated that the project will result in positive environmental impacts that include soil and water conservation practices, safe use of pesticides, sustainable land management and improved water availability due to water harvesting and storage. The potential negative environmental risks and impacts associated minor construction activities financed under Component 2 include: (i) air pollution, (ii) soil and water pollution; (iii) community health and safety; (iv) occupational, health and safety; and (v) generation of hazardous and non-hazardous waste. These impacts are expected to be temporary, site specific, predictable, reversible, and easy to mitigate. The e-voucher program is expected to result in negligible environmental risks and impacts. Instead, it will contribute to the use of quality farm inputs i.e., through soil testing. Component 3 will support roll out of urban food system pilots in select urban clusters. The potential negative environmental risks and impacts are associated with the solid waste generation from the spoilt farm produce delivered to the urban centers through the value chains as well as processing. Risks associated with cold chain management include inadequate electricity, human errors and breakage in cold chain management. These may result in product quality concerns including losses due to spoilage in storage/ transit.

Social Risk Classification

Substantial

- I79) The social risk rating is assessed as **substantial**. This is mainly due to the vastness of the target area across 33 counties, low capacity of project implementation teams, agricultural activities being vulnerable to child labor and

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forced labor, existing tensions between communities regarding resources (water, community lands); presence of VMGs; evidence that some sub-projects will require agreement and consent from the communities to use community lands (and if VMGs are present on those lands, free prior and informed consent might likely be required); some sub project investments may lead to income loss/economic displacement. In addition, the establishment of SACCOs in every Ward as vehicles to creditworthiness of farmers creates risks i) the CIGs for vulnerable may not have the capacity to join SACCOs; therefore, exclusion will be experienced; (ii the minority communities who meet the requirements of ESS 7 (IP/SSAHUTLC) risk being excluded in the SACCOs. Probably, it would be necessary to have an open window for the two types of CIGs to continue benefitting on value chain support in addition to Demos through CDDCs.

- 180) The overall project aim is to enhance incomes for 500,000 largely small-scale farmers in 33 counties in Kenya by intensifying value chain investments along select 9 commodities. It is anticipated that 50% of these farmers will be women. Targeting a high number of women farmers will have a positive impact on their incomes and on the food and nutrition status of households. The key challenge for the project would be to ensure that the women and youth farmers are meaningfully engaged and accrue the resultant benefits that would be hampered by limited access to land mostly owned by men which is a key primary production resource. Under Component I, the project will build the capacity of farmer groups through micro-investments for enhanced productivity and resilience. There are several social risks associated with these activities, including: (i) elite capture – there is a likelihood that more connected people may get involved and push the poor and vulnerable farmers (including VMGs) to the periphery; (ii) discrimination of women from accessing the services given their limited access to land, which is traditionally owned by men in most communities; (iii) inadequate consultations given the fact that most of the activities will be channeled through the FPOs and CIGs; it is possible that disadvantaged and vulnerable farmers (those from marginalized communities) may not fully benefit from the project investments. (iv) insecure land tenure constraining investments on land for better production or commercial farming. (v) Children resorting to work in project supported activities owing to economic hardship in the project area and weak implementation of labor legislations.
- 181) There is risk of SEAH on the project; Although support to farmers will be channeled through SACCOs and CDDCs , there is a possibility of women being asked for favors by leaders of these organizations to access services. The negative social impacts that could arise from investments under component 2 are: (i) conflict

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between and among communities due to site selection and investments; (ii) inadequate consultations with the local populations due to the vastness of the areas being targeted by the project; (iii) inadequate input into the selection of value chains and sites for infrastructure investment; (iv) interruptions in production and livelihoods – some farmers may shift production towards the commodities being supported by the value chain development; and (v) community health and safety (as outlined above under the Environmental section). The social risks associated with component 3 include: (i) selection of the beneficiaries given the diversity of urban settlements; (ii) elite capture of the investments; and (iii) exclusion of disadvantaged and vulnerable groups from participating and benefiting from the investments (SACCOs and CDDCs). These risks will be mitigated through implementation of the Stakeholder Engagement Plan (SEP) that is prepared for this project. The SEP will outline the key stakeholders (including VMGs, female headed households, and people with disabilities), the communication and information flow, grievance management, and monitoring and reporting. The Project has prepared this ESMF that provide guidelines and procedures for assessing environmental and social risks and impacts during implementation following the identification of the subprojects. The project has also prepared VMGF and RPF. Other instruments include: IPMP, LMP, SMP, GRM, GBV/SEAHPP, and ESCP,

Sexual Exploitation, Abuse and Harassment (SEAH) Risk Rating

Substantial

- 182) As per the GBV/SEAH Risk Assessment Tool, the SEAH risk is **substantial** considering the widespread and rural nature of the program, the vulnerability of women due to limited access to land, unfavorable cultural norms, and the introduction of outsiders to remote locations. It is anticipated that 50% of beneficiary farmers will be women. Targeting a high number of women farmers will have a positive impact on their incomes and on the food and nutrition status of households. There is also a risk of increased cases of SEAH due to the project. Although support to farmers will be channeled through FPOs and CIGs, there is a possibility of women being asked for favors by leaders of these organizations to access services. Indirectly, the project might lead to SEAH at the household level depending on who has access to the project benefits such as voucher and utilization of the inputs once purchased at the household level. Similarly, participation of women in decision making process and project activities that may not align with gender norms in certain communities.
- 183) Overall, the livelihood improvement for individual women and collectively may result in negative impact – i.e., exacerbation of SEAH at community level, at least in the short term and in the long term the community and household level power

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dynamics where gender roles are defined and enforced through social norms. To mitigate this, the community will be sensitized on the grievance mechanism and encouraged to air complaints via the multiple channels availed by the project. Communication activities under the project would require focusing on behavior change communication around gender norms and increased participation of women. The project monitoring activities will also focus on the community health and safety issues and address any emerging challenges during the implementation.

184)

ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT INSTRUMENTS

- 185) There are other environmental and social risk instruments that will complement this ESMF and IPMF and they include SEAH Prevention and Response Plan, Labor Management Procedures (LMP) and Security Management Plan (SMP) which have been prepared. Further, during implementation, site/value chain specific IPMPs will be prepared. Prior to appraisal, the GoK will also prepare and disclose an Environmental and Social Commitment Plan (ESCP) and Stakeholder Engagement Plan (SEP) which includes guidance on outreach activities and the establishment of Grievance Mechanisms (GRM).

POTENTIAL ENVIRONMENT AND SOCIAL RISKS AND IMPACTS

- 186) This chapter highlights the potential environmental and social risks and impacts of the NAVCDP as well as the mitigation and monitoring measures that could be employed to manage them.

POSITIVE IMPACTS

- 187) The project is financing activities that will have positive impacts and benefits to the areas and local communities that will participate in the project. These will include: (i) creation of employment opportunities; (ii) increased agricultural incomes and competitiveness through crop diversification, value addition and remunerative marketing; (iii) improved skill base of farmers; (iv) improved natural resource management; and (vi) **reduced GHG emission**². It is also anticipated that the project will result in positive environmental impacts that include application of soil and water conservation practices. The e-voucher program to be financed under this component will contribute to the use of quality farm inputs i.e., through soil testing. Targeting a high number of women farmers will have a positive impact on their incomes and on the food and nutrition status of households. The key challenge for the project would be to ensure that the women are meaningfully engaged in the project and that they accrue the project benefits. In addition, women may be challenged with limited access to land mostly owned by men which is a key resource for the project.

NEGATIVE ENVIRONMENTAL RISKS AND IMPACTS

- 188) The potential adverse environmental and social risks and impacts of the project highlighted below. These are the adverse risks and impacts likely to be experienced by the 33 Counties when applying pesticides to control pests in crop and livestock to improve productivity.

Loss of Vegetation

- 189) There will be vegetation loss during the construction phase (for subprojects including irrigation canals, water pans, sand dams, market centres). The vegetation will be cleared so that the area where the construction work is to take place is clear for the construction work to be performed. The construction works will involve direct land take of productive pastureland and agricultural lands, bush clearing, removal of topsoil, excavation, and mass haulage. These activities will expose the

² MoALF&C, (2020), Inventory of GHG Emissions From Dairy Cattle in Kenya 1995-2017, State Department for Livestock, GoK, Nairobi, Kenya

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land to elements of erosion such as wind and water and thus will trigger the process of land degradation.

Noise and Vibration

- 190) Potential noise impacts may arise as a result of the construction activities associated with the sub projects (for subprojects including irrigation canals, water pans, sand dams, market centers). There will be risks and impact of noise and vibration resulting from the construction equipment and machinery on people. Potential sources of noise and vibration during construction will include clearing and grubbing of the transmission corridor, excavations, earthmoving, construction traffic etc. Construction activities and equipment are not expected to result in significant levels of vibration. Equipment that might cause high levels of vibration (such as impact piling or vibratory compaction) may be used.

Soil Erosion and Contamination

- 191) Construction and irrigation related activities as well as cultivation related activities will have direct physical impacts to soil. Possible direct physical impacts to soil include erosion resulting from activities such as excavation of foundations and clearing of vegetation for infrastructure such as construction zones and workers camp (if applicable). The excavation of soil for the construction activities will disrupt the soil cohesion and also may result in surplus soil due to the use of concrete for the foundation. If not properly restored or managed, this soil may erode and wash into nearby surface water bodies adversely impacting these. Any temporary soil stockpiles established during construction of infrastructure will be at risk of erosion from wind and rainfall.

Surface Water Quality

- 192) Construction activities associated with the sub projects can have significant effects on the surface water resources and good environmental management, including control of runoff, sediments, storage of fuels and good practice should be followed. Project activities will interact with water resources in the following ways:
- There will be direct interaction during clearing and construction near to or in surface water bodies.
 - There will be indirect interaction in the case of erosion of soils into water bodies.
 - There will be direct interaction from the abstraction of water from surface water bodies for construction (e.g., for dust control).
 - There will be direct interaction from the discharge of treated domestic wastewater to surface water bodies (in the event campsites are established).

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- In addition, if vegetation and soil clearing are not properly managed, there is the potential for soils to run into water bodies and increased sediment load. This in turn may have a detrimental effect on water quality and affect surface water users.
- I93) During the construction, water will be required for several purposes including for use in the workers' accommodation camp (if determined), construction process which requires water, cleaning of the vehicles and equipment, keeping down construction dust impacts among others. The potential impacts and risk of the project relating to surface water supply are:
- Stresses on local water resources from construction water abstractions from surface and/or ground water; and
 - Potential indirect effects from water demand caused by local population expansion due to in-migration.
 - Overall raw water supply requirements for the construction of will be very low and necessary during concrete mixing only and keeping down the dust.

Eutrophication

- I94) A high nutrient level is essential for productive agriculture. However, the use of both natural and chemical fertilizers may result in an excess of nutrients which can cause problems in water bodies and to health. Nitrates are highly soluble and therefore may quickly reach water bodies. Phosphates tend to be fixed to soil particles and therefore reach water courses when soil is eroded. Phosphate saturated soils and high phosphate level groundwater are now found in some developed countries.
- I95) Infiltration of irrigation water in excess of available root zone storage will penetrate beyond the reach of roots and eventually recharge groundwater. Nitrates, salts, and other chemicals used in crop cultivation that dissolve in the soil water will move with the water. Crops with high water and nitrates requirements (vegetables) will increase the potential risk of nitrate pollution to groundwater. Because they do not evaporate, nitrates/nitrites are likely to remain in water until consumed by plants or other organisms. This impact will be felt more in areas with light-textured soils and intensive production of shallow-rooted crops that will contribute to considerable nitrate losses by leaching.

Change in Hydrology

- I96) Abstraction of water for irrigation structures, small earth dams, water pans and sand dams will have an impact on the hydrological flow of the riverine system. The impact will affect the general hydrological flows including current existence of water

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bodies. Changes to the low flow regime may have significant negative impacts on the hydrology.

Solid and Liquid Waste Management

- 197) Improper waste management procedures including pesticide wastes or lack of mitigation measures may result in adverse environmental and social impacts on: -
- Storm water quality and thus water quality in the water bodies in project areas
 - Soil quality
 - Surface water quality
 - Ground water quality; and
 - Ecological receptors or human health.
- 198) The different types of wastes and sources that are likely to be generated from the construction activities are described below.
- a) Recyclable and Reusable Waste
 - b) Excavation Waste
 - c) Wastewater
 - d) Hazardous Waste (pesticide)

Landscape and Visual Amenity Risks

- 199) Visual impacts refer mainly to the changes to the visual character of landscape views resulting from: obstruction of existing views; removal of screening elements thereby exposing viewers to unsightly views; the introduction of new elements into the views of the visual receptors and intrusion of foreign elements into the view shed of landscape features. The sub project activities will have an impact on the visual character of the landscape due to:
- Clearance of vegetation, construction yards
 - Presence of construction vehicles and equipment
 - Worker presence and activity; and
 - Dust emissions resulting from construction activities and traffic.

Borrow Pits and Quarry Sites

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

Worker's Health and Safety and Workers Management

- 201) The sub project construction activities are likely to attract workers from within the project area and outside of the project areas. The construction activities will also entail engagement of contractors, sub-contractors and third-party entities which will form part of the supply chain. Workers' rights including occupational health and safety may be abused hence adverse impact and may include exposure to accidents and injuries, loss of man-hours, labor abuses and to ensure fair treatment, remuneration and working conditions. The projects could potentially lead to workforce-related social and health issues throughout the life cycle of the project if worker management and rights do not meet Kenyan law or international best practice. The potential for occupational health and safety incidents throughout the life cycle of the project is higher during the construction phase. Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labor abuses and to ensure fair treatment, remuneration and working conditions.
- 202) The pesticide application personnel (such as storekeepers, pilots, loaders, mixers, drivers) will be exposed to pesticides during transport, handling, measuring, pouring, spraying and disposal. Pesticides enter the body through various pathways:
- Ingestion/swallowing through the mouth, accidental or deliberate
 - Dermal, through the skin when handling, measuring, and pouring
 - Inhalation of small particles or dust when handling, spraying, and flagging

Archeology and Cultural Heritage Impacts

- 203) During the construction activities removal of vegetation, excavation works might uncover cultural sites which can only be removed by the appropriate governmental structures and consultation with the traditional authorities.

Greenhouse Gas Emissions

- 204) Livestock (dairy cows) are associated with increased release of Greenhouse Gases (GHGs), specifically methane gas. Livestock, especially ruminants such as cattle, produce methane (CH₄) as part of their normal digestive processes. This process is called enteric fermentation, and it represents over a quarter of the emissions from the agriculture economic sector. The sub projects related to dairy farming may lead to an increase in GHG emissions by releasing methane gas.

Project specific civil works-related

- 205) Even though risks of project works impacts on sensitive habitats and/or protected areas may be low, some of the sub-components infrastructures can have impacts on the biodiversity namely the investments aiming at improving the irrigation infrastructures (aquatic and riparian fauna), new storage areas for pesticides products, presence of machinery during the works on water pans and other water structures (on small terrestrial mammals) and pollution to water bodies by pesticides which can affect aquatic fauna.

E-waste and guidelines

Electronic waste or E-waste describes discarded electrical or electronic devices or appliances that have ceased to be of any value to their owners. NAVCDP has a subcomponent on Disruptive Agriculture Technologies (DAT) that will procure technological equipment to the CIGs, VMGs, IPs, FPOs, SACCOs, and CDDCs. Therefore, e-waste will be generated though at a low level and hence there is the need for the e-waste Guidelines for handling and disposal. The e-waste guidelines provide a framework for identification, collection, sorting, recycling, and disposing of electrical and electronic waste (e-waste) (0).

NEGATIVE SOCIAL RISKS AND IMPACTS

Sexual Exploitation, Abuse and Harassment (SEAH)

- 206) An influx of in-migrants may lead to SEAH and Workplace Sexual Harassment (VSH). The immigration may increase the demand for sex work or the risk of forced early marriage in a community where marriage to an employed man is seen as the best livelihood strategy for an adolescent girl. Furthermore, higher wages for workers in a community can lead to an increase in transactional sex. The risk of incidents of sex acts between laborers and minors, even when it is not transactional, can also increase. The project may create changes in the project affected communities and can cause shifts in power dynamics between the community members and within households. Male jealousy, a key driver of SEAH, can be triggered by labor influx on a project when workers are believed to be interacting with community women. Hence, abusive behavior can occur not only between project-related staff and those living in and around the project site, but also within the homes of those affected by the project. There is also a possibility of the women being asked for sexual favors by the leaders of the organizations that will be providing vouchers, inputs, and other services.
- 207) Indirectly, the project might lead to SEAH at the household level depending on who has access to the project benefits such as voucher and utilization of the inputs once purchased at the household level or participation of women in decision making

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process and project activities that may not align with gender norms in certain communities.

Impacts on Vulnerable and Marginalized Groups

208) Vulnerable groups include special marginalized groups (Indigenous Peoples), orphans, and child headed households, the sick, elderly, and female headed households among others and who may be adversely affected by the proposed investments especially in the event that their status as vulnerable or marginalized groups is not considered in the preparation of the specific investments. Out of the 33 Counties, 11 Counties have been identified to have groups that are categorized as Indigenous Peoples as per ESS7 as detailed in the VMGF for NAVCDP and shown in Table 6-1 below.

Table 6-1. Counties with VMGs

County	Community
Kilifi	Waata
Kwale	Waata and Wasanye
Taita Taveta	Waata and Wasanye
Tana River	Waata
Kiambu	Ogiek
Trans Nzoia	Ogiek and Sengwer
Nandi	Talai
Uasin Gishu	Ogiek
Narok	Ogiek
Kericho	Ogiek and Talai
Nakuru	Ogiek
Kajiado	Masaai
Bungoma	Ogiek
Bomet	Ogiek

209) In order to ensure that vulnerable groups meeting ESS7 are given special attention, a VMGF has been prepared which will include the preparation of specific Vulnerable and Marginalized Groups' Plans (VMGPs) and a Social Assessment (SA Study to ensure that the vulnerability of the specific groups is established and suitable measures put in place to ensure that they access the project benefits. The project may use NARIGP and KCSAP SAs to gap fill for the NAVCDP 3-6 months inside implementation.

Diseases Spread-Public Health

210) There is a potential risk that the construction process for most of the sub projects could increase HIV/AIDS prevalence in the project areas especially through

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interactions of the locals with the labour forces. Increase in risk of sexually transmitted diseases, such as HIV/AIDS etc. due to influx of migrant workers; solid waste and effluent discharge from construction camps; risk of increase in vectors of schistosomiasis, river blindness, Lymphatic filariasis (elephantiasis) and malaria due to stagnant water associated with construction works/borrow pits, irrigation schemes, irrigation structures, water pans and sand dams.

Incessant Traffic including accidents

- 211) Traffic congestion from construction which could potentially cause disruption, health, and safety impacts, as well as economic impacts. The use of moving construction vehicles and machinery in project sites is generally known to cause traffic reducing movement and flow of vehicles. The presence of heavy traffic may result in injuries and deaths due to road accidents. Fast moving motor vehicles may also lead to increased dusty conditions which may cause poor visibility, leading to incidents and accidents.

Impact on Community Safety related to Road Traffic, Site Trespass Activities

- 212) During construction there will be an increase in traffic movements in the road along the project sites. This will include trucks transporting construction material, excavation machinery, etc. which is expected to increase the risk of road traffic accidents and potential injuries or fatalities to other road users or pedestrians. The increase in movement of vehicles during the construction phase may result in greater disturbance and decreased wellbeing for those communities closest to the working areas and along transportation routes and access roads (Figure 7). Trespassing on the site working areas could result in accidents leading to injuries or even fatalities, especially due to the presence of machinery, and open excavations, which could at times be partly filled with water (e.g., open excavations). Young people, elders and children are most at risk of being injured.

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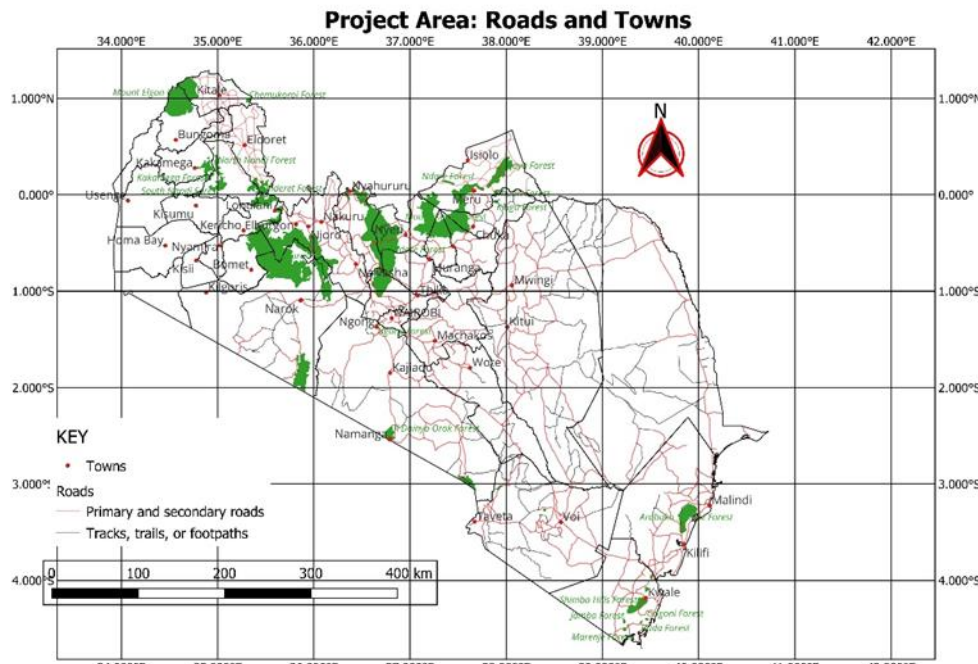


Figure 7: A Map Showing the Project Roads Network

Conflict in project Areas

213) The potential for eruption of conflict during implementation of the project is an adverse impact. Conflict during the implementation may include those related to access to services. The security management plan has elaborated how potential adverse impacts related to conflict eruption will be mitigated to ensure that farming communities in conflict-prone areas access project benefits. Resource conflict may also erupt in the operation phase if the benefits are not shared equitably. The project will undertake a Risk Assessment 3 months inside project implementation to know where project investments will be to inform on the severity of insecurity realtime. The security Expert may also be recruited then to spearhead this initial baseline on risk assessment.

Displacement Impacts

214) The project will require land for implementing infrastructural sub-projects. The sub-projects will be screened and vetted and only those that do not require involuntary acquisition of land leading to physical displacement of PAPs /PAHs will be approved for NAVCDP funding. Economic displacement may occur for PAPs/PAHs when sub-projects are initiated and implemented. The resultant negative impacts are temporary lasting not more than 30 days and affect less than 10% of the productive assets and will be addressed through Livelihood Restoration Plans (LRPs) as described in the Resettlement Policy Framework (RPF). The second scenario is

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where the project beneficiaries will either have land for Demos through voluntary land donation (VLD) or where land may be procured through the willing-buyer-willing-seller procedures by the FPOs, SACCOs, and /or CDDCs. In all cases, it is important to ensure due diligence and documentation.

Child /Forced Labour

- 215) Employment of children or forced labor is a potential adverse impact that can be experienced during hiring of labor for construction/operation of certain sub projects or when communities provide labor as a requirement for community contribution for specific sub-projects. It is worth noting that some sector such as coffee and cotton are more prone to child/forced labour. Emphasis will be laid on coffee since it is one of the 9 prioritized value chains in NAVCDP. Measures have been put in place to avoid child labour and also ensure voluntary community labour as specified in the Labour Management Procedures (LMP).

Elite Capture

- 216) There is a potential of elite capture of NAVCDP sub-projects/activities whereby public decision making is distorted by the disproportionate influence of well-connected farming individuals/groups, who can marginalize poorer farming communities from accessing intended project benefits. The benefits of the investments at community, county, regional and national levels such as water pans, smallholder irrigation schemes including value addition infrastructure such as aggregation centers, markets and agro-processing plants may be directed to a few individuals rather than the farming community/groups who were the initial target beneficiaries. Elite capture can also occur where benefits from NAVCDP sub-projects are diverted to less-needy individual beneficiaries and locations poorly accessed by beneficiaries. Community Driven Development (CDD) in both NARIGP and KCSAP that will also be used by NAVCDP has been shown to have implementation processes that off-set elite capture risk and enhance participation of targeted rural communities by giving them control over decision-making, management and the use of project funds. Further, CDD consists of a participatory planning process at both farm group level (CIGs/VMGs) and Community level (Community Driven Development Committees) leading to funding and implementation of activities prioritized by the intended beneficiaries thereby avoiding elite capture.

Land Tenure Challenges

- 217) Project beneficiaries may have limited access to project benefits due to land tenure challenges which may include lack of title deeds or when land is owned communally (community land). Community lands are more prone to conflicts because they are not registered. Prior to approval, all investments under NAVCDP will be subjected to due diligence to ascertain the status of the land tenure. Land access procedures for donated private and community land, leased private land and reservation/lease/change of use for public land targeted for use by NAVCDP sub-projects have been described in the project Resettlement Policy Framework (RPF). NAVCDP will avoid investing in locations where the land tenure issues will potentially hinder beneficiaries from accessing anticipated project benefits.

Inadequate of Extension Services

- 218) Far flung and inaccessible areas may not benefit from the agricultural extension support that is to be provided by the project. Disruptive Agricultural Technologies (DAT) and Big Data have been successfully piloted by NARIGP/KCSAP for the provision of e-extension services to farming communities. There will be further investments by NAVCDP towards improved extension service provision by focusing on partnerships with DAT cohorts and youth/women Agripreneurs for provision of bundled services by e-extension to farmers in far-flung and inaccessible areas.

Community lands not registered

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

Vulnerable and Marginalized Groups

- 220) Vulnerable and Marginalized Groups (VMGs) - Increasing social capital among the poor is one of the proposed Project's guiding principles. It emphasizes the importance of enhancing the economic and social inclusion of vulnerable and marginalized groups (VMGs) in targeted rural communities. Under the Project, VMGs will comprise of two groups;
- I. Vulnerable Groups (due to the various vulnerabilities-ESS 1)-unemployed youth, older women and men, widows/orphans, the differently-abled, recovering substance abusers, and people living with HIV/AIDS.
 - II . The Indigenous People (SSAHUTLC-ESS 7)-These are communities who meet the requirements of ESS 7 in Kenya, they are the minority communities according

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to the Constitution of Kenya 2010. To engage these communities, the project shall employ the principles of FPIC. The project will be keen in mapping and targeting the IPs in the project areas and subsequently undertake social assessments and gender analysis.

- 221) As is the case for CIGs, a VMG may work cooperatively in implementing part of the Community Action Plan. In this case, a VMG /IPs will, in collaboration with the CDDC seek support for demonstration while for the funds being drawn under SACCOs the two groups don't qualify and therefore a special window should be designed for them. , write proposals for funding of a community micro-project. Each VMG will form a management committee (the PMC) for its micro-project.

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ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Table 6-2 Environmental and Social Management Plan

Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
A. CONSTRUCTION					
AI. Construction Air Impacts	<p>Impact on sensitive receptors</p> <p>Impact on workers' health and safety</p> <p>Impact on community health and safety</p> <p>Impact on flora and fauna</p>	<p>AI-1: Develop a Dust Management Plan;</p> <p>AI-2: Record all dust and air quality complaints, identify cause(s), take appropriate measures</p> <p>AI-3: Liaise with local communities to forewarn of potentially dusty activities;</p> <p>AI-4: Undertake monitoring of areas close to dusty activities, noting that this may be daily visual inspections, or passive/active monitoring</p> <p>AI-5: Undertake inspections to ensure compliance with the Dust Management Plan;</p>	Contractor	<p>AI-1; No. of dust management plans developed</p> <p>AI-2; No. of dust related grievances recorded & resolved</p> <p>AI-3; No. of sensitization meetings held & attendance</p> <p>AI-4; No. of affected places/ surfaces monitored</p> <p>AI-5; No. of areas in compliance</p> <p>AI-6; No. of potentially dusty activities located away from receptors.</p> <p>AI-7; No. of barriers erected</p> <p>AI-8; No. of drains maintained in clean state</p> <p>AI-9; No. of days taken before</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>AI-6: Plan potentially dusty activities so that these are located as far from receptors as feasible</p> <p>AI-7: Erect solid screens if feasible around stockpiles and concrete batching;</p> <p>AI-8: Avoid run off of mud and water and maintain drains in a clean state;</p> <p>AI-9: Remove dusty materials from site as soon as possible if not being re-used. If being re-used, cover or vegetate if possible;</p> <p>AI-10: Impose speed limits on haul routes and in construction compounds to reduce dust generation;</p> <p>AI-11: Minimise</p>		<p>removal/re-use of dusty materials.</p> <p>AI-10; No. of speed limit signs erected.</p> <p>AI-11; No. of loading activities with low drop heights</p> <p>AI-12; No. of alternative environmental friendly disposal methods used</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		drop heights when loading stockpiles or transferring materials; and AI-12: Avoid waste or vegetation burning.			
		For traffic on unpaved roads: AI-13: Undertake watering to attenuate dust near sensitive receptors. The duration and frequency of this should be set out in the Dust Management Plan and will consider water availability and any stakeholder grievances; and AI-14: On unpaved roads in use for more than 1 month, consider use of surface sealants to reduce the use of water and water trucks. Use	Contractor	AI-13; No. of times and the average duration of watering dusty surfaces per day. AI-14; Length of unpaved road under surface sealants (km)	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		of lignin-based sealants recommended due to low environmental toxicity.			
		<u>For earthwork:</u> AI-15: Revegetate exposed areas as soon as feasible AI-16: Revegetate or cover stockpiles if feasible; AI-17: Expose the minimum area required for the works; and exposure on a staged basis to minimise dust blow	Contractor	AI-15; Exposed area (ha) re-vegetated AI-16; Area (ha) under stockpiles re-vegetated AI-17; Percentage of total area exposed	
		<u>For track out:</u> AI-18: Where track out is onto paved roads, use wet road cleaning methods to remove dirt and mud build up; AI-19: Avoid dry sweeping of large areas; and	Contractor	AI-18; No. of track outs onto paved roads using appropriate cleaning methods AI-19; Area (ha) under wet sweeping AI-20;	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		A1-20: Where feasible, undertake wheel washing and vehicle clean down prior to accessing public roads.		No. of vehicles cleaned before accessing public roads	
A2. Noise and Vibration Impacts	<p>Impact on sensitive receptors</p> <p>Impact on workers' health and safety</p> <p>Impact on community health and safety</p> <p>Impact on fauna</p>	<p>A2-1: Siting noisy plant and equipment as far away as possible from NSRs, and use of barriers (e.g., site huts, acoustic sheds or partitions) to reduce the level of construction noise at receptors wherever practicable.</p> <p>A2-2: Where practicable noisy equipment will be orientated to face away from the nearest NSRs;</p> <p>A2-3: Working hours for significant noise generating construction work (including works</p>	Contractor	<p>A2-1; No. of noisy plant/ equipment sited away receptors</p> <p>No. and type of noise barriers erected</p> <p>A2-2; No. of noisy machines facing away from receptors.</p> <p>A2-3; No. of daytime working hours for noisy machines and equipment</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		required to upgrade existing access roads or create new ones), will be undertaken during daytime only;			
		A2-4: Alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electric-controlled units, will be used, where practicable;	Contractor	A2-4; No. of machines operated using renewable energy sources	
		A2-5: Where practicable, stationary equipment will be located in an acoustically treated enclosure	Contractor	A2-5; No. of stationary equipment in acoustically treated enclosures	
		A2-6: For machines with fitted enclosures, doors and door seals will be checked to ensure they are in good working order; also, that the doors close properly against the seals;	Contractor	A2-6; No. of machinery with seals in good working condition	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>A2-7: Throttle settings will be reduced, and equipment and plant turned off, when not being used;</p> <p>A2-8: Equipment will be regularly inspected and maintained to ensure it is in good working order. The condition of mufflers will also be checked; and</p> <p>A2-9: Fitting of mufflers or silencers of the type recommended by manufacturers</p> <p>A-2-10- Prepare and implement a Blasting Management Plan (BMP) in the event that blasting using explosives is undertaken for stone quarries.</p>	Contractor	<p>A2-7; No. of plants/machines with reduced throttle settings and turned off when not in use</p> <p>A2-8; No. of equipment inspected and serviced regularly</p> <p>A2-9; No. of machines/equipment fitted with appropriate silencers</p> <p>A-2-10; BMP prepared and implemented for stone quarries</p>	
A3. Soil erosion and contamination impacts	Impacts on water quality (sediment run-	<p>A3-1: Vegetation clearing, and topsoil</p>	Contractor	<p>A3-1; Area (ha) with minimal</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
	<p>off/contamination) leading to deterioration of quality.</p> <p>Deteriorated water quality will impact on fauna if consumed.</p> <p>Deteriorated water quality will impact on community health if consumed.</p>	<p>disturbance will be minimized.</p> <p>A3-2: Contour temporary and permanent access roads/ laydown areas so as to minimise surface water runoff and erosion;</p> <p>A3-3: Sheet erosion of soil shall be prevented where necessary through the use of sandbags, diversion berms, culverts, or other physical means.</p> <p>A3-4: Topsoil shall be stockpiled separate from subsoil. Stockpiles shall not exceed 2 m height, shall be located away from drainage lines, shall be protected from rain and wind erosion, and shall not be</p>		<p>disturbance.</p> <p>A3-2; Length of roads (km) built on the contour</p> <p>A3-3; Average depth of soil eroded (mm)</p> <p>A3-4; No. and types of soil stockpiled away from drainage lines</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		contaminated. Wherever possible construction work will take place during the dry season.			
		A3-5: Topsoil shall be evenly spread across the cleared areas when reinstated. A3-6: Accelerated erosion from storm events during construction shall be minimised through managing storm water runoff (e.g., velocity control measures).	Contractor	A3-5; Cleared area (ha) on which the top soil has been spread/ reinstated. A3-6; Types and number of structures established to control/ harvest storm water.	
		A3-7: Soil backfilled into excavations shall be replaced in the order of removal in order to preserve the soil profile. Material (e.g., fuel or chemicals).	Contractor	A3-7; No. of excavations properly backfilled	
		A3-8: Spread mulch generated	Contractor	A3-8; Exposed area (ha) covered	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		from indigenous cleared vegetation across exposed soils after construction.		with mulch from indigenous vegetation.	
A4. Surface Water Quality Impacts	Impacts on water quality (sediment run-off/contamination) leading to deterioration of quality.	A4-1: Develop a Waste Water Management Plan. Activities shall be conducted >100m away from water bodies, except where crossings are required.	Contractor	A4-1; Waste water management plan developed and implemented	
	Deteriorated water quality will impact on fauna if consumed.				
	Deteriorated water quality will impact on community health if consumed.	A4-2: All wastewater which may be contaminated with oily substances must be managed in accordance with an appropriate waste management plan and no hydrocarbon-contaminated water may be discharged to the environment.	Contractor	A4-2; Waste water management plan developed and implemented	
		A4-3: Domestic	Contractor	A4-3; Domestic	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		wastewater shall be treated and disposed of in accordance with an approved waste management plan. Park vehicles preferably on paved platforms		waste water management plan developed and implemented	
A5. Impact on Flora and Vegetation	Loss of biodiversity.	A5-1: Avoidance of impacts should be prioritized. Where impact avoidance is not possible, existing indigenous vegetation must be kept intact, where possible. Vegetation will be removed only as necessary.	Contractor	A5-1; No. and type of indigenous vegetation conserved.	
		A5-2: Rivers, water courses and other water bodies shall be kept clear of felled trees, vegetation cuttings and organic waste and debris from clearing;	Contractor	A5-2; No. of rivers/ water bodies without obstruction	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		A5-3: Alien invasive vegetation should be removed immediately and disposed off properly, at a licensed waste disposal facility as necessary;	Contractor	A5-3; No and types of invasive species properly disposed	
		A5-4: There should be no deviation from the access road position without prior discussions with the authorities; A5-5: Firewood collection by the project's employees should be strictly forbidden.	Contractor	A5-4; No. of diversions from access road authorized A5-5; No. of erected warning signs prohibiting firewood collection	
		A5-6: Rehabilitation of temporary construction sites and pioneer camps (if needed) should be done as swiftly as possible and always with suitable native grasses and other plants	Contractor	A5-6; No. of sites rehabilitated using locally available materials	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		– construction of new camps is unlikely to happen.			
		A5-7: Materials and equipment should not be delivered to the site prematurely, as this could result in need for laydown or storage areas and additional areas being cleared or affected unnecessarily; and	Contractor	A5-7; Time of delivery and usage of materials and equipment	
		A5-8: Whenever possible, all damaged areas shall be reinstated and rehabilitated upon completion of the contract to as near pre-construction conditions as possible	Contractor	A5-8; No. of damaged sites reinstated/rehabilitated	
A6. Impact on Fauna	-Disturbance due to noise, vibrations, and vehicle presence.	A6-1: All areas disturbed by construction activities shall be	Contractor	A6-1; Disturbed area (ha) rehabilitated/reinstated	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		landscaped and rehabilitated . A6-2: Vegetation that does not grow high enough to cause interference with the overhead power lines, or cause a fire hazard, should not be trimmed or cut unless it is growing in the road access area	Contractor	A6-2; No. and type of vegetation cut/ trimmed	
		A6-3: Speed of project vehicles should be controlled at a maximum limit of 40 km/h to minimize roadkill A6-4: No hunting by Project personnel is to be tolerated under any circumstances (this measure should be a part of worker codes of conduct) A6-5: Guidance shall be	Contractor	A6-3; No. of speed control signs erected. A6-4; No. of worker CoC prohibiting hunting A6-5; No. of worker CoC prohibiting harm to animals	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		given to all staff that they are not allowed to harm any animals during any routine maintenance of the project's infrastructure.			
A7: Solid and Liquid Waste Impacts (including hazardous wastes)	<ul style="list-style-type: none"> -Impact on storm water quality and thus water quality in the water bodies in project areas -Impact on soil quality -Impact on surface water quality; -Impact on ground water quality; and -Impact on ecological receptors or human health 	<p>A7-1: The Contractor should prepare a Solid Waste Management Plan.</p> <p>A7-2: Segregate waste at source</p> <p>A7-3: Create awareness among workers on waste management (including appropriate signage)</p> <p>A7-4: Provision of temporary sanitation facilities for the workers</p> <p>A7-5: Provide waste disposal facilities (bins) etc in construction sites</p>	Contractor	<p>A7-1; No. of Contractor -ESMP with solid waste management plan</p> <p>A7-2; No. of contractors providing facilities for waste segregation</p> <p>A7-3; No. of worker awareness creation meetings</p> <p>A7-4; No. of temporary sanitary facilities provided</p> <p>A7-5; No. of waste bins provided</p> <p>A7-6; Quantity of waste (tons) disposed in compliance with</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>A7-6: Dispose all construction and operation waste in accordance with the NEMA's waste management regulations (2006)</p> <p>A7-7: Develop a detailed Oil Spill Response Plan (OSRP) which includes community notifications of any significant spills that have the potential to affect communities.</p> <p>A7-8: Refuelling of equipment and vehicles will be carried out in designated areas on hard standing ground to prevent seepage of any spillages to ground.</p> <p>A7-9: Hazardous material storage will be on hard</p>		<p>NEMA guidelines</p> <p>A7-7; Detailed OSRP developed</p> <p>A7-8; No. of designated areas for fueling project fleets</p> <p>A7-9; No. of bunded storage facilities for hazardous materials.</p> <p>A7-10; No. of hydrocarbon spill clean-up kits provided</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		standing and impermeable surface and the bulk storage facility will be bunded. A7-10: Hydrocarbon spill clean-up kits shall be available at all locations where refuelling or maintenance of vehicles and equipment is done, and responsible people shall be trained in the use thereof.			
A8. Access to Infrastructure and Services and Traffic Impacts	-Disruption of transit routes -Disruption of normal traffic operations -Wastes from the camp site could be significant and overburden the existing wastes disposal facilities in the area	A8-1: Methods will be implemented to maintain open, clear, and transparent communication with the local communities regarding the use of local infrastructures by the sub-Project throughout the different phases. A8-2: Engagement with the	Contractor	A8-1; No. of way leaves signed between the local community and the proponent A8-2; No. of engagements held	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>relevant authorities is recommended in order to avoid damage to common property and minimize access disruption to education and healthcare facilities</p> <p>A8-3: Community Grievance Mechanism will be implemented.</p> <p>A8-4: A Traffic Management Plan shall be developed before traffic movements and construction start in order to minimize traffic disruptions</p> <p>A8-5: Where temporary closure of road is required, alternative access to property will be</p>		<p>A8-3; No. of community grievances recorded and resolved</p> <p>A8-4; Traffic management plan developed to minimize disruptions</p> <p>A8-5; No. of diversion notices erected for temporary closure of roads</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		ensured and local solutions including diversions will be implemented to ensure uninterrupted mobility.			
A9: Landscape & Visual amenities risks	-Impacts on aesthetics of the surroundings with the possibility to affect the neighboring residents.	<p>A9-1: Any excavated or cut and fill areas will be landscaped and revegetated;</p> <p>A9-2: No debris or waste materials will be left at the work sites, good housekeeping on site to avoid litter and minimize waste</p> <p>A9-3: Towers and structures should have a non-reflective finish;</p> <p>A9-4: Night lighting of sites should be minimized within requirements of safety and efficiency.</p> <p>A9-5: Ongoing rehabilitation of cleared</p>	Contractor	<p>A9-1; No. of excavations/ cut fill area landscaped / revegetated</p> <p>A9-2; No. of cleaned work sites after construction</p> <p>A9-3; No. of towers/ structures with non-reflective finish</p> <p>A9-4; No. of hours of night lighting during construction</p> <p>A9-5; Cleared area (ha) rehabilitated</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		areas to minimize visual scarring and maintenance clearing will be kept to the absolute minimum and should not extend beyond the corridor;			
A10: Worker's Health and Safety and Workers Management	-Workers are likely to be exposed to work related risks during the construction phase of the project.	A10-1: Develop a Human Resources Policy, which will outline worker rights to be included in all contracts including restrictions on working hours in line with applicable ILO standards, compensation including consideration of overtime, holidays etc.	Contractor/NPCU /CPCU	A10-1; No. of contractor HR policies outlining worker rights developed	
		A10-2: Require contractors and subcontractors to put in place policies in line with national legislation and applicable international	NPCU/CPCU/ Contractor	A10-2; No. of contractor / subcontractor HR policies incorporating best practices on worker rights in place	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		legislation and Code of Conduct and Policies.			
		A10-3: Establish contractual clauses to be embedded in the contracts of all sub-contractors	NPCU/CPCU/ Contractor	A10-3; Sub-contractor contracts with embedded clauses	
		A10-4: Pre-employment medical assessments will be put in place as a workforce risk management tool to screen individuals for risk factors that may limit their ability to perform a job safely and effectively. Expected benefits of conducting a pre-employment medical assessment include a safer working environment, reduction in workplace injuries, minimized downtime, matching	Contractor	A10-4; No. of workers subjected to pre-employment medical assessment	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>the capacity of the employee with the role, and overall recruitment cost and risk reduction.</p> <p>A10-5: Ensure that training on health and safety measures is provided to all construction workers prior to starting to work on the Project and that supervisors have adequate experience to deliver on their responsibilities.</p> <p>A10-6: Implement regular health and safety checks and audits of workers, contractors and subcontractors and implementing sanctions in case of breaches of OHS plans and procedures</p>		<p>A10-5; No. of workers trained on health and safety measures</p> <p>A10-6; No. of workers subjected to regular health and safety checks/ audits</p> <p>A10-7; No. of grievances recorded and resolved</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicator s for impacts	Already Develop ed Plans
		<p>A10-7: Develop and implement a Workers Grievance Mechanism for the Project workforce including contractors and subcontract or's standards and the Project's specific standards. Such audits to include workplace H&S; worker contracts, working hours, pay and conditions; housing and food standards.</p> <p>A10-8: Establish procedure for the recording and analysis of incidents and lessons learned such that additional actions can be implemente d to avoid or minimize recurrence of occupational health and</p>		<p>A10-8; No. of OHS incidents registered</p> <p>A10-9; No. of work sites with accident prevention barriers</p> <p>A10-10; No. of work sites complying with COC</p> <p>A10-11; No. of work sites where</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>safety incidents.</p> <p>A10-9: Ensure that facilities and work sites are designed and maintained such that robust barriers are in place to prevent accidents.</p> <p>A10-10: Ensure that its Code of Conduct is followed to regulate the performance and behavior of all workers, including provision for disciplinary action for anti-social behavior and non-compliance with health and safety regulations such as lack of use of PPE.</p> <p>A10-11: Ensure that adequate clean water, adequate food, and access to medical care is provided to</p>		<p>workers access water, food and medical care</p> <p>A10-12; No. of worksites with access to condoms (male/female)</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		all workers on the worksite and at accommodation. A10-12: Provide condoms (male and female to workers			
All: Community Health and Safety Impacts	-Increased noise decreased air quality, inappropriate waste handling or disposal, and accidental leaks and spills, debris and movement of heavy equipment may pose a safety risk to the general public. -Potential impacts on community safety, in particular road accidents, trespass on the sites, and demining activities potentially resulting in accidents leading to injuries or fatalities. ~ Environmental health:	All-1: Develop and monitor the implementation of a Community Health and Safety Management Plan which will include the following measures: -Ensure that all workers are housed in accommodation camps rather than in the local settlements in order to minimize interaction with local communities and related health and safety impacts. -Ensure all workers including	Contractor	All-1; No. of community health and safety management plans developed and implemented	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicator s for impacts	Already Develop ed Plans
	<p>changes to the environment due to increased noise and vibrations, decreased air quality and, inadequate management of waste.</p> <p>~ Impact from workers presence and potential interaction with local populations</p>	<p>contractors and subcontractors undergo pre-employment screening and regular health screening including voluntary screening for STDs.</p> <p>-Ensure any trucking companies employed to work on the Project will have policies around health screening of their workers in line with Project requirements.</p> <p>-Ensure all workers including contractors and subcontractors receive education around transmission routes and symptoms of</p>			

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>communicable diseases of concern and STDs.</p> <p>-Undertake community awareness on HIV/AIDS and other STDs</p> <p>-Ensure that COVID-19 protocols and guidelines by GoK's Ministry of Health are adhered to during the construction activities including social distancing, provision of face masks to all workers, provision of sanitizers, establishment of hand washing areas and provision of water and soap, conducting temperature checks for all workers,</p>			

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicator s for impacts	Already Develop ed Plans
		<p>creating awareness on signs and symptoms of COVID-19, encouraging staff to take COVID-19 tests if symptoms associated with the same are exhibited, liaising with GoK to offer vaccination for workers</p> <p>-Provide access to health care for those injured by its activities.</p> <p>-Ensure that work sites are fenced and that signs are put up around work fronts and constructio n sites</p> <p>advising people of the risks associated with trespass.</p> <p>When work fronts are</p>			

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicator s for impacts	Already Develop ed Plans
		<p>less than 100 metres from a community or house, employ security guards from the local community to prevent trespass.</p> <p>-Undertake a programme of stakeholder engagement and consultation to educate local communities of the risks of trespassing onto sites, the meaning of signs, and the dangers of playing on or near equipment or entering fenced areas.</p>			
		<p>A11-2: Develop Emergency Response Plans (ERPs) in cooperation with local</p>	<p>Contractor</p>	<p>A11-2; No. of ERPs for each subproject developed and</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicator s for impacts	Already Develop ed Plans
		<p>emergency authorities and hospitals.</p> <p>-Extend the Worker Code of Conduct to include guidelines on worker – community interactions and will provide training on the worker code of conduct to all employees including contractors and subcontract ors as part of the induction process.</p> <p>-Provide primary health care and first aid at constructio n camp sites to avoid pressure on local healthcare infrastructur es.</p>		implement ed	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		-Implement a Community Grievance Mechanism. -Develop and implement a Traffic Management Plan covering aspect such as vehicle safety, driver, and passenger behaviour, use of drugs and alcohol, operating hours, rest periods, community education on traffic safety and accident reporting and investigations			
A12: Gender-based violence at the community level	-Gender-based violence at the community level -Forced Early Marriages -Sexual Exploitation and Abuse	A12-1: Extend the Worker Code of Conduct to include guidelines on worker – community interactions and provide training on the worker	Contractor/CPCU /NPCU	A12-1; No. of employees / contractor s/ subcontractors inducted on worker-community	The team has prepared a SEAH Prevention and Response Plan Sub project specific Gender Based

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
	<ul style="list-style-type: none"> - Transactional sex. -Shift in power dynamics in the community or family. -Abusive behaviour among project staff 	<p>code of conduct to all employees including contractors and subcontractors as part of the induction process.</p> <p>A12-2: Develop a SEAH Action Plan which should establish appropriate grievance redress; contain procedures for reporting SEAH Incidents and whistle-blower Protection; include safe complaints procedure and referral pathways and adopt survivor centred approach.</p>		<p>interactions</p> <p>A12-2; No. of SEAH grievances recorded and resolved</p>	<p>Violence Action Plans to be developed.</p> <p>Sample Code of Conduct documents have been developed and to be adopted by each contractor for sub projects.</p>
A13: Violation of children rights by contractor and labour force on site	-Violation of children rights by contractor and labour force on site. e.g., child labour, sexual relations with minors etc.	A13-1: Extend the Worker Code of Conduct to include guidelines on worker – community interactions and will	Contractor/CPCU /NPCU	A13-1; No. of contractors with CoC including guidelines on child protection	Sample Code of Conduct documents have been developed and to be adopted by each

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>provide training on the worker code of conduct on child protection.</p> <p>A 13-2: Prepare and implement a Child Protection Strategy</p> <p>A 13-3: Prepare and implement a child protection plan,</p> <p>A 13-4: Monitor the employment registers to ensure workers are aged 18+ years</p>		<p>A13-2; No. of contractors having child protection strategy developed and implemented</p> <p>A13-3; No. of contractors with child protection plans developed and implemented</p> <p>A13-4; No. of contractors complying with minimum employment age requirement</p>	contractor for sub projects.
A14: Archaeology and Cultural Heritage Impacts	<p>-Restriction to access cultural sites.</p> <p>-Destruction of cultural sites during construction or operations</p>	Avoid damage to, relocation of or restricting access to physical, cultural resources.	Contractor	A14- 1; No. of community consultativ	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>A14-1: Consult community when any community issue arises in order to engage traditional forms of community leadership. Develop stakeholder engagement procedures to guide consultations on cultural heritage</p> <p>A14-2: Work with local community representatives to develop cultural awareness materials (that will cover key issues including the location and importance of all local cultural sites and other cultural sensitivities (graves). Develop stakeholder engagement procedures to guide consultations.</p> <p>A14-3: Should constructio</p>		<p>e meetings on any emerging issues of cultural heritage</p> <p>A14-2; No. of appropriate cultural awareness materials developed</p> <p>A14-3 No. of working protocols developed and implemented</p> <p>A14-4; No. of</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>n activity be required in proximity to existing graves, develop and implement working protocols in consultation with local traditional leaders</p> <p>A14-4: Do not remove any cultural heritage including graves without prior consultation to the communities and fulfilling the legal requirements. Any removal of cultural heritage should be conducted by the best available techniques.</p> <p>A14-5: Establish a grievance procedure to ensure community concerns are addressed.</p> <p>A14-6: Develop a chance find procedure which will detail the</p>		<p>cultural heritage materials removed with prior consultation</p> <p>A14-5; No. of community grievances recorded and resolved</p> <p>A14-6; No. of chance find procedures developed and adhered to for any cultural heritage discoveries</p>	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		appropriate course of action that must be followed for any relevant cultural heritage discoveries in line with National Museums and Heritage Act			
A15: Land Tenure Challenges	-Denial of services to project beneficiaries	A15-1: Engage with Ministry of Lands to resolve land related challenges that may inhibit investments.	NPCU/CPCU	A15-1; No. of land use/ access challenges for investments resolved	A Resettlement Policy Framework has already been developed. Sub Project specific ARAPs will be developed if determined that there will be displacement.
A16: Displacement Impacts	-Land acquisition for sub projects leading to economic displacement	A-16-1. Develop Resettlement Policy Framework and Income Restoration Plan (IRP)	NPCU/CPCU	A16-1; Project RPF and No. of IRPs developed and implemented	A Resettlement Policy Framework has already been developed. Sub Project

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
					specific IRPs will be developed if determined that economic displacement is likely.
A17: Conflict in Project Areas	Eruption of conflict among communities over access to project services	A-17-1. Develop Stakeholder Engagement Plan including adequate benefit sharing mechanism	NPCU/CPCU	A17-1; SEP developed with adequate provision for benefit sharing	A Stakeholder Engagement Plan has already been developed for the project. A security Management Plan has been developed for the project
A18: Disease Spread (Public Health)	Increase in spread of public health diseases like HIV/AIDS and other STIs due to labor influx	A18: Develop HIV/AIDS mitigation plan Develop Labour Influx Management Plan	Contractor	A18; No. of HIV/AIDS and labor influx management plans developed	
A19: Vulnerable and Marginalized Groups/IP/SSAHU TLAC	Risk of exclusion as a result of withdrawing CIG funding; may not join SACCOs because they are not yet empowered (and it's not easy to force	A19: Develop Vulnerable and Marginalized Groups Framework. Leave an open window for VMGs- CIGs, IP-	NPCU/CPCU	A19; VMGF and No. of VMGPs developed	A Vulnerable and Marginalized Groups Framework has already been developed

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
	a member to go for SACCO if they do not feel like);	CIGs and perhaps new CIGs in new counties.			d for the project. Sub project specific Social Assessment and subsequent Vulnerable and Marginalized Groups Plan to be developed for each sub project where VMGs are found to be present.
PHASE		OPERATION PHASE			
BI. Surface Water Quality Impacts due to eutrophication	Impacts on water quality (eutrophication and sediment run-off) leading to deterioration of quality. Deteriorated water quality will impact on fauna if consumed. Deteriorated water quality will impact on community health if consumed.	BI-1. Implement soil conservation and control measures including good agricultural practices	NPCU/CPCU	BI-1; No. and type of soil conservation and control measures developed	
		BI-2. Train farmers on soil conservation and control measures	NPCU/CPCU	BI-2; No. of farmers trained on soil conservation and control measures	
		BI-3. Train farmers on integrated pest management	NPCU/CPCU	BI-3; No. of IPMPs developed and No. of	An Integrated Pest Management

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		<p>t techniques including limited use of chemical pesticides.</p> <p>Develop Integrated Pest Management Framework and project specific Integrated pest Management Plans</p>		farmers trained	<p>Framework has already been developed.</p> <p>Sub project specific integrated pest management plans to be developed for pesticide use.</p>
B2. Change in Hydrology	Abstraction of water for water infrastructure projects likely to affect hydrology	B2-1. Obtain water abstraction permit from Water Resources Association	NPCU/CPCU	B2-1; No. of permits for water abstraction issued by WRA	
B3. Soil Erosion and deterioration in water quality	<p>Impacts on water quality (sediment run-off/contamination) leading to deterioration of quality.</p> <p>Deteriorated water quality will impact on fauna if consumed.</p> <p>Deteriorated water quality will impact on community health if consumed.</p>	<p>B3-1. Implement soil conservation and control measures including good agricultural practices</p> <p>B3-2. Train farmers on soil conservation and control measures</p> <p>B3-3. Train farmers on integrated pest</p>	NPCU/CPCU	<p>B3-1; No. of soil conservation and control measures developed</p> <p>B3-2; No. of farmers trained on soil conservation and control</p> <p>B3-3; No. of farmers trained on IPMP</p>	<p>An Integrated Pest Management Framework has already been developed.</p> <p>Sub project specific integrated pest management plans to be developed.</p>

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		management techniques including limited use of chemical pesticides. Develop Integrated Pest Management Framework and project specific Integrated pest Management Plans		No. of IPMPs developed	
B4: Worker's Health and Safety and Workers Management	-Workers are likely to be exposed to work related risks in the market centres, pack houses, sorting plants	B4-1: Ensure adherence to Occupational Health and Safety (OSH) requirements for workers	NPCU/CPCU	B4-1; No. of contractors adhering to DoSHS requirements	
		B4-2: Provide training to all workers on Occupational Health and Safety (OSH)	NPCU/CPCU	B4-2 No. of workers trained on OHS	
B5. Green House Gas Emissions	Emissions from livestock (methane) may increase the Green House Gas effect.	B5-1: Limit number of sub projects that increase livestock production B5-2: Promote zero grazing	NPCU/CPCU	B5-1; No. of sub projects that increase livestock production B5-2; No. of livestock under	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
				zero grazing	
B6: Lack of Extension Services	-Denial of services to project beneficiaries	B6-1: Develop and implement Stakeholder Engagement Plan B6-2: Ensure that extension services are provided to all beneficiaries	NPCU/CPCU	B6-1; No. and type of stakeholders engaged B6-2 No. of mobilized beneficiaries receiving extension services	Stakeholder Engagement Plan already developed by the project.
B7: Elite Capture	-Denial of services to project beneficiaries	B7: Develop and implement Stakeholder Engagement Plan	NPCU/CPCU	B7; Percentage of beneficiaries satisfied with services provided	Stakeholder Engagement Plan already developed by the project
B8: Pesticide Use Impacts	-Impacts to soil and surface water; flora and fauna including bees; occupational health and safety; community health and safety	B8-1: Develop and implement Integrated Pest Management Plan B8-2: Avoid application of pesticides in protected areas (forests, parks, wetlands) etc B8-3: Provide PPEs for applicators of pesticides (gloves, masks, boots) B8-4: Develop and	NPCU/CPCU	B8-1; No. of IPM developed and implemented B8-2; Protected area (ha) where pesticides are not applied B8-3; No. of PPEs provided to users of pesticides B8-4; No. of pesticide waste disposal plans developed and	Integrated Pest Management Framework already developed by the project. Sub project specific Integrated Pest Management Plans to be developed to guide judicious use of pesticides.

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
		implement a waste management plan for pesticide wastes		implemented	
B-9: Violation of children rights	-Violation of children rights by engaging them in labor at farm/household level	B9-1: Develop Labour Management Procedures and Plans B9-2: Sensitization and education to households on child labour ramifications B9-3: Employing persons aged 18+ years	NPCU/CPCU	B9-1; No. LMPs developed B9-2; No. households sensitized on child labour B9-3; No. of persons aged 18+ years employed	Labour Management Procedures already developed for the project. Sub project Labour Management Plans to be developed.
B-10: Public Health Disease Spread	Increase in spread of public health diseases due to water infrastructures (schistosomiasis, river blindness, Lymphatic filariasis (elephantiasis) and malaria)	B10; Implement integrated vector control strategies	NPCU/CPCU	B10; No. of integrated vector control strategies implemented	
B-11: Solid and Liquid Waste Impacts	Wastes generated from the market centers, sorting centers, aggregation centers etc.	B11-1: Project facilities to develop and implement Solid Waste Management Plan.	NPCU/C	B11-1; No. of waste management plans developed and implemented	

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Impact Type	Potential Impact	Mitigation Measures	Responsible Party	Indicators for impacts	Already Developed Plans
	<ul style="list-style-type: none"> -Impact on soil quality -Impact on surface water quality. -Impact on ground water quality; and -Impact on ecological receptors or human health 	<p>BII-2: Segregate waste at source</p> <p>BII-3: Create awareness among workers on waste management (including appropriate signage)</p> <p>BII-4: Provide waste disposal facilities (bins) etc in construction sites</p> <p>BII-5: Dispose all operation waste in accordance with the NEMA's waste management regulations (2022)</p>		<p>BII-2; No. of facilities segregating waste at source</p> <p>BII-3; No. of workers sensitized on solid waste management</p> <p>BII-4; No. of sites with waste disposal facilities</p> <p>BII-5; No. of contractors disposing off wastes as per the waste management regulations (2022)</p>	

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Table 6-3 Environment and Social Monitoring Indicators

Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
A. Labour Influx	A-1 Higher rates of violence, injury	Development/ Implementation <ul style="list-style-type: none"> • COC developed • HR Policy developed • Work place safety policy developed • Labour influx Management Plan developed • No. of injuries recorded 	Contractor	<ul style="list-style-type: none"> • Prior to construction commencing for Local Content and Procurement Plan. • Quarterly during construction, operations and decommissioning phases for employment and procurement-related measures. • Quarterly for training-related measures
	A-2 Alcohol and drug consumption	<ul style="list-style-type: none"> • CoC prohibiting drunkenness while on duty • No. of cases of cases of drug and substance abuse recorded 		
	A-3 sexually transmitted diseases in the local population.	No. of STD cases in the local population recorded		
	A-4 social conflicts within and between communities SEAH	<ul style="list-style-type: none"> • SEAH Action Plan developed • No. of SEAH grievances recorded 		

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
		<ul style="list-style-type: none"> No. of workers sensitized on SEAH, HIV/AIDS and other STDs 		
B. Air Quality	B-I Dust Emissions associated with construction activities	<ul style="list-style-type: none"> No. of complaints on air quality from stakeholders Area (ha) with dust deposits as a result of subprojects Visual checks at construction site 	Contractor	<ul style="list-style-type: none"> Daily during excavation
C. Noise Quality	C-I Noise from construction activities	<ul style="list-style-type: none"> No. of complaints on noise from stakeholders Results of noise measurements undertaken by NEMA accredited laboratories 	Contractor	Quarterly throughout the construction phase
D. Soil Erosion	D-I Dumping of construction material outside the project construction footprint D-2 Erosion and compaction D-3 Contamination due to spill of civil construction material	<ul style="list-style-type: none"> Visual checks at construction site on quantity of construction materials dumped Visual inspection during casting Observable rills/gullies on construction sites No. of cases and quantities of spills of 	Contractor/ Contractor /NPCU/CPCU	Quarterly throughout the construction phase

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
		construction materials reported		
E. Flora and Fauna	E-1 Disruption to existing flora and fauna E-2 Loss of Vegetation E-3 Disturbance to fauna due to movement in forest areas	<ul style="list-style-type: none"> No. of workers sensitized on flora and fauna destruction No. of Sensitizations to worker on local ecology and extent of care Signs and warnings against hunting Number of revegetated areas. % area of site cleared vs. remaining un-cleared land. % area where pesticides are applied during construction 	Contractor	<ul style="list-style-type: none"> Quarterly throughout the construction phase
F. Waste (solid and liquid) including hazardous	F-1 Accumulation of waste on site causing nuisances such as odor, pest control problems and general litter.	<ul style="list-style-type: none"> Developed construction waste management plan No. and frequency checks No. of observable waste disposal receptors and facilities on site (trash cans, adequate signages) etc. 	Contractor /NPCU/CPCU	<ul style="list-style-type: none"> Monthly throughout the construction and operation phase

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
		<ul style="list-style-type: none"> No. of NEMA registered companies collecting waste Frequency of waste collection from sites. 		
G. Traffic Management	G-I Increase in traffic	<ul style="list-style-type: none"> Development/ implementation of traffic management plan No. of road accidents reported No. of workers who have been involved in road accidents 	Contractor	<ul style="list-style-type: none"> Daily throughout the construction phase
H. Landscape and Visual Amenity	H-I Visual scarring of the landscape	<ul style="list-style-type: none"> Frequency of visual inspection of the landscape Developed landscape restoration plan 	Contractor	<ul style="list-style-type: none"> Monthly throughout the construction phase
I. Workers Health, Safety and Labour Rights	I-I Workers health and safety and respect for labour rights	<ul style="list-style-type: none"> Developed occupational health and safety management plan Traffic Management Plan No. of workers in full PPEs at work sites No. of incidents and accidents. No. of workers trained on health and safety measures 	Contractor /NPCU/CPCU	<ul style="list-style-type: none"> Daily throughout the construction phase

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
		<ul style="list-style-type: none"> Frequency of training on health and safety measures 		
J. Community Health and Safety	J-1 Labour Influx (Health impacts including risks of STDs, HIV/AIDS)	<ul style="list-style-type: none"> Developed LMP No. of community members sensitized on health and safety No. of sensitizations to community members on HIV/AIDS and other STDs etc. 	Contractor /NPCU/CPCU	Monthly throughout the pre-construction, construction and operation phases
	J-2 Community expectation for local benefits	<ul style="list-style-type: none"> No. of community members sensitized on the project No. of community members benefiting from the project Developed benefit sharing plan No. of grievances on benefit sharing recorded 	Contractor /NPCU/CPCU	Monthly throughout the pre-construction, construction, and operation phases.
	J-3 Violence Against Children	<ul style="list-style-type: none"> Developed child protection policy Developed HR policy Developed CoC No. of child violence cases reported No. of children violated 	Contractor /NPCU/CPCU	Monthly throughout the pre-construction, construction, and operation phases.

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
	J-4 Gender Based Violence SEAH	<ul style="list-style-type: none"> • Developed CoC • Developed SEAH action plan in • Developed gender policy • No. of participants in SEAH sensitization meetings. • No. of sensitizations done on SEAH 	Contractor /NPCU/CPCU	Monthly throughout the pre-construction, construction, and operation phases.
K. Cultural Heritage	K-I Cultural and religious sensitivities maybe impacted by project	<ul style="list-style-type: none"> • Developed Chance Find Procedures • No. of community members trained on chance find procedures 	Contractor	Continuous throughout the construction phase
L. Local amenities and infrastructure	L-I Pressure to local infrastructure from use of local resources	<ul style="list-style-type: none"> • No. of grievances on local resources recorded • No. of grievances resolved in a timely manner • No. of grievances escalated to national courts and the World Bank. 	Contractor/ CPCU/NPCU/Local administration representative	Monthly throughout the pre-construction, construction phases.
M. Meaningful stakeholder consultations	M-I Lack of access to project benefits and opportunities by PAPs	<ul style="list-style-type: none"> • Developed SEP • No. of stakeholder consultations held • No. of stakeholders consulted 	Contractor/ CPCU/NPCU/Local administration representative	Continuous throughout the pre-construction, construction, and operations phases.

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
N. Conflict and Grievance Management	N-I Inadequate handling and resolution of grievances leading to conflicts	<ul style="list-style-type: none"> No. of grievances received No. of grievances resolved in a timely manner No. of grievances escalated to national courts and the World Bank. 	Contractor/ CPCU/NPCU/Local administration representative	Continuous throughout the pre-construction, construction, and operations phases.
O. Surface Water Quality	O-I Surface water quality impacts	<ul style="list-style-type: none"> Developed IPMF Developed IPMPs No. of water quality tests held by NEMA accredited labs. 	Contractor /CPCU/NPCU	Quarterly during construction and operation phase
P. Eutrophication	P-I Pollution of surface and underground water bodies Soil contamination Human Health Impacts Impacts on flora	<ul style="list-style-type: none"> Developed IPMF Developed IPMPs No. of water quality tests held by NEMA accredited labs. 	CPCU/NPCU	Quarterly during construction and operation phase
Q. Hydrological Impacts	Q-I. Change in hydrology and reduced access to water	<ul style="list-style-type: none"> Changes in water quantity and quality Changes in rainfall patterns 	CPCU/NPCU	Continuous Construction and Operation phase
R. Green House Gas Emissions	R-I Increased methane gas in atmosphere	<ul style="list-style-type: none"> No. of dairy livestock % of land cover removed 	CPCU/NPCU	Continuous-Operation phase

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
	exacerbating GHGs effect			
S. Vulnerable and Marginalized Groups	S-I Impacts on Vulnerable and Marginalized Groups	<ul style="list-style-type: none"> Developed VMGF No. of complaints received from VMGs 	CPCU/NPCU	Continuous-Construction and Operation phase
T. Physical and Economic Displacement	T-I Economic Displacement impacts	<ul style="list-style-type: none"> Developed RPF Developed Income Restoration Plans (IRPs) No. of economic displacement complaints received 	CPCU/NPCU	Continuous-Construction phase
U. Conflict and Security	U-I Increase in project triggered or related conflicts	<ul style="list-style-type: none"> Developed SMPs Developed Grievance management (GM) Developed SEPs Benefit sharing mechanism developed No. of security grievances recorded 	CPCU/NPCU	Continuous-Construction and Operation phase
V. Elite Capture	V-I	<ul style="list-style-type: none"> Developed SEP Developed GM Developed benefit sharing policy No. of grievances on elite capture recorded % of elite beneficiaries 	CPCU/NPCU	Continuous-Construction and Operation phase
W. Extension Services	W-I Inadequate extension	<ul style="list-style-type: none"> Developed extension services plan 	CPCU/NPCU	Continuous-Operation phase

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Project Activity/ Aspect	Impact/ Effect	Monitoring Indicator	Institutional Responsibility	
			Monitoring Responsibility	Frequency
	services and support	<ul style="list-style-type: none"> • No. and types of extension services provided • No. of grievances on the lack of extension services and support received • No. of beneficiaries receiving extension services 		

MONITORING PLANS FOR ENVIRONMENTAL AND SOCIAL INDICATORS

225) The goal of monitoring is to measure the success rate of the project, determine whether interventions have resulted in dealing with negative impacts, whether further interventions are needed, or monitoring is to be extended in some areas. Monitoring indicators will be very much dependent on specific project contexts (Table 6.4).

Monitoring Levels - Overall Project Level

226) The Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALD) through the established NPCU for this project will be responsible for monitoring and reporting on compliance with the ESMF. The NPCU will report results of this monitoring to the Bank.

Bank's Monitoring Support

227) The Bank will provide the second line of monitoring compliance and commitments made in the ESCP through supervision albeit in a less frequent manner and detail as compared to the first line of monitoring that will be undertaken by the NPCU. The Bank will further undertake monitoring during its scheduled implementation support missions.

Table 6-4. Monitoring Indicators

Monitoring Level	Monitoring Issue	Verifiable Indicators	Responsibility
ESMF Level	<ul style="list-style-type: none"> ■ Adequate dissemination of ESMF, RPF, VMGF, LMP, SMP, SEA/SH, GRM Manual, and IPMP to stakeholders. ■ Capacity building and training programs 	<ul style="list-style-type: none"> ■ Record of consultations and meetings. ■ Workshop reports. 	<ul style="list-style-type: none"> ■ MoALD
RPF level	<ul style="list-style-type: none"> ■ Access to land and loss of income ■ Disclosure of RPF 	<ul style="list-style-type: none"> ■ IRPs prepared, approved and implemented ■ Micro projects/sub projects with land documentation completed ■ Asset /income loss compensated 	<ul style="list-style-type: none"> ■ MOALD ■ NPCU ■ CPCU
VMGF	<ul style="list-style-type: none"> ■ Disclosure of VMGF ■ Capacity building 	<ul style="list-style-type: none"> ■ Record of validation meeting 	<ul style="list-style-type: none"> ■ MOALD ■ NPCU ■ CPCU

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		<ul style="list-style-type: none"> ■ No. of capacity building workshops ■ VMGPs developed and implemented 	
LMP	<ul style="list-style-type: none"> ■ Disclosure of LMP ■ Capacity building 	<ul style="list-style-type: none"> ■ Record of validation meeting ■ No. of capacity building workshops ■ Codes of Conduct developed for various categories of workers ■ Cases of child labour reported and resolved. 	<ul style="list-style-type: none"> ■ MOALD ■ NPCU ■ CPCU ■ Contractors
SEAH action Plan	<ul style="list-style-type: none"> ■ Disclosure of SEAH ■ Capacity building 	<ul style="list-style-type: none"> ■ Record of validation meeting ■ No. of capacity building/sensitization workshops ■ Record of cases of SEAH and actions taken 	<ul style="list-style-type: none"> ■ MOALD ■ NPCU ■ CPCU ■ Contractors

REPORTING

Regular Reporting

228) MoALD will be required to prepare and submit to the Bank regular monitoring progress reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to, the implementation of the ESCP, status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and the functioning of the grievance mechanism. Reporting will be quarterly and annually throughout the project implementation period.

Incidents and Accidents

229) MoALD will promptly notify the Bank (within 48 hours) 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 including child abuse and gender-based violence. MoALD will provide sufficient detail regarding the incident or accident, 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 Bank's request, MoALD will prepare a report on the incident or accident and propose any measures to prevent its

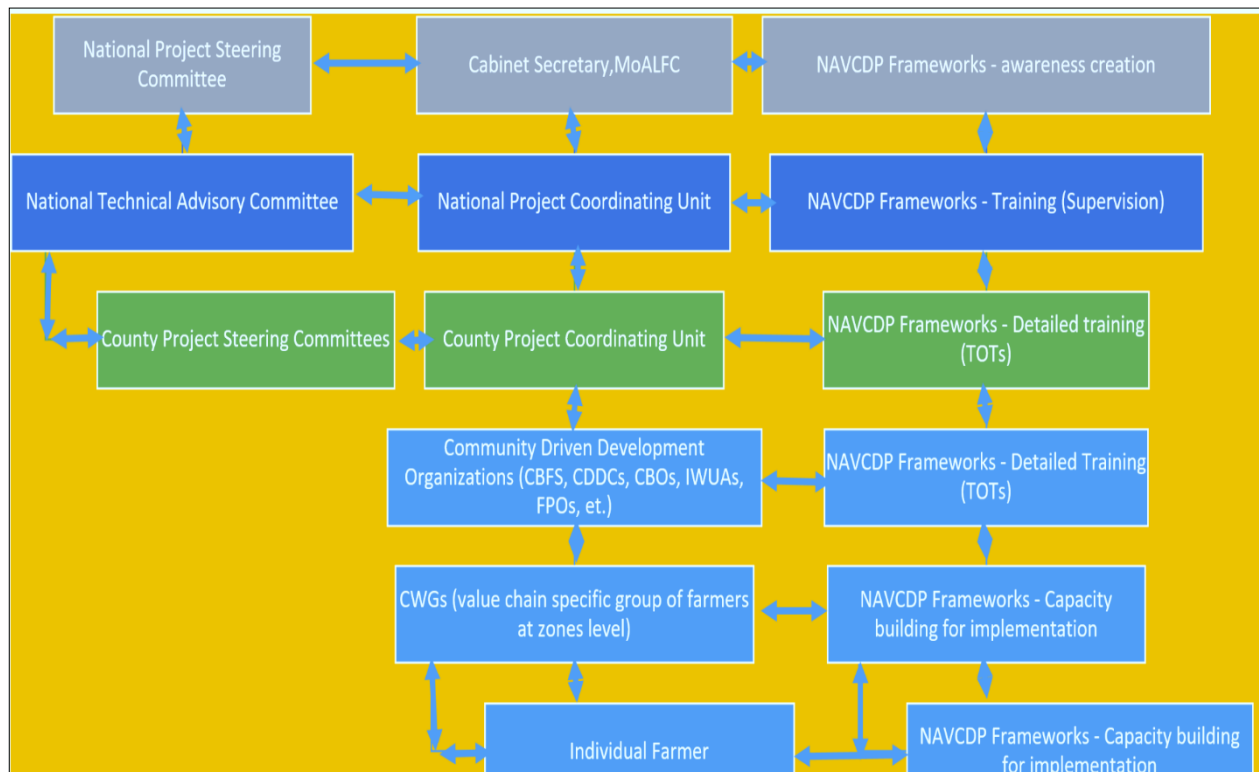
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recurrence. The incident report will be prepared by undertaking Root Cause Analysis (RCA), after the Bank's request for such an analysis, along with measures to prevent recurrence to be provided within ten days.

ESMF COORDINATION & IMPLEMENTATION ARRANGEMENTS

INTRODUCTION

230) Coordination and Implementation of NAVCDP ESMF will involve a 3-tier institutional arrangement comprising the National, County and Community levels (Figure 7-1). The three-tier institutional arrangement aims at achieving efficient decision-making process and implementation as well as using the constitutionally mandated governance procedures at all levels for a sustained application, adoption, and monitoring compliance to the required environmental and social safeguards. The 1st tier, which is at National level, will represent the MOALD and other National GoK and non-state stakeholders (Agriculture, livestock, Fisheries, Cooperatives, NEMA, NLC, CSOs, etc.). The 2nd and 3rd tiers are the county and community levels respectively whereby the county governments are the executing agencies while the communities are the target beneficiaries.



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Figure 7.1: Implementation Arrangements for ESMF

COMMUNITY LEVEL

- 231) NAVCDP will facilitate the Participatory Integrated Community Development (PICD) process to ensure effective participation of target farming communities in Community Driven Development (CDD) sub-project identification, planning and implementation. PICD is a combination of different participatory methodologies for starting and sustaining 'community conversations' that enable community groups to reflect and prioritize their development needs. Consequently, the farming communities (CIGs/VMGs and FPOs) are expected to identify, plan and implement appropriate sub-projects to address the prioritized needs.
- 232) **Subprojects:** Any activity which is directly being implemented by project beneficiaries at farm, community, regional and National levels because of undergoing inclusion through a participatory process and funded by the World Bank under NAVCDP. This could be micro projects, Farmer Producer Organizations' investments (Value Chain Upgrading Matching Grants - VCUMG) and Enterprise Development Plan Grants - EDPG) and Value chain ecosystem investments at County, Regional or National levels) proposed and approved under the project.
- 233) For CDDCs and SACCOs based sub-projects, all members will identify the investments during the Participatory Integrated Community Development (PICD) process and provide signed minutes of the deliberations. They will develop group micro-investment proposals for small scale infrastructure to support aggregation and value addition with the guidance of the SAIC, CDDC members and the Sub-County Technical teams (SCTTs). The SAIC with the assistance of SCCTs will then administer the Environmental and Social (E&S) screening checklist (Annex 3) and develop an ESMP (where necessary). The micro-investment project proposals with ESMPs and the corresponding filled E&S checklists from each CIG/VMG will be presented to the NEMA officer for concurrence. All micro-project investments will then be forwarded to the CPCU. The E&S compliance documents at this level will be the group registration certificate, CIG/VMG micro-investment proposals, CDDC minutes, the filled E&S checklist and land access documents described in the RPF for NAVCDP. The screening will depend on the specific sub-project under consideration. SAIC will be involved in screening of micro-projects with support from CPCU E/S experts; County-wide sub-projects will be screened by CPCU ES experts, while inter-county sub-projects (regional and national) will be screened by NPCU. The Sub County Technical Teams (SCTT) and the SAIC will be responsible for the development of the community level agreements which will

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be witnessed by the local administration officers and endorsed by a commissioner of oaths.

- 234) The FPOs will identify the investments that will have significant positive impact in the value chain development and develop proposals for consideration for funding under NAVCDP. The FPO supervisory committee will guide the management and the members to administer the E&S checklist and share with the NEMA officer for guidance on the appropriate compliance tool (either simple ESMP, SPR or CPR). The E&S compliance documents at this level are FPO proposals, feasibility study reports, approved designs, statutory requirements and ESIA reports.

235)

SCREENING FOR NARIGP INVESTMENTS

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- 236) Investments for the newly formed CIGs/VMGs in NAVCDP will be developed after the PICD process. The groups will elect their officials and SAIC representatives who will be sensitized and then elect their Community Driven Development Committees (CDDCs). The CDDCs and SACCOs will develop proposals for funding under NAVCDP. These will be discussed at the CDDC, SACCO levels and rationalized depending on the available funds. The proposals which will be approved at CDDC and SACCO levels will be subjected to the environmental and social safeguards checklist by the communities under the leadership of the SAIC and the Sub County Technical Teams (SCTT). All the proposals will be further screened by the CESSCO and a team of POEs then presented to the NEMA director for comments and recommendation of the appropriate ESS compliance tools. The CESSCO and the SCTT will then review then proposals and depending on the advice from the NEMA officer, develop the environmental and social management plans (ESMPs) which will ultimately be discussed and adopted by the CDDCs and SACCOs. The proposals will be discussed and approved by the CTAC and NTAC for funding. The CESSCOs and the POEs will periodically monitor the implementation of the ESMPs.
- 237)
- 238) Likewise, the proposals for famer producer organizations will be developed by the Pos/SACCOs after the PICD process and followed by county value chain stakeholders' fora for each value chain. The POs supervisory committees, (equivalent of the SAIC) and the SCTT will subject all the proposals to the ESS checklist, reviewed at the County level and shared with NEMA office for advice on the appropriate ESS compliance tool. The SCTT and the supervisory committees will develop the ESMP where necessary. Those that require ESIA will be shared with Lead experts for development of ESIA (SPR/CPR). The CESSCOs and the POEs will periodically monitor the implementation of the ESMPs.
- 239)

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- 240) The Value Chain Ecosystem Investments (VCEIs) will be identified during the PICD process and will form part of the Community Action Plans (CAPs). The proposals for these investments will be developed by the technical teams at the Counties. The Project Management Committees (PMCs) will be democratically elected by the community members to spearhead the the development of the VCEIs. The CESCO, CSSCO and the PMC members will subject the proposals to ESS checklist and share the same with the NEMA officers for advice on the appropriate ESS compliance tool. Due to the sizes of these investments, most of them will require CPRs. The CPCUs will identify the lead experts who will develop the ESIA reports. One of the key activities of the ESIA process will be the public participation where the stakeholders shall be consulted to provide their views on the investment. Their views will form part of the ESIA reports. The CESCO/CSSCO will monitor the implementation of the ESMPs with oversight from the NESCO/NSSCO will also follow up on the implementation of the ESMPs,

COUNTY LEVEL

- 241) An environmental and social expert at CPCU with the assistance of a county E&S compliance team will receive, evaluate, and present the CIG/VMG and FPO sub-project proposals to the CTAC and CPSC for technical guidance and approval. The CPCU will also present the sub-project proposals to the County Environmental Committee (CEC) for deliberation and technical guidance on the engagement of a lead expert for development of the various ESIA reports. All the counties will be expected to form E&S compliance teams to monitor compliance to ESS issues at the CIG/VMG, and FPO levels.
- 242) NAVCDP will also initiate value chain ecosystem investments at County, Regional and National levels. The investments will be identified during the PICD as priority investments at the different levels and their implementation will be spearheaded by Project Management Committees (PMCs). The CPCU with assistance from NPCU will guide the PMC to administer the E&S checklist, develop investment proposals while undertaking due diligence on the availability of suitable land without encumbrances and share the documents with the NEMA Officer for advice on the appropriate E&S compliance tool. The CPCU/NPCU will guide the PMC to engage a lead ESIA expert to develop the ESIA report after the investment is approved by the CTAC, CPSC and the NTAC.

NATIONAL LEVEL

- 243) The Environmental and Social Safeguards compliance experts, Security Expert and GBV/SEAHP Expert at the NPCU with the assistance of a compliance team at county

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level will coordinate the capacity building for the CPCU and the County project teams to ensure that all the investment supported under NAVCDP will be subjected to the E&S checklist screening and the appropriate compliance measures according to ESIA reports approved by NEMA are observed.

244) The NPCU will receive value chain ecosystem sub-project proposals at County, Regional and National levels from CPCUs and subject them to peer review for technical and statutory compliance and submit to NTAC for approval. The investments will be implemented with oversight from PMCs and for those with contracted civil works, the contractor will develop an ESMP based on the approved ESIA which will be the guide for full compliance during the construction phase. The PMC will be expected to comply with the ESMP during the operation phase of the investments. will be expected to engage a lead expert to carry out annual environmental audits as per the EMCA requirements during the operational phase.

245) The EMCA 1999 and (amendment) Act 2015, places the responsibility of environmental protection on NEMA as the coordinating agency. NEMA is charged with the overall role of providing oversight in regard to monitoring for all project activities that have potential impacts on the environment in Kenya. NEMA will undertake periodic monitoring of the projects by making regular site inspection visits to determine compliance with the sub projects ESIAs or ESMPs approved and will further rely on the submitted environmental audit reports submitted for each project annually as required by EMCA as a way of monitoring. NEMA is mandated to provide approvals and ESIA license based on the ESIA reports submitted. Without NEMA's approval, the sub project will not proceed to implementation. All monitoring reports as well as annual environmental audit reports will be submitted to NEMA as specified by the environmental assessment and audit regulations.

246)

ENVIRONMENTAL AND SOCIAL INSTRUMENTS

247) The Environmental Management and Coordination Act (EMCA) 1999 and EMCA (amendment) 2015, classifies projects into **High, Medium, and Low** risk. It further lists projects that would fall under each of the risk classifications. The NAVCDP sub projects are categorized as **Low and Medium** requiring preparation of SPR or CPR as per the EMCA 2015 and its Legal Notices 31, 32 of April 31, 2019. Although the new NEMA regulations allow the medium risk investments to develop SPRs, the social risks associated with investments under NAVCDP will be expected to also develop VMGPs and IRPs. Community labor agreements will also be prepared for sub projects involving community labor.

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248) Legal Notice 31 and 32 prescribes the risk classification of projects to include Low, Medium, and High and provides guidance on what ESIA report to prepare based on the risk classification. All projects that are classified as Low or Medium risk are required to submit a SPR to NEMA while High Risk projects are required to submit CPR. NAVCDP is a **Substantial Risk** investment project, and the sub projects are likely to be classified as Low or Medium risk as outlined in the Table 7-1. Simple ESMP will be prepared for micro projects and may not require NEMA guidance.

Table 7-1. NAVCDP Project Classification for ESIA Report Preparation

Classification	Sub Project Type	Report
Medium Risk	<ul style="list-style-type: none"> Farmer-led micro-Irrigation for small scale farmers using water from various water harvesting structures Construction of urban market centers Milk and feed processing plants at maximum cost of US\$ 1,000,000 Water pans and other water storage structures whose capacity is not more than 100,000 m³ located in areas of medium to high population density Packhouses for fresh crop produce at a maximum cost of US\$ 1,000,000 Aggregation/ sorting centers for farm produce in areas of medium to high population density at a maximum cost of US\$ 500,000 	CPR/ ESMP, IRP
	<ul style="list-style-type: none"> Livestock slaughter houses and saleyards Water pans and other water storage structures whose capacity is not more than 100,000 m³ in areas of low populated density Aggregation/ sorting centers for farm produce in areas of low population density at a maximum cost of US\$ 200,000 	SPR/ ESMP, IRP
Low Risk	<ul style="list-style-type: none"> Farm ponds whose storage capacity is not more 500 meters cubed Small scale investments for aggregation and value addition e.g. weighing, grading, cleaning of produce, small duration storage and quality testing equipment at a maximum cost of US\$ 200,000 	SPR/ ESMP, IRP

Development of ESIA Reports

249) Based on the guidance by NEMA as illustrated in Figure 7.2, on whether to prepare SPR or CPR for sub projects, NAVCDP will prepare draft ToRs for ESIAs (see annex 8 for sample ToR). NAVCDP will competitively select NEMA registered lead experts to prepare SPR or CPR for approved sub-projects. All the ESIA reports (SPR and CPR) will be reviewed to ensure that they meet the ESS requirements.

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Review of the ESIA Report

- 250) The SPR and CPR will be reviewed by the NAVCDP/NPCU and disclosed in the MoALD website. The reports will also be disclosed in the project areas and made accessible to the beneficiaries. The World Bank will review all CPRs and IRPs and provide clearance. The Bank will disclose the CPRs in its external website.
- 251) The SPRs and CPRs for every sub project will be submitted to NEMA for review and approval. Typical outcomes of review from NEMA are shown in Table 7-2.

Table 7-2. Possible Outcomes of NEMA Review of Project Reports

Outcome	Recommendation	Important precautions
CPR or SPR found to have no significant Social and Environmental Impacts or discloses sufficient mitigation measures	An Environmental License will be issued by NEMA	Report must disclose adequate mitigation measures and show proof of comprehensive consultations within the area of influence.
A proponent is dissatisfied with the outcome of the NEMA review.	An Appeal is provided for.	

Annual Environmental Audit

- 252) An independently commissioned environmental and social audit will be carried out on an annual basis. An audit is necessary to ensure (i) that the ESMF, RPF, IPMP, VMGF, SEP, GRM, GBV/SEAHP, and LMP process is being implemented appropriately, and (ii) that mitigation measures are being identified and implemented. The audit will be able to identify any amendments in the ESMF approach that are required to improve its effectiveness. (Annex 9, Sample ToR for EA).

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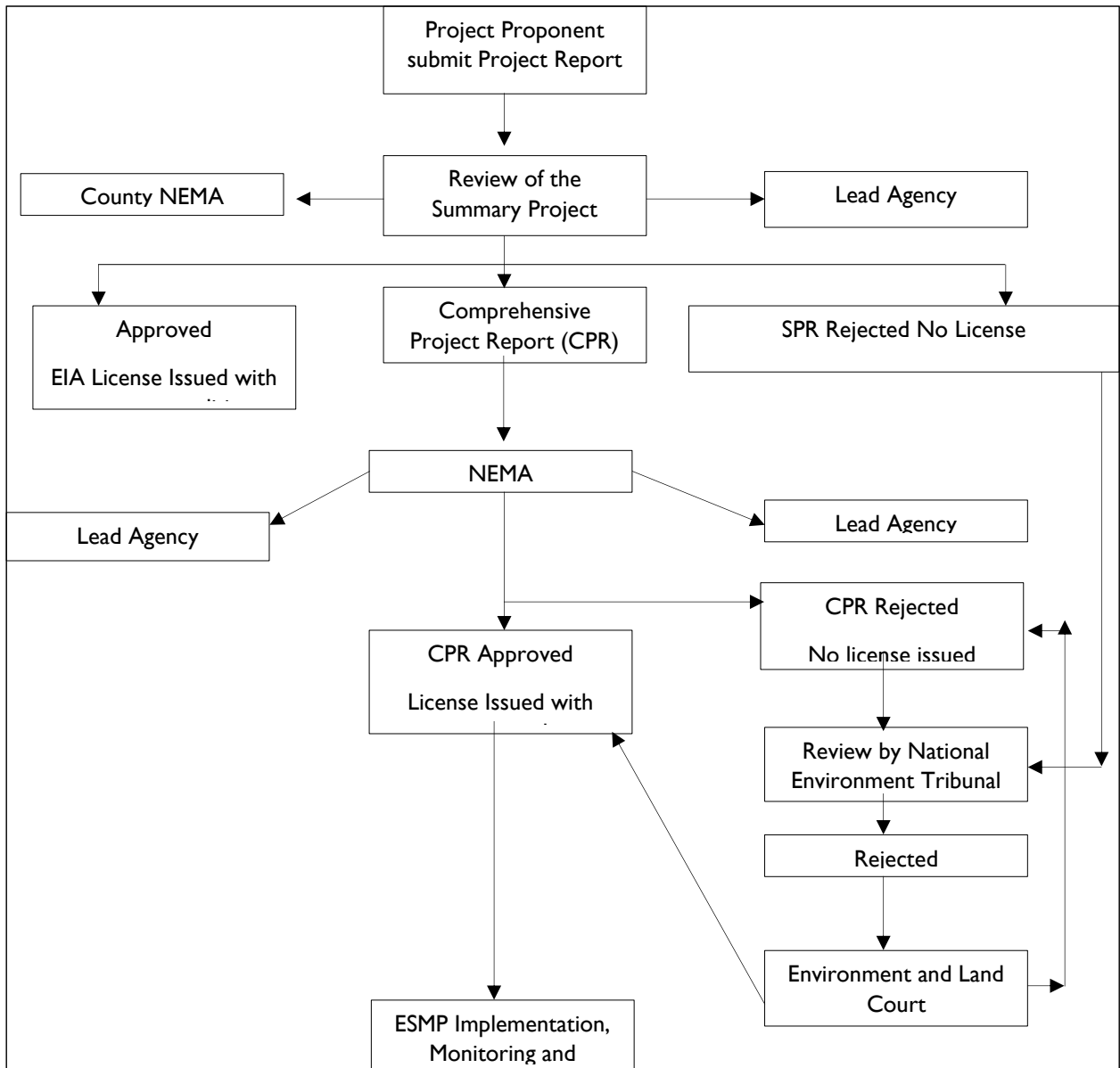


Figure 7-2: Statutory ESIA Procedure in Kenya

CAPACITY BUILDING, TRAINING AND TECHNICAL ASSISTANCE

253) This chapter describes the existing human resources capacity within the MoALD that will provide focal support in the management and mitigation of the environmental and social risks. It also details measures that will be implemented to strengthen environmental and social risk management at NPCU and CPCU and increase understanding of World Bank's ESSs as applicable to the NAVCDP.

Institutional Capacity for ESMF Implementation

254) The MoALD has experience in implementing different projects supported by the World Bank financing which used the Environmental and Social Operational Policies including Kenya Climate Smart Agriculture Project, National Agriculture and Rural Inclusive Growth Project, Regional Pastoral Livelihood Resilience Project and Emergency Locust Response Project and others. Within the MoALD a Project Coordination Unit responsible for day-to-day implementation of activities under the leadership of the National Project Coordinator (NPC) has been established and staffed with an Environmental Specialist, Social Specialist, as well as Monitoring and Evaluation Specialist and GBV/SEAH Expert among other non-environmental and social experts.

255) The project team has broader understanding of managing social risks and impacts on WB funded projects and experience of implementing NARIGP and KSCAP, still the NPCU, County teams and community institutions (CIG/VMG/CDDCs/FPO/SACCOs) will require intensive training and technical support for NAVCDP. Specially during preparation of County development Plans, applying exclusion criteria and incorporation of social issues such as labor management, meaningful stakeholder engagement in culturally appropriate manner, ascertaining land ownership (NARIGP, NLC Guidelines, 2021), management of economic loss, ensuring VMGs are consulted upon and benefit from the project. In order to strengthen the capacity of the NPCU, CPCU and other implementing agencies, the following capacity building efforts are recommended. The World Bank will train the NPCU on topics highlighted in table 8-I below. The NPCU will thereafter provide training to the CPCU on the topics outlined below. To ensure that the message and quality of training is assured, NPCU will engage consultants familiar with Bank's ESF, ESS and the other relevant instruments to support the county-based trainings.

Table 8-I. Capacity Building

Training Topic	Target	Trainers
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World Bank ESF, ESS	NPCU, CPCUs, PoEs	World Bank
World Bank ESF, ESS	NPCU, CPCUs, PoEs	NPCU
ESMF, IPMF, SEAH Prevention and Response Plan, SMP, GRM.	NPCU, CPCUs, PoEs	NPCU
ESMP Implementation and Monitoring	CPCU, CTACs,	NPCU
Project Screening	CPCU, CTACs, CDDCs, SACCOs	NPCU
Global GAP, GIIP, KEBS, OSH	NPCU, CPCU, CTACs, PoEs,	NPCU/TA
Training on the use of the following tools for mitigation project risks: Remote Sensing, GPS, also GPS in SPRs and CPRs, mapping of VMG/IP investments	NPCU, CPCU, CTACs, PoEs,	NPCU/TA

256) The project will maintain an environment specialist and a social specialist at national as well as county levels during the entire duration of the project implementation. The project shall hire a GBV expert to support implementation of Sexual Exploitation, Abuse, and Harassment (SEAH) prevention and Response Plan that will work closely with the communication specialist and social specialist in NPCU. The project shall also engage consultancy services for audit, training and monitoring and evaluation of E&S actions as outlined in the ESMF, VMGF, RPF, LMP and SEP. Capacity building of ESS for compliance will continue throughout the project life cycle as indicated below in the two capacity building tables (Table 13 & Table 14). The approach should be that messages from all instruments are packaged in modules on piecemeal basis as operations advance.

Table 13: Capacity building Indicative Cost on project ESS for Implementation and Compliance (USD)

S/N o.	Activities	Year 1		Year 2		Year 3		Year 4		Year 5	Total
1	Setting up ESS implementation structures at all levels/ Sensitizations										
	a) National level	4,000		2,000		1,000		4,000		1,000	12,000
	b) County level	12,000		6,000		3,000		12,000		3,000	36,000

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	c) SACCO level	250	125	65	250	65	755
	d) Ward level	12,000	6,000	3,000	12,000	3,000	36,000
2	Boards and Committees						
	a) National level (Steering & Technical Committees)		2,000	1,000	4,000	1,000	12,000
	b) county level (Steering & Technical Committees)	6,000	3,000	1,500	6,000	1,500	18,000
	c) SACCO level Mgt Committees	250	125	65	250	65	755
3	GRM Committees (General/ GBVs /SEA Committees)	10,250	10,250	10,250	10,250	10,250	51,250
4	ESS Instruments Sensitization Workshops/Meetings (all levels)	200,000	200,000				400,000
5	Project Sensitization Launch meetings	100,000					100,000
6	ToTs/ToF's trainings						
	a) county level	25,000	25,000				50,000
	b) SACCO level	25,000	25,000	9,000	7,500	5,000	71,500

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	c) Ward level	12,500	12,500	12,500	12,500	12,500	62,500
8	Proposals vetting (all)	2,000	4,000	5,000	3,000	2,000	16,000
9	Capacity building on projects screenings	7,000	5,000	4,000			16,000
10	Actual Screening of prioritized projects/ Screening checklist	500	2,000	4,000	3,000	2,000	11,500
11	Capacity building on implementation of LMPs, SMPs, RAPs, IPMPs, GBVP, VM GF	50,000	100,000	40,000	20,000	10,000	220,000
12	GM establishment & Trainings	50,000	50,000	50,000	50,000	50,000	250,000
	GM operationalization	100,000	20,000	20,000	20,000	20,000	180,000
13	Other trainings						
	a) Capacity building on Proposal development (SACCOs, CDDCs, CIGs, PMCs, ESIA process, ESS M&E, GM, GBV/SEA/SH, LMPs, SMPs, EH, OHS, Security management, quality assurance		200,000	300,000	200,000	100,000	800,000

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	on value chains e.g Milk products, meat products, KEBS, Global GAP/Kenya GAP, Use of GPS tools for identification/ma pping of investments, VMGs/Ips/Marke t structures, etc							
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Table 14: ESS TA Engagement Plan for 5 Year Project Period

	TA Engagement Plan Costs in USD											
S/ No.	Activities	Year 1		Year 2		Year 3		Year 4		Year 5		Total Cost
1	Social Assessment	200,000										200,000
2	Gender Analysis	200,000										200,000
3	Project Environmen- tal Assessment											
	a) Baseline	200,000										200,000
	b) Midline					150,000						150,000
	c) Endline										200,	200,00

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										000	0
4	Staff Performance Appraisal/Quality Assurance			50,000				50,000			100,000
5	ESS Staff allowances										
	a) Environmental Specialist										
	b) Social Specialist										
	c) GBV/SEAH Specialist										
	d) Security expert										
	e) Security surveillance part time firm										
	f) ESS Specialized trainings for experts on need basis e.g global Gap. Certifications, Registration of FPOs										

PUBLIC CONSULTATION, DISCLOSURE AND GRIEVANCE MECHANISM

257) This chapter describes the consultations conducted during the preparation of the ESMF, the disclosure arrangements and the grievance mechanism in place for use during the project implementation.

PUBLIC CONSULTATION

258) MoALD presented this ESMF and other project ESS instruments as drafts to identified stakeholders in December 2021 as part of public consultation and more specifically to seek input from the stakeholders on potential environmental and social impacts and mitigation measures of the NAVCDP. MoALD provided adequate notice to the stakeholders with respect to the date and time for the consultations. The executive summaries of the draft ESMF, RPF and VMGF were attached to the invitation letters for participant's perusal. The issues raised by the stakeholders and responses including list of participants are included in Annex I and were used in the finalization of this ESMF. Key issues are summarized in table 9-1 below. Similarly, in line with the requirements of SEP, the same instruments are being realigned as recommended by the 1st ISM NAVCDP that was held on February 13-17, 2023 and recommended project design changes that have necessitated realignment of the ESS instruments, hold further consultations (March XXX, 2023), and seek for Bank review, approval, and clearance, and further Disclosure. Stakeholders' comments, observations, and recommendations during this realignment and redisclosure period will be included in this ESMF and all other NAVCDP ESS Instruments. Further, the instruments will be redisclosed both in country and in the World Bank External website.

Table 9-1. Summary of Stakeholder Consultation Concerns

S/No	Concerns	Response
1.	The project is huge in terms of investments. Where will be the place of the VMGs in this project? Will we be involved in the design?	All stakeholders will be involved in the design and implementation of each of the sub projects and including VMGs in areas where they are present.
2.	What were the environmental risks and impacts and challenges encountered in the other projects e.g., KCSAP, NARGIP? Has a completion report for the past projects undertaken to determine the lessons learned?	The KCSAP and NARGIP has moderate environmental and social impacts which are similar to those that NAVCDP will have. Environmental and Social Impact Assessment reports were prepared for the sub projects and disclosed. These reports are available online (www.kilimo.go.ke).

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S/No	Concerns	Response
3.	At what level do we undertake the environmental impacts assessment? There are small and huge projects?	Screening will be undertaken for all the sub projects and a determination of the further environmental and social analysis made based on the screening.
4.	We have provided our contributions at this stage, and we are glad that we have been consulted. At implementation, will we be consulted?	A Stakeholder Engagement Plan has been prepared for this project and will ensure that consultation with all stakeholders is undertaken throughout the project implementation phases.
5.	How will the use of pesticides affect the value chains between each other? Use of pesticides in potatoes ends up impacting on bees?	There is a possibility of pesticide use in one value chain adversely impacting another value chain. The IPMF developed will provide a framework for the use of pesticides. In addition, where the sub-project screening will indicate that significant pesticides will be used then sub-project specific IPMP will be prepared.
6.	How will the project be implemented in areas with security issues e.g., Lamu and Boni Forest? How will you address the security issues and ensure our safety?	The project has prepared a Security Management Plan which provides guidance on managing security related concerns.
7.	Will there be disclosure of this ESMF after these consultations?	This ESMF and other related instruments will be disclosed on the websites of MoALD and by the World Bank.
8.	Impacts associated with GHG emissions from dairy farming and mitigation measures have not been addressed. Consider biogas projects.	This is noted and will be included in the revised draft.
9.	Pesticide container collections/disposals has not been included in the ESMF.	The adverse impacts associated with empty containers and their disposal have been described in the document including mitigation measures.
10.	Apiculture: What safeguards exist to manage pesticide use and ensure safety of beehive. Some pesticides that are used affect honey production, how will that be considered in the new project?	All sub projects using pesticides and implemented in areas where bee farming is undertaken will be required to conduct specific analysis on the potential impacts of the pesticides on bees and develop adequate mitigation measures including not using the chemicals and seeking other alternatives such as bio pesticides. The pesticides to be used in NAVCDP will be those that are friendly to pollinators with minimum effect on non- targeted organisms.
11.	Government has minimum wages for workers which may be too low and may not attract workers. How can ensure that workers (youth employment) are not paid this low minimum wage?	A labour management procedure has been prepared for the project and will provide guidance on all labour related issues and concerns during project implementation.

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S/No	Concerns	Response
12.	What can be done concerning the high number of chemicals being used on the farms that negatively affects humans through compromised food safety issues?	NAVCDP is having IPMF as one of the framework approaches that will guide pesticide use at beneficiary level. Communities will be trained on safe use of chemicals and the management of pesticides, handling, storage, and transportation.
13.	How will the project help Vulnerable, and Marginalized Groups as defined by ESS7 to continue conserving the environment?	The project will continue implementing SLM activities in collaboration with the VMGs communities and KFS
14.	VMGs are surrounded by other communities and the project might not benefit them making them not respond which may in turn affect the VMGs and cause delays on coming up with responses.	VMGs will be targeted during project operation and their CIGs/VMGs/POs will be considered along those of majority communities.
15.	Encourage use of solar power in the FLIP to cut on the cost of energy and reduce pollution caused by use of fossil fuels.	Comments noted positively. NAVCDP will engage further.
16.	Some counties have no capacities on E&S. They go ahead and hire consultants who have no or very little expertise? How will this new project help control this gap?	Counties will be required to have qualified and experienced environmental and social safeguards specialist to handle environmental/social issues.
17.	Public Lands and ownership: when such lands are given to communities to invest; management issues crop up later and this affects the progress of such investments. How is land being handled in this project?	The land on which the project will be implemented will be fully documented and due diligence done. NLC will also be fully involved to ensure that public land is properly availed for FPO utilization.

ESMF DISCLOSURE

259) This ESMF will be redisclosed in accordance with the ESS 10 disclosure standards, and so are the other aforesaid instruments. The ESMF and IPMF will be disclosed on the website of MoALD and forwarded to the Bank for disclosure at the Bank's external website. The ESMF and other ESS tools will also be redisclosed in the project areas for access by the beneficiaries.

GRIEVANCE MECHANISM

260) The objective of grievance handling systems and procedure is to establish for the communities a mechanism for raising diverse complaints related to the sub project activities during the sub project phases and having such complaints resolved as

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amicably as possible through acceptable and binding corrective actions. The following guidelines are to be followed in design of project specific GM:

- Proportionality
- Cultural appropriateness
- Accessibility
- Simplicity
- Transparency and accountability.

261) NARIGP and KCSAP have a functional GM that will be adopted and tailored to manage grievances from NAVCDP project interventions at different geographical and temporal dimensions in accordance with implementation procedures. The GM will address concerns and complaints promptly and transparently with no cost or discrimination towards project affected communities. Social safeguards compliance experts stationed at the NPCU and CPCU will be the focal point for handling grievances related to the project.

262) MoALD has prepared a Stakeholder Engagement Plan (SEP) which provides the framework for identification of stakeholders, gauging stakeholder interest and providing systematic means and processes of inclusive and meaningful engagements with the stakeholders and communities in a way that influences project design and implementation under all components. Based on the understanding of the project areas and the stakeholders from SEP, an indicative list of the internal and external types of grievances have been identified.

263) **Internal Grievances:** Grievances from Employees (including both direct and indirect employees, including local workers and migrant workers through contractors):

- Complaints pertaining to amount of wage, salary, other remuneration or benefits as per Company's Human Resource policy
- Gender discrimination
- Workplace Sexual harassment
- Violence against children e.g., child labour and child sexual abuse.
- Issues related to worker's organization
- Labour Accommodation.
- Health and Safety issues; and
- Extended working hours.

264) **External Grievances:** Grievances from community members:

- Issues related to sexual exploitation and abuse by project workers against community members;

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- Issues related to gender-based violence at the community-level e.g., domestic violence;
- Issues related to child labour and protection;
- Issues related to transportation and traffic;
- Increase in environment pollution;
- Impact on community health;
- Disturbances to locals due to influx of migrant workers in the area;
- Issues arising out of sharing of employment and business opportunity; and
- Concerns over the impact on local cultures and customs.

265) The list of grievances will be regularly updated as and when the new one arises.

Grievance Management and Reporting Levels

266) There are 5 levels of grievances management proposed in this ESMF, but which will be revised and elaborated further following the completion of project wide GM within the first 6 months of project effectiveness. However, the Project GM will involve: Project General complaints, Contractors' workers GM, and GBV/SEAH in which the project must deploy a woman champion. All these must be logged in the general log register.

Level 1. Project Grievance Management Committees

267) All project sites/locations will establish Site Project Level Grievance Management Committees. These committees will be responsible for handling and resolving all environmental and social issues related to the sub projects. The composition of the committees will include:

- Office of National Government (represented by chief and or assistant chief).
- Community representatives (youth, women, men).
- Representative from a Civil Society Organization (active in the area in the field of public health, agriculture, water) etc.

Level 2. Sub County Grievance Management Committees

268) In each of the Counties, a Sub County Grievance Management Committees will be established. Grievances that cannot be resolved by the site Grievance Management Committees, will be escalated to the Sub County Grievance Management Committees. The composition of the Sub County Grievance Management Committee will include:

- Sub County Technical Team
- Office of Sub County Commissioner representative

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- Community representatives (youth, women, men)
- Representative from a Civil Society Organization (CBO, NGO, FBO) (active in the area in the field of public health, agriculture, water) etc.

Level 3. County Grievance Management Committees

269) In each of the Counties, a County Grievance Management Committee will be established and will be coordinated by the already established County Project Coordinating Unit. Grievances that cannot be resolved by the Sub County Technical Teams, will be escalated to the County Grievance Management Committee where the environmental and social specialist of the CPCU will double up as the GRM expert and focal point. The composition of the County Grievance Management Committee will include:

- CPCU
- County Commissioner representative
- Community representative
- Representative from a Civil Society Organization (active in the area in field of public health, agriculture, water etc)

Level 4. National Project Coordinating Unit

270) The national grievance management committee will be established and will be coordinated by the already established **National Project Coordinating Unit**. A GM expert will be stationed at the NPCU and will handle all the grievances that are escalated by the CPCU for resolution. The GM expert will be the main focal point for GM handling but will be supported by a team of experts.

Level 5. Judicial Recourse

271) In case the NAVCDP GM will not allow an amicable agreement to be reached, the complainant can resort to justice within Kenya's legal system (and could at any time even without going through the established committees) at their own cost.

Publicizing and Disclosure of the GM

272) The project wide GM will be disclosed to the stakeholders through written and verbal communication. The mediums to be used for this purpose are public meetings, group discussions, electronic media (radio) etc. and will be elaborated in the project wide GM is being set up. The project wide GM disclosure will be done along with the disclosure of other plans

Receiving and Recording Grievances

273) As part of the GM, the grievances from the stakeholder may be communicated verbally (in person or over a telephonic conversation) or in written form (in the

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format given below). A sample grievance form is in annex (4) but will be elaborated further upon completion of project wide Grievance Mechanism.

Maintaining a Grievance Register

- 274) Each grievance thus received, shall be recorded in a grievance register. The format for the grievance register shall be as outlined in annex (5). The grievance register shall be updated at each stage of the grievance redress.

Acknowledgment of Grievance

- 275) Upon the completion of the recording of the grievance, the stakeholder will be provided with an acknowledgment of the receipt, along with a summary of the grievance (Box 9.1).

Box 9.1 Sample Acknowledgement Receipt for Claimant

Dear (enter name of the aggrieved)

Date:.....

RE: Grievance (Enter Subject Matter)

The Grievance Management Committee (**mention level**) is writing to you regarding the grievance received on (**enter date**) with the issue/subject being (**summarize the grievance/complaint/concern**).

Grievance Management Committee will begin investigating this grievance and intend to revert back to you not later than 14 working days from the date of receipt of the complaint.

Grievance Management Committee (Grievance Coordinator) will serve as the point of contact for this case and will update you as necessary. In the meantime, please do not hesitate to contact him should you have any questions.

Kind Regards

Signature:.....

Enter name:.....

Grievance Coordinator

N/B

Medium of initial grievance response by Grievance Management Committee could be through (a) Email (b) Telephone (c) Face to Face (d) Letter (with the above content communicated).

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276) In case the grievance is assessed to be out of the scope of the GM, a communication towards the same shall be made to the complainant, and an alternative mode of redressal shall be suggested (Table 9.2).

Table 9-2. Applicable Timeframes

Action	Timeframe
Register grievance in database	Within 2 working day
Acknowledge grievance	Within 2 working days
Issue grievance feedback explaining time required for resolution and on-going progress if not yet resolved	Within 14 working days
Issue grievance feedback when mitigation established within the assigned timeframes	14 days
Approve and issue/implement redress action as per the agreement and related conditions/options.	14 days after agreeing to resolution

SEAH GM

277) There will be a separate reporting mechanism for SEAH cases that are discrete from standard GM and the mechanism are outlined in the SEAH Prevention and Response Plan that will be prepared for the project.

GM Monitoring and Implementation

278) It is important to monitor GM to ensure that the grievances are addressed and resolved. The monitoring of the GM implementation will be undertaken on a periodic basis by the NPCU and CPCU teams. Monitoring aspects will be elaborated in the project wide GM that will be set up and will include the following indicators:

- Number of cases requesting external review or alternative third-party arbitration
- Number of stakeholders satisfied with solution
- Number of of grievances received (percentage % of which) resolved.
- Number and percentage of grievances resolved versus rejected
- Number and percentage of grievances per operation site/location/county
- Type of grievances received according to the categories,
- Severity of grievance
- Qualitative indicators shall be reported monthly and include root cause analysis, specific case examples and lessons learned.
- Number of grievances received, logged, acknowledged, processed, resolved, and closed within a set time frame.

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GM Reporting

- 279) The performance of the GM will be reviewed on a quarterly basis during the implementation period. To review, the quarterly reports will be considered for analysis and discussion. Based on these reports, a Grievance Redressal Report will be prepared. Reports will be periodically shared by each agency on complaints and grievance logs with the NPCU for monitoring purposes.
- 280) The NPCU will maintain a documented record of stakeholder engagement and GM, including a description of the stakeholders consulted, a summary of the feedback/grievances received and a brief explanation of how the feedback was considered, or the reasons why the issue could not be resolved. For complaints related to SEAH, reporting and response protocol including identification of SEAH-sensitive channels to be integrated into the grievance mechanism, and requirements for enabling survivor-centered care.

National Environment Complaints Committee

- 281) The National Environmental Complaints Committee (NECC) was established under Section 31 of the Environmental Management and Co-ordination Act, 1999. It was formerly known as the Public Complaints Committee (PCC) but its name changed in the EMCA (Amendment) No. 5 of 2015). It is an important institution in the assessment of the condition of the environment in Kenya. It plays an important role in the facilitation of alternative dispute resolution mechanisms relating to environmental matters. The NECC makes recommendations to the Cabinet Secretary and thus contribute significantly to the formulation and development of environmental policy.

National Environment Tribunal

- 282) The NET is established under Section 125 of EMCA for the purpose of hearing appeals from administrative decisions by organs responsible for enforcement of environmental standards. An appeal may be lodged by a project proponent upon denial of an ESIA license or by a local community upon the grant of an ESIA license to a project proponent. NEMA may also refer any matter that involves a point of law or is of unusual importance or complexity to NET for direction. The proceedings of NET are not as stringent as those in a court of law and NET shall not be bound by the rules of evidence as set out in the Evidence Act. Upon the making of an award, NET's mandate ends there as it does not have the power to enforce its awards. EMCA provides that any person aggrieved by a decision or award of NET may within 30 days appeal to the High Court.

Environment and Land Court

- 283) The Constitution of Kenya (CoK) has further provided for specific courts to deal with land and environment (Environment and Land Court) that are charged with playing a vital role in reconciling environmental related disputes and these courts will serve as the ultimate stop in the event of disputes or complaints that cannot be resolved through other alternative means.

WORLD BANK'S GRIEVANCE MECHANISM (GM)

Grievances Redress Service

- 284) The Grievance Redress Service (GRS) is an avenue for individuals and communities to submit complaints directly to the World Bank if they believe that a World Bank-supported project has or is likely to have adverse effects on them, their community, or their environment. The GRS enhances the World Bank's responsiveness and accountability to project-affected communities by ensuring that grievances are promptly reviewed and addressed. Complaints must be in writing and addressed to the GRS and sent through the following methods namely: Online by accessing the online form; Email: grievance@worldbank.org; Letter or hand delivery to World Bank Headquarters in Washington D.C., United States or World Bank Kenya County Office.

World Bank Inspection Panel

- 285) The Inspection Panel is an independent complaints mechanism for people and communities who believe that they have been, or are likely to be, adversely affected by a World Bank-funded project. The Panel is an impartial fact-finding body, independent from the World Bank management and staff, reporting directly to the Board. The Inspection Panel process aims to promote accountability at the World Bank, give affected people a greater voice in activities supported by the World Bank that affect their rights and interests, and foster redress when warranted. In September 2020, the Board updated the resolution that created the Panel and added to the Panel functions. At the same time, the Board approved a resolution establishing the World Bank Accountability Mechanism (AM). The new AM began operations in early 2021 and houses the Panel to carry out compliance reviews and a new Dispute Resolution Service (DRS), which will give complainants another way to have their concerns addressed. Contacts for registration of complaints to the IP are listed below. Tel: +1 202 458 5200; Email: ipanel@worldbank.org

IMPLEMENTATION BUDGET

Estimated Budget³

- 1) The total estimated cost for the implementation of ESMF is US\$ 2,500,000. The specific activities and corresponding estimated costs for the implementation of the ESMF are as given in **Table 10-1**.

Table 10-1: Overall Estimated Costs Budget for Implementation of ESMF

Activity	Description	Estimated Cost (US\$)
Regional Sensitization workshops for the NPCU, NTAC, NGMC, CTAC, CPCU, CGMs and SAICs on the ESF	The current projects are using the WB OPs while the NAVCDP will use the ESF. All the project management and implementation teams require training on ESF. 1 National workshop for NPCU, NTAC and NGMC 3 regional workshops for the CPCUs and CTAC 520 sensitization meetings for the SAICS	500,000
Training and awareness on the ESF, E&Ss, ESMF, IPMF, SMP and LMP	Workshops One national workshop for NPCU and CPCUs 3 regional workshops 33 awareness creation meetings 520 awareness meetings per county (20 per county)	150,000
Preparation of subproject E&S mitigation instruments (ESIA/ESMP/IPMP/LMP) etc	Consultancies Number of consultancies to be determined after subprojects identification	500,000
Recruitment of environmental and social specialists	Consultancies by NEMA registered EIA experts- Number to be determined by the number of investments that would require ESIA reports.	500,000
Grievance Redress Management	Establishment of GRM Committees, Meetings and consultations, M&E, reporting, etc	150,000
Upgrading of the Current web- based grievances system	Upgrading the NARIGP web- based system to accommodate new features and cover the 26 counties	500,000
Contingency		200,000.00
Total Estimated Cost		2,500,000

³ The specific budgets to implement the social risk mgt instruments (SRM) i.e., RAP, VMGPs, GBVAP, etc. can be found in the specific NAVCDP VMGF and RPF Frameworks.

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REFERENCE

1. Government of Kenya (2016a); Kenya Climate Smart Agriculture Project (KCSAP) Environmental and Social Management Frameworks (ESMF)
2. Government of Kenya (2016b); The National Agricultural and Rural Inclusive Project (NARIGP) Environmental and Social Management Frameworks (ESMF)
3. Government of Kenya (2019); Registered Pest Control Products for use in Kenya, publication by Pest Control Products Board (PCPB)
4. Government of Kenya Draft Wildlife Policy 2007-Draft
5. Government of Kenya Constitution
6. Government of Kenya Environmental Management and Coordination Act 1999
7. Government of Kenya Forest Act
8. Government of Kenya Forest Policy 2005
9. Government of Kenya National Environmental Sanitation and Hygiene Policy-July 2007
10. Government of Kenya National Policy on Environment and Development Sessional Paper No. 6 of 1999
11. Government of Kenya Occupational Health and Safety Act
12. Government of Kenya Public Health Act
13. Government of Kenya the Employment Act
14. Government of Kenya the Lakes and Rivers Act Chapter 409 Laws of
15. Government of Kenya Vision 2030
16. Government of Kenya Water Act 2002
17. Government of Kenya Wildlife Conservation and Management Act
18. World Bank (2017), Environmental and Social Framework
19. World Bank Project Appraisal Document
20. World Bank Project ESRS

ANNEXES

ANNEX I: LIST OF STAKEHOLDERS CONSULTED/ISSUES AND RESPONSES

Public Consultation on Draft Environmental and Social Management Framework (ESMF) Meeting held on 8th, 9th, and 10th November 2021 at Lukenya Resort.

Indigenous Peoples Organization Reps- 8th November 2021

S.No	Name	Tel.	Email address	Community	Region
1	Mohamed Kitete	0715349314	kitetemohamed@gmail.com	Indigenous Peoples Organization (IPO) Coastal region	Coastal region
2	Yunus Ahmed	0708722698	Yunusahmed90@gmail.com	"	"
3	Ambia Hirsi Dullow	0728546932	ambiadullow@gmail.com	"	"
4	Moses Kachine	0784395546	moseskachike@gmail.com	Minority and marginalized groups affairs- The presidency- Office of the DP	Country wide
5	John lengoisa	0710212957	jsamorai@ogiekpeoples.org	Ogiek Peoples Organization	Mau region
6	Jane Machani	0716984618		"	"
7	John Kisiambai	0758805321		"	"
8	Milka Chepkorir	0700404454	mctalaa@gmail.com	Sengwer	Cherangany

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S.No	Name	Tel.	Email address	Community	Region
9	David yator	0726806100	sengwer@sengwer.org	Sengwer	

Day 1: County Reps (CESSCO +2 VMGs Community Reps)

S/No	NAME	COMMUNITY	COUNTY	TELEPHONE
1.	Fatuma Abdallah	Waata	Tana-River	0710583088
2.	George Wasonga	CESSCO	Tana-River	0725760206
3.	Joseph Mumu	CESSCO	Kiambu	0721422173
4.	Rehema M. Ruwa	CESSCO	Kilifi	0710586664
5.	Agnes Barisa	Waata	Kilifi	0791402478
6.	Jacob Kokani	Waata	Kilifi	0728044720
7.	Isaac Lagat	Ogiek	Uasin Gishu	0723411793
8.	Richard K.Maina	Ogiek	Narok	0711828692
9.	Naboe Ene Sameri	Ogiek	Narok	0708958908
10.	Meriki Joseph	CESSCO	Narok	0712803569
11.	Wilson K. Kurgat	Ogiek	Uasin Gishu	0722942038
12.	Gilbert Cheruiyot	CESSCO	Trans Nzoia	0727855330
13.	Richard Kipkering	CESSCO	Nandi	0723462103
14.	Isaac Kosgei	Sengwer	Trans Nzoia	0728519029
15.	Philis Mukung	Ogiek	Trans Nzoia	0740322434
16.	Paulo Sang	Ogiek	Nandi	0790900379
17.	William Kibitok Chepkwony	Ogiek	Nandi	0719537754
18.	Japheth Musila	CESSCO	Kwale	0711655420
19.	Bashora Muhindi Guyo	Wasanye	Kwale	0705474977
20.	Salim B. Bonaya	Wasanye	Kwale	0745934163
21.	Quentine Ngati	CESSCO	Taita taveta	0722797326
22.	Khadijah Wakio	Waata	Taita Taveta	0797179139
23.	Guyo S. Hamisi	Waata	Taita Taveta	0792971597
24.	Tony Igwo Elkana	Waata	Tana River	0724370830
25.	Stephen J. Ndung'u	Ogiek	Kiambu	0721477315
26.	Paul W. Njehu	Ogiek	Kiambu	0721469403
27.	Benson K. Gichuki	CESSCO	Nakuru	0719376601
28.	David Barngetuny	Ogiek	Nakuru	0722101146

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S/No	NAME	COMMUNITY	COUNTY	TELEPHONE
29.	Francis Ngonino	Ogiek	Nakuru	0720645692
30.	Nixon Kasembeli	CESSCO	Uasin Gishu	0723846596

Day 2 (Nov 09, 2021): Public and Stakeholder Consultation and Information Disclosure

S/NO	NAME	County/Designation	Telephone	VC
1	John M. Wachira	Nyandarua-CPC	0722654423	Potato
2	Peter N. Mbutu	Nyandarua-Farmer	0728285742	
3	Kenduiywa Julius	Bomet-CPC	0721403231	Dairy
4	Kipsang Sitonik	Bomet-Farmer	0728063363	
5	James King'ori Njuguna	Murang'a-CESSCO	0721571313	Banana
6	Alex Kamau Muchoki	Murang'a-Farmer	0721311394	
7	Josephine Kananu Kinoti	Embu-CESSCO	0724083315	Coffee
8	Mburugu J.N Mwiti	Embu-Farmer	0710459043	
9	Patrick Ng'ang'a	Meru-CPC	0738376383	Banana
10	Dancan Murithi	Meru-Farmer	0725262346	
11	Merina A. Adhiaya	Kakamega-CPC	0723798401	Chicken
12	Anne Murunga	Kakamega-Farmer	0710809858	
13	Okal Jacob Ohalo	Kericho-CESSCO	0720236598	Dairy
14	Humprey Langat	Kericho-Farmer	0721604986	
15	Peter S. Lirhu	Kitui	0701657009	Apiculture
16	Eutichus Kyungu	Kitui-Farmer	0724618837	
17	Gachara John	Kirinyaga-CPC	0722447079	Coffee
18	Geoffrey K. Munyagia	Kirinyaga-Farmer	0722434101	
19	Samuel Oduor Okumu	Kisii-CPC	0722551646	Banana
20	Ronald Guto	Kisii-Farmer	0720253572	
21	Allan F. Ogendo	Busia-CPC	0723312854	Chicken
22	Arnold Okiru	Busia-Farmer	0725873139	
23	Alice Wangui Gichuki	Nyeri-CPC	0721633225	Coffee
24	Mary Ann Maina	Nyeri-Coffee focal person	0721417671	
25	Samuel Maina	Nyeri-Farmer	0729872414	

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26	Nicodemus N. Nzombe	Machakos		Mango
27	Raphael M. Muli	Machakos-Farmer	0721493163	
28	James Owuor Omondi	Homabay-CESSCO	0714238187	Cotton
29	Frank Otieno	Homabay-Ffarmer	0757364011	
30	Albertina Mercy Achapa	Migori-CESSCO	0717283224	Cotton
31	Peter Mwalyo Kinyenze	Makueni- CESSCO	0727515474	Mango
32	Benjamin Musungu	KEPSA	0714159582	

Day 3 (Nov 10, 2021): Public and Stakeholder Consultation and Information Disclosure

S. No	Name	Tel.No	Email address	Organization
1	Dr. Jonathan Munguti	0722622732	Jmunguti2000@gmail.com	KEMFI
2	Andrew Wambua	0725301465	wambuanzuki@gmail.com	Ministry of Land- Machakos County
3	Elijah Gichuru	0723152655	ekgichuru@gmail.com	CRF
4	Juma Mohamed	0722676794	Kibo62@yahoo.com	Crop and marketing Directorate
5	Mary Kanyi	0721379470	marywacera@yahoo.com	Director, livestock production.
6	Joshua Lodungokio k	0704420301	lodungokiokbon@gmail.com	National Treasury
7	Goreti Osur	0733908450	gosur@ngeckeny.org	National Gender and Equality Commission
8	Henry Chemjor	0725626763	hchemjor@npck.org	Potato Council
9	Ben Musungu	0714159582	bmusungu@kepsa.or.ke	KEPSA
10	Patrick Maingi	0727680344	pmaingi@kepsa.or.ke	KEPSA

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11	Mary Nzisa	0721844088	mnzisa@kagrc.go.ke	Kenya Animal Genetic Resource Centre
12	David Kioko	0724691174	david88089070@gmail.com	Ministry of Energy
13	Zacharia Njuguna	0721273241	Njugunazakaria2015@yahoo.com	Nairobi City County
14	Patrick Macharia	0721710746	Patmurumi@gmail.com	National Treasury
15	Margarete Njuki	0721262347	Margarete.wainoi.njuki@gmail.com	NEMA
16	Maurice Opondo	0721247009	nauropond@hotmail.com	Ministry of water, sanitation and irrigation
17	Christine Kalui	0722570466	kaluic@kebs.org	KEBS
18	Dr. Gilbert M Muthee	0722340651	gilbertmuthee@yahoo.com	KCSAP
19	John Kimani	0721342918	jwkimani@2018@gmail.com	NARIGP

PoEs

1	David Olang	0729750700
2	Benjamin Kilaka	0726883288

NPCU

1	Samuel Guto	0712715727
2	Titus Mutisya	0713351744
3	Judy Amadiva	0722544862
4	Rachael Macharia	0714400915
5	Miriam Chemtai	0701745654

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Questions and Observations for Communities Meeting the Requirements of ESS7

S/No.	Name / Community / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
1	John Samurui Kisiambai - Mau Region -Ogiek Community	0758805321	a) Funding level of this new project is too high. How much benefit is targeted for the VMGs? b) What project indicators will measure benefits to the VMGs?	a) NAVCDP is targeting VMGs or communities that satisfy the requirements of the World Bank ESS7 because some project counties are a host to these communities. The specific benefits are through priority value chains for ALL not just the VMGs. The benefitting communities are yet to make their choices along the priority value chains. In addition, NAVCDP will make a deliberate effort to reach-out the VMGs for targeting and inclusion. (b The following are some of the indicators: No. of CIGs supported % of which VMG; Total financial support to CIGs % support to VMGs; Total project beneficiaries (F, M); number of which are VMGs, etc.
2	Isaac Lagat – Ogiek Community, Uasin Gishu County	0723411793	a) Are our inputs to be taken and acted upon? b) The previous and current sister projects did ESIA/ESMPs, but we think they are short to recognize emerging risks and impacts along the implementation phase. Will it be the case in NAVCDP? c) Are all sub-projects supposed to have an ESIA/EA report and approved by NEMA?	a) This workshop is a serious process along the preparation of the NAVCDP ESS Frameworks and the concerns raised will be addressed. The frameworks not only serve as a guide in mitigation of risks and impacts, but a covenant in the Financial Agreement

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<i>S/No.</i>	<i>Name / Community / Institution / County</i>	<i>Contacts</i>	<i>Question/Observation/Comment</i>	<i>Answer Provided</i>
			<p>d) VMGs should be involved in the implementation reviews and M&E in the course of project implementation process. IPs should not only be involved in the initial stages but also during implementation.</p> <p>e) At what level, do you do specific ESIA's however small?</p> <p>f) What strategy is in place to ensure VMGs will be continuously involved.</p> <p>g) By all means we shouldn't be lumped together with the dominant communities.</p>	<p>between the National Treasury and the World Bank.</p> <p>b) No. NAVCDP will ensure investments are environmentally friendly first by screening all proposed investments through a standard checklist; guided by the results in the checklist ensure the right instrument to mitigate is formulated and implemented accordingly. In addition, the other WB supported projects must have followed same process including recommending Environmental and Social Audits done after one year of implementation; and continuously done annually.</p> <p>(c) Not really, but all subprojects must be screened using the standard checklist annexed in the ESMF.</p> <p>d) Yes. Engagement of VMGs throughout the project from preparation to evaluation.</p> <p>e) Sub project level, if after administering the E&S screening checklist, County Director of NEMA guides on the same.</p> <p>f) VMGs support is part of the project deliverable; and therefore, VMGs in the project counties will continuously involved.</p>

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S/No.	Name / Community / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
				g) Recommendation is acceptable to some extent but not always i.e., there are value chains where VMGs willingly would work with others.
3	Milka Chepkorir-Sengwer community - Trans Nzoai County	0700404454; mctalaa@gmail.com	a) Will NAVCDP undertake Social Impact Assessment? b) How do you ensure that the use of pesticides and other form inputs to deliver on one priority of the project does not eliminate the last one on the priority list? e.g. use of pesticides to control pests on maize, potatoes etc. completely affecting honey production by indigenous peoples in forests. c) Biodiversity conservation and ecologically sensitive areas. What is the deliberate move of the project to ensure that environmentally sensitive areas are not affected?	a) Yes, at the initial implementation period. b) Any antagonizing VCs shall be analyzed in detail and due diligence followed to ensure sustainability issues are achieved. The Integrated Pest Management (IPM) will be applied to avoid adverse effects to the biodiversity. c) Any project proposed investments to impact on the sensitive ecosystems will be excluded.
4	Joseph Mumu - CESSCO Kiambu County	0721422173	a) Why are E&S issues handled last (if lucky) or better miss out in NARIGP? b) How are CESSCOs role going to be seen and felt as project implementers but not process facilitators? c) The E&S activities need to be clearly brought out in the project components; how do we harmonize the plan across the project component? d) Develop a decommissioning plan /guide for the projects supported for implementation once the lifetime expires.	a) This should not be the case. In the new operation, all staff must be sensitized on the seriousness of environmental and social safeguards. b) In the new operation, care should be taken to ensure that safeguards are given the attention they deserve. c) In the design of the project and during detailing of components, this is when ES issues are picked, and activities planned and budgeted for. NAVCDP will relook into the obvious omissions where possible.

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S/No.	Name / Community / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
				d) Yes. This comment is true. Attention should be focused on the ESMPs drawn whether they include and act on such areas.
5	Phyllis Mukung – Ogiek community, Trans Nzoia County	0740322434	<p>a) As the Ogiek community our lives depend so much on milk and honey products. Will there be special value chains for VMGs like sheep or goat rearing and bee keeping?</p> <p>b) Will the IP/SSAHUTLC be allowed to form their own POS?</p> <p>c) Will IPs and other VMGs be separated from the framework?</p>	<p>a) Yes, since time in memorial, there has been value chains for VMGs communities that are easy to promote (value chains that do not make IP/SSAHUTLC community vulnerable; and that enhance VMGs livelihoods). Therefore, beekeeping will always win support for implementation by the IP/SSAHUTLC.</p> <p>b) Yes. IP/SSAHUTLC can form own PO, so long as the volumes can sustain the PO operations.</p> <p>c) Yes. In the design of NAVCDP other vulnerable groups: aged, Differently Abled Persons, youth, female headed households, etc. are explained under ESS1 while the (IP/SSAHUTLC) are addressed guided by ESS7.</p>
6	Mohamed Kitete - Awer Community, Lamu County	0715349314; kitetemohamed@gmail.com	-How will security be implemented in areas like Lamu and Tana River County?	-NAVCDP has a security management procedure which will be applied at all times, but the project is not taking over mandate of the Ministry of Internal Security. The project will work in collaboration with all

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				stakeholders to ensure that security issues do not affect productivity and profitability.
7	Jacob Kokani -Waata community, Kilifi County	0728044720	a) Will the frameworks be disclosed? b) It's my prayer that implementers stop using derogatory names.	a) Yes. This stakeholder consultation process requires NAVCDP documents including these E&S frameworks disclosed both nationally and in the World Bank External website. b) Yes, noted with humbleness. The team also requests that the VMGs representatives assist in providing the acceptable names for their communities.
8	Francis Ngoninio – Ogiek community, Nakuru County, Chairperson CDDC	0720645692	a) How will VMGs be included in NAVCPD in terms of representation in market linkages? Such gaps were noticed in NARIGP. b) In NARIGP the facilitation of the volunteering committee (CDDC) there were some gaps, kindly look into that for smooth running of NAVCDP. c) How will corruption be eliminated in NAVCDP? d) Recommendation As a current CDDC chair from MAU, VMGs under the MOALF NARIGP success was 70%. Therefore, VMGs under the MOALF be given a chance to represent VMGs so that they feel they are part of the NAVCDP project.	a) Market linkage will be based on the priority value chains by these communities. b) Yes. The observation is noted. Lessons from NARIGP have been adopted. c) Through training of communities, transparency, and accountability of project implementation structures. d) Yes, well noted.
9	David Baruetuny – Ogiek community,	0722101146	a) Will NAVCDP support construction of the impassable roads across the marginalized	a) The project will support spot infrastructure improvement

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S/No.	Name / Community / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
	Nakuru County		community operational areas? Farmers are facing challenges when delivering their produce to the collection centers or to the market.	to enable farmers to deliver their produce to the market. However, it will not take over the road construction since the mandate is in a different Government entity.
11	David Yator Kiptum - Sengwer Community, Trans Nzoia County	0726806100; sengwer@sengwer.org	<p>a) How will forest indigenous peoples benefit from financing institution? (Loans, etc.)</p> <p>b) Thoroughly build understanding of the project implementation agencies from ward, sub county, county and National to avoid misinformation, confusion, and discrimination.</p> <p>c) How do you ensure that the IPs are not discriminated in the new project, because during NARIGP we were initially left out in window one and window two, we did not benefit from the multi community investments.</p> <p>d) So far Sengwer did not benefit from multi community investments. A proposal was approved by CPSC but has not been funded to date.</p> <p>e) How will farmer technical expert be enhanced for access of project implementation</p> <p>f) The project is silent on building capacity of VMGs IPOs, CIG, there is need to build their capacity.</p> <p>g) M& E - indigenous people be represented in M& E at all levels.</p> <p>h) Project implementation –include VMGs in project implementation from County to national level.</p>	<p>a) NAVCDP is not to offer loans but financial support to target beneficiaries through formulation of community proposals for prioritized investments.</p> <p>b) Yes. This is a valid point. NAVCDP will aim at ensuring information and communication is done at all levels and disclosure of information to all stakeholders through regularized stakeholder engagement meetings.</p> <p>c) NAVCDP borrowed from NARIGP and some of the gaps in NARIGP will be addressed in this new operation.</p> <p>d) Two MCIs in the county are in Makuno ward which is inhabited by the Sengwer (Chesucheki irrigation scheme and the Dairy Farmers of Cherangany milk processing plant). The Kapolet MCI – the decision rests on the NTAC. There are two counties facing a similar fate: Trans Nzoia and Narok- these two exceeded their</p>

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S/No.	Name / Community / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
				<p>allocations/project ceiling for MCIs (KES m 270-350 per county).</p> <p>e) Through capacity building of those smallholder farmers who will have been affiliated to: CIGs, and POs.</p> <p>f) Capacity building both implementers and beneficiaries is a priority in NAVCDP. A Training schedule will be produced after a training needs assessment.</p> <p>g) OK. This recommendation will be explored. However, NAVCDP has adopted a participatory M&E.</p> <p>(h This will be considered.</p>
12	Milka Chepkorir-Sengwer Community, Trans-Nzoia County	0700404454; mctalaa@gmail.com	<p>a) All Details should be captured in the project document nothing should be left out and included in the implementation manuals.</p> <p>b) Does the National management unit include an indigenous representative? if not should be considered.</p> <p>c) Who is putting together the Gender Action Plan?</p> <p><u>d) CONCERN</u> Being an VMGs is not equal to poverty and marginal listing, VMGs specific indicators will never end indigenoussness of a people. The project should end the notion of negativity from non-indigenous personnel leading the implementation of this project.</p>	<p>(a Good suggestion. We will go by it.</p> <p>(b As the project design continues being polished; this is also something to be thought of; now that under the DP Office there exists an office dealing with the indigenous communities; the representation structure at national level my be coopted at the NTAC</p> <p>c)The GBCAP for NAVCDP has been drafted by the consultants. During the subsequent revisions, there will be further stakeholders' consultation.</p> <p>d)The matter is noted</p>

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S/No.	Name / Community / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
13	Wilson K. Kurgat- Uasin Gishu County Chairman, Ogiek Consortium	0722942038	<p>a) What can be done concerning the high number of chemicals being used on the farms that negatively affects humans through compromised food safety issues?</p> <p>b) Market issues should be considered to maximize profitability.</p> <p>c) Why have these counties been exempted Kericho, Baringo, Laikipia, Bungoma, Elgeyo Marakwet.</p>	<p>a) NAVCDP is having IPMF as one of the framework approaches that will guide pesticide use at beneficiary level. Communities will be trained on safe use of chemicals and the management of pesticides, handling, storage, and transportation.</p> <p>b) Of course, the NAVCDP PDO is about 'increased market accessibility' and 'enhanced value addition'</p> <p>c) Kericho, Baringo, Laikipia, Bungoma, Elgeyo Marakwet have been excluded from NAVCDP because they are covered by other projects within the sector funded by World Bank, IFAD and AfDB</p>
14	John Kisiambei – Ogiek Organization, Nakuru County	0758805321;	<p>a) How will the project help VMGs to continue conserving the environment?</p> <p>b) Some pesticides that are used affect honey production, how will that be considered in the new project?</p>	<p>a) The project will continue implementing SLM activities in collaboration with the VMGs communities and KFS</p> <p>b) The pesticides to be used in NAVCDP will be those that are friendly to pollinators with minimum effect on non- targeted organisms. approved normally a buffer zone is established contamination.</p>

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15	Japheth Musila – CESSCO, Kwale County,	0711655420	Comment: a) Land department/NLC should be involved in NAVDP to offer counsel. b) Minority community interests to be brought on board	a) True. Land issues and especially ownership have been a challenge. b) Yes, they will be targeted for inclusion with their priority value chains.
16	Jane Machani Ogiek Peoples Organization - Mau Region	0716984618	VMGs are surrounded by other communities and the project might not benefit them making them not respond which may in turn affect the VMGs and cause delays on coming up with responses.	VMGs will be targeted during project operation and their CIGs/VMGs/POs will be considered along those of majority communities.
17	Isaac Kosgei Segwer Representative. Cherengany, Trans Nzoia County	0728519029	a) Suggested a differentiation between VMGF and indigenous people framework because indigenous people do not like being associated with other VMGs. b) ESS8: Well, captured on cultural sites.	a) Yes. This is true. It was not easy under NARIGP but now the distinction is evident. VMGs are addressed under ESS1 while IP/SSAHUTLC are addressed under ESS7 b) Yes, it is necessary here because, in case of any technical hitch's civil works, the project applies these guidelines.
18	Moses Kachine - Minority and marginalized groups affairs- The presidency- Office of the DP	0784395546; 0722655302; moseskachike@gmail.com	a) Nationally, 28 counties with 79 VMGs communities. The counties that are not factored here, are in other projects i.e., 'Resilience Project' b) Invite this new project to come for more information on IP/SSAHUTLC in this country; the department holds the database.	Well received.

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19	Ambia Hirsi Dullow – Munywoyaya community -IPO/IP Media Coastal Region – Tana River County	0728546932; ambiadullow@gmail.com	a) The deliberations in this forum are useful for this country. NAVCDP should aim at working with media for visibility and media privy to issues touching on the IP/SSAHUTLC in Kenya.	a) The team can't agree more. NAVCDP will strategize to involve responsible media coverage in its operations.

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Questions and Observations for County Line Departments and Other Stakeholders including Farmers

S/No.	Name / Position / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
1.	Peter Kinyenze (CESSCO-Makueni)		<ul style="list-style-type: none"> a) What is the difference between ESMF and ESIA? Does ESMP apply to all? b) Some projects will require SPRs instead of ESIA, therefore can the ESMF recognize this and have SPR appear in the document? c) Are there written documents on bee safety to agrochemicals which can be used during NAVCDP? 	<p>a) ESMF is a framework approach adopted by the borrower to mitigate against potential environmental and social risks where site specific investments are not known at project appraisal. It is at project preparation level, and it carries an ESMP at framework level. On the other hand, ESIA is a site-specific mitigation instrument normally at implementation phase of the project. It also has a site specific ESMP.</p> <p>b)Yes. According to NEMA Legal Notice 30 and 31 of April 31, 2019, ESIAs are now categorized 'low-risk projects' to do a SPR while the more complex investments with 'high-risk levels' will undertake Comprehensive Project Report (CPR).</p> <p>c)This documentation on bee safety is not available now but it can be sought. We will endeavor to look for such literature and share accordingly.</p>
2.	Peter Liru (Kitui)		The document suggests issues of SEAH-AVP especially on sexual harassment be handled by GRM, which I feel it couldn't handle it exhaustively. Suggested introduction of SEAH handling subcommittee of the main committee.	This is correct. SEAH is sensitive and its handling, requires special training, and confidentiality.

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S/No.	Name / Position / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
3	John Wachira (CPC - KCSAP Kirinyaga)		a) Suggested that there should be consistency on value chains/commodities. Pointed out the following documents with conflicting information b) We should not undermine the impact of Pesticides Containers as an impact of waste disposal that requires mitigation measures c) Pointed out that the monitoring aspect for the implementation of the E&S plans was missing	a) The 12 value chains were put into 9 categories so that the counties are guided to choose one VC per category. The point is noted and will be ironed out. b) Point noted and to be emphasized during E&S training/sensitization. c)The M&E aspect may not have been prominent in the summary presented in the meeting but is well captured in the main document
4	James Njuguna (CESSCO Murang'a)		a) How will the government minimum wage be harmonized with the market rates for unskilled youth employment in SLM?	-NAVCDP aims at guiding on labour management. At the least, ensure the workers do not suffer by getting low wages but also ensuring everything is within law and WB Standards (ESS2) The labour officers will guide the counties on the payments using the rates applicable in the respective counties.

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S/No.	Name / Position / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
5	Francis Otieno (Farmer, Homa bay)		a) Why can't farmers be made to use organic fertilizer and pesticides? This would reduce production cost and increase farmers earnings. b) What criteria will be used to determine the people to be resettled? c) Mechanization is relevant to making farming easier and enjoyable. Tractors for ploughing, harrowing, planting, and spraying. d) Let the right personnel with knowledge in agriculture and related fields run the project. They should be honest and transparent and each should have a certificate of good conduct.	a) This is a good idea and will be mainstreamed in the project activities. b) The RPF has given the criteria for identification and documentation of the persons to be resettled. c) the point is noted and will be considered during project operation. d) Point noted for consideration
6	Dr. Muli (Farmer, Machakos)	a)	b) Value chains challenges between producers and consumers then brokers come and exploit the market. Yatta multipurpose farmers' cooperative society.	NAVCDP will enhance market access for farmers and improve linkages between producers and consumers thereby addressing most of the value chain challenges
7	Eutichus Kyungu (Farmer, Kitui)		a) Project implementation at FPO level. NARIGP concentrates much on activity implementation budget but not administration cost/staff cost. Hence you find it difficult for committee to implement these activities to its member groups, requesting NARIGP to consider staff cost in its budgets.	Capacity building, provision of equipment and facilitation of staff from relevant county technical departments involved in the implementation of project activities had been considered in the project

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Questions and Observations for National Line Departments Policy Makers and Other Stakeholders including Donors and CSOs.

S/No.	Name / Position / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
1	Joshua Lodungokiok – The National Treasury	0704420301; lodungokiokbon@gmail.com	(a The VMGs Kiambu, Nandi, Uasin Gishu, etc. counties. How have they being involved in this project?	The IP communities have been fully involved in micro project identification and implementation. In some cases, the IP communities have their own value chains while in other cases, they are recognised as members of the CIG/VMG/PO. They have also been elected into leadership positions in the CIGs/VMG/Po.
2	David Kioko – Ministry of Energy	0724691174; david88089070@gmail.com	Comments: - Encouraged use of solar power in the FLIP to cut on the cost of energy and reduce pollution caused by use of fossil fuels. -Noted that the NAVCDP will actually be operationalizing the Kenya National Energy Efficiency and Conservation Strategy. and asked the team to download the same for guidance. - The Ministry of Energy is ready to collaborate with the project team to when called upon.	-Comments noted positively. NAVCDP will engage further.
3	Margarete Njuki, NEMA Hqs	0721262347; Margarete.wainoi.njuki@gmail.com	a) As presented this morning, the ESMF ESMP does not consider air pollution from VCs especially dairy	a) The point is noted for emphasis in the ESMF

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S/No.	Name / Position / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
			b) Biodiversity concerns: biodiversity is a complex issue and needs to be integrated in the report because these VCs in a way will lead to lose of biodiversity.	b) point noted and further engagements with NEMA to discuss the issue to be done during project implementation.
4	Mary Kanyi - KGRIC	0721379470; marywacera@yahoo.com	(a NAVCDP is on fewer VCs and will cover not all counties previously under NARIGP. How will continuity be ensured on the communities left out? (b How will NAVCDP integrate with other projects for synergy? And also access other benefits i.e. crop and livestock insurances? (c Farmers are being exploited along the VCs. How will this project help reduce this exploitation?	A) NARIGP and KCSAP have elaborate sustainability measures to ensure that the activities continue after the project s. The projects also fully involve and build the capacities of agriculture extension staff who will continue to interact with the farmers after closure of the projects

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S/No.	Name / Position / Institution / County	Contacts	Question/Observation/Comment	Answer Provided
5	Henry Chemjor - Potato Council	0725626763; hchemjor@npck.org	(a) Some counties have no capacities on E&S. They go ahead and hire consultants who have no or very little expertise? How will this new project help control this gap? (b) Public Lands and ownership: when such lands are given to communities to invest; management issues crop up later and this affects the progress of such investments. How is land being handled in this project?	a) Counties will be advised to hire consultants handling environmental / social issues who have the requisite qualifications and experience b) The land on which the project will be implemented will be fully documented and due diligence done. NLC will also be fully involved to ensure that public land is properly availed for FPO utilization.
6	Christine Kalui,	0722570466; kaluic@kebs.org	(a) The POs: how will they be strengthened? In my opinion through capacity building for ownership and sustainability. (b) Review of Policies: The new Agriculture strategy - Agricultural Sector Transformation and Growth Strategy is not mentioned. Kindly include.	a) Point noted and the issues to be included in the FPO capacity building b)ASTGS to be included in the E&S documents.
7	Ben Musungu –	0714159582; bmusungu@kepsa.or.ke	a) The VCs seem to have dropped from 29 to 6. How will the 6 VCs interphase with the CIGs? b) BMOs not mentioned here. What role can they play?	a) The CIGs that are not will not be included in NAVCDP will be addressed using the normal extension services.

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				b) The BMOs to be involved as stakeholders during the value chain improvement activities
8	Elijah Gichuru	0723152655; ekgichuru@gmail.com	In the presentation of the table with the vulnerable groups i.e Ogieks, we did see a listing of the aged. Why?	The table on VMGf mainly focused on ESS7. The aged and other categories of VMGs are addressed in ESS1 under the ESMF.
10	Maurice Opondo - Ministry of Water	0721247009; nauropond@hotmail.com	Agreed on validating the Frameworks but with adjustments: - Policies, add the following: Irrigation Policy 2019; Irrigation Act 2019; Water Act 2016; Water Act 2021. -Think about catchment conservation and capacity WRUAs to check on water use footprints. -Propose inclusion of Labour Officers as stakeholders. They do have a responsibility in implementation of NAVCDP.	All points well noted and to be included in the E&S instruments
11	Goreti Osur - National Gender and Equality Commission	0733908450; gosur@ngeckkenya.org	(a) NACVDP should consider inclusion of gender in its operations. (b) Issue of certification – seems to be emphasized at quality at value addition. Why not along the entire VC?	a) Point noted and to be considered b) Point noted and GAP and certification to be included in all the

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				segments of value chains.
12	Franscisca Kanini – Youth Affairs		a) Data and Digital Space for the youth – youth seem not well captioned in the Frameworks because they are boxed under the digital space, but we feel they should be right from production decisions. b) Does NAVCDP have climate change activities?	a) Point well noted. c) Climate change issues are mainstreamed in all project activities
13	Zacharia Njuguna – Nairobi City Council	0721273241; Njugunazakaria2015@yahoo.com	(a Nairobi County practices urban farming. To what extend will NAVCDP support this system? (b Market/Market Access: Nairobi is the largest consumer of the produce from the rural areas. Is NAVCDP going to support infrastructural development and traceability approaches?	The issues will be expounded and considered when unpacking the activities of component 3 of NAVCDP for Nairobi, Kiambu and Machakos.

ANNEX 2 : INTEGRATED PEST MANAGEMENT FRAMEWORK

-See separate attachment-

ANNEX 3: ENVIRONMENTAL AND SOCIAL SCREENING SUBPROJECTS
CHECK LIST BY BENEFICIARY COMMUNITIES (MICRO PROJECTS,
FPO INVESTMENTS AND MULTI COMMUNITY INVESTMENTS)

Section A: Background Information

Name of County.....	
Name of CPCU/Environmental and Social Safeguard Compliance Officer	
SLM LOCATION..... Name of CIG/VMG Postal Address:..... Contact Person.....Cell phone: Sub -project name.....	
Estimated cost (Kshs.).....	
Approximate size of land area available for the sub - project..... Objectives of the Sub - project	
Activities/enterprises undertaken	
How was the sub -project chosen? Expected sub - project duration:	

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Section B: Environmental Issues

Will the Subproject:	Yes	No	Remarks
Create a risk of increased soil erosion?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate
Create a risk of increased deforestation?	<input type="checkbox"/>	<input type="checkbox"/>	
Create a risk of increasing any other soil degradation?	<input type="checkbox"/>	<input type="checkbox"/>	
Affect soil salinity and alkalinity?	<input type="checkbox"/>	<input type="checkbox"/>	
Divert the water resource from its natural course/location?	<input type="checkbox"/>	<input type="checkbox"/>	
Cause pollution of aquatic ecosystems by sedimentation and agro-chemicals, oil spillage, effluents, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	
Introduce exotic plants or animals?	<input type="checkbox"/>	<input type="checkbox"/>	
Involve drainage of wetlands or other permanently flooded areas?	<input type="checkbox"/>	<input type="checkbox"/>	
Cause poor water drainage and increase the risk of water-related diseases such as malaria?	<input type="checkbox"/>	<input type="checkbox"/>	
Reduce the quantity of water for the downstream users?	<input type="checkbox"/>	<input type="checkbox"/>	
Result in the lowering of groundwater level or depletion of groundwater?	<input type="checkbox"/>	<input type="checkbox"/>	
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater?	<input type="checkbox"/>	<input type="checkbox"/>	
Reduce various types of livestock production?	<input type="checkbox"/>	<input type="checkbox"/>	
Be on monoculture cropping?	<input type="checkbox"/>	<input type="checkbox"/>	
Affect any watershed?	<input type="checkbox"/>	<input type="checkbox"/>	
Focus on Biomass/Bio-fuel energy generation?	<input type="checkbox"/>	<input type="checkbox"/>	

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If the answers to any of the above is 'yes', please include an ESMP with Subproject application.

Section C: Socio-economic Issues

Will the subproject:	Yes	No	Remarks
Have challenges for women farmers to benefit			If yes, elaborate
target vulnerable community members such as physically challenged, LGBTQ, Child headed household etc..?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate
Interfere with the normal health and safety of the worker/employee?	<input type="checkbox"/>	<input type="checkbox"/>	
Reduce the employment opportunities for the surrounding communities?	<input type="checkbox"/>	<input type="checkbox"/>	
Reduce settlement (no further area allocated to settlements)?	<input type="checkbox"/>	<input type="checkbox"/>	
Reduce income for the local communities?	<input type="checkbox"/>	<input type="checkbox"/>	
Increase insecurity due to introduction of the project?	<input type="checkbox"/>	<input type="checkbox"/>	
Increase exposure of the community to HIV/AIDS?	<input type="checkbox"/>	<input type="checkbox"/>	
Induce conflict?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate
Have machinery and/or equipment installed for value addition?	<input type="checkbox"/>	<input type="checkbox"/>	
Introduce new practices and habits?	<input type="checkbox"/>	<input type="checkbox"/>	
Lead to child delinquency (school drop-outs, child abuse, child labour, etc..?)	<input type="checkbox"/>	<input type="checkbox"/>	If yes, how
Lead to gender disparity?	<input type="checkbox"/>	<input type="checkbox"/>	If yes elaborate how
Lead to poor diets?	<input type="checkbox"/>	<input type="checkbox"/>	

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Lead to social evils (drug abuse, excessive alcohol consumption, crime, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	If yes elaborate
Will engage community labour	<input type="checkbox"/>	<input type="checkbox"/>	If yes, Community labor engagement agreement required

Section D: Natural Habitats

Will the Subproject:			Remarks
Be located within or near environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate
Adversely affect environmentally sensitive areas or critical habitats – wetlands, woodlots, natural forests, rivers, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	
Affect the indigenous biodiversity (Flora and fauna)?	<input type="checkbox"/>	<input type="checkbox"/>	
Cause any loss or degradation of any natural habitats, either directly (through project works) or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	
Affect the aesthetic quality of the landscape?	<input type="checkbox"/>	<input type="checkbox"/>	
Reduce people's access to the pasture, water, public services or other resources that they depend on?	<input type="checkbox"/>	<input type="checkbox"/>	
Increase human-wildlife conflicts?	<input type="checkbox"/>	<input type="checkbox"/>	
Use irrigation system in its implementation?	<input type="checkbox"/>	<input type="checkbox"/>	

If the answers to any of the above is 'yes', please include an ESMP with Subproject application.

Section E: Pesticides and Agricultural Chemicals

Will the subproject:			Remarks
Involve the use of pesticides or other agricultural chemicals, or increase existing use?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate
Cause contamination of watercourses by chemicals and pesticides?	<input type="checkbox"/>	<input type="checkbox"/>	
Cause contamination of soil by agrochemicals and pesticides?	<input type="checkbox"/>	<input type="checkbox"/>	
Experience effluent and/or emissions discharge?	<input type="checkbox"/>	<input type="checkbox"/>	
Involve annual inspections of the producers and unannounced inspections for Export produce?	<input type="checkbox"/>	<input type="checkbox"/>	
Require scheduled chemical applications?	<input type="checkbox"/>	<input type="checkbox"/>	
Require chemical application even to areas distant away from the focus?	<input type="checkbox"/>	<input type="checkbox"/>	
Require chemical application to be done by vulnerable group (pregnant mothers, chemically allergic persons, elderly, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	

If the answer to the above is 'yes', please consult the IPMF that has been prepared for the project.

Section F: Indigenous Peoples/VMGs as per ESS7

Are there:			Remarks
IVMGs living within the boundaries of, or near the project?	<input type="checkbox"/>	<input type="checkbox"/>	Name of the VMG community
Members of VMGs in the area who could benefit from the project?	<input type="checkbox"/>	<input type="checkbox"/>	
IVMGs livelihoods to be affected by the subproject?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, How
Unique/specific challenges for VMGs to benefit from the project	<input type="checkbox"/>	<input type="checkbox"/>	Explain
VMGs in minority in the community	<input type="checkbox"/>	<input type="checkbox"/>	If yes, Explain

			/name of minorit y VMG
Does VMG require to donate land to benefit from the project			If yes, follow Free, prior and informe d consent proced ure.

If the answer to any of the above is 'yes', please consult the VMGF that has been prepared for the project.

Section G: Land Acquisition and Access to Resources

Will the subproject:	Yes	No	Remark s
Require that land (public or private) be acquired (temporarily or permanently) for its development?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elabora te the tenure type
Require that community land be acquired (temporarily or permanently) for its development?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elabora te the registra tion status and commu

			nity claims. Community land agreement required following principles of FPIC.
Require more than 10 percent of the affected private land parcel	<input type="checkbox"/>	<input type="checkbox"/>	If yes, exclude from the project proposal
Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)	<input type="checkbox"/>	<input type="checkbox"/>	If yes, Elaborate the current use.
Complete land documents are not available for the sub-project investment?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, what process is needed ?

Is the land proposed have encumbrances?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate the encumbrance
Physically displace individuals, families or businesses?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, exclude from the project proposal
Cause loss of income for more than 30 days	<input type="checkbox"/>	<input type="checkbox"/>	If yes, how many. Exclude from the project proposal
Result in temporary or permanent loss of crops, fruit trees/fencing and pasture land/ loss of income from business activity?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, elaborate and prepare IRP
Adversely affect small communal cultural property such as funeral and burial sites, or sacred groves?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, avoid or exclude from project

			propos al
Result in involuntary restriction of access by people to legally designated parks and protected areas?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, exclude
Be on monoculture cropping?	<input type="checkbox"/>	<input type="checkbox"/>	

If the answer to any of the above is 'yes', please consult the mitigation measures in the ESMF.

Section H: Proposed action

(i) Summarize the above:	(ii) Guidance
<input type="checkbox"/> All the above answers are 'No' <input type="checkbox"/> There is at least one 'Yes'	<ul style="list-style-type: none"> • If all the above answers are 'No', there is no need for further action; • If there is at least one 'Yes', please describe your recommended course of action (see below).

(iii) Recommended Course of Action

If there is at least one 'Yes', which course of action do you recommend?

☐ CPCU, Social services officer, labour Officer, Children Officer and CDE will provide detailed guidance on mitigation measures as outlined in the ESMF; and

☐ Specific advice is required from CDE⁴, Lead Scientist and CPCUs regarding Sub - project specific EA(s) and also in the following area(s)

☐ All Subproject applications/proposals MUST include a completed ESMF checklist. The NAVCDP-CPCU will review the subproject applications/proposals and the CDEs will sign off; The input from the NLC, Social Services office, Children's office, labour office and the CSSCO will be required before the documents are presented to the CPSC.

☐ The proposals will then be submitted to CPSC for clearance for implementation by communities in the proposed Subprojects. The projects that require CPRs will be forwarded to NPCU for further analysis, then forwarding to the World bank for approval and finally to NEMA for clearance certificate.

⁴County Director of Environment and the County Technical Team

Expert Advice

- ☐ The Government of Kenya through the Department of Monuments and Sites of the National Museums of Kenya can assist in identifying and, mapping of monuments and archaeological sites;
- ☐ Expert guidance will also be provided by the land registrar on all issues related to land tenure, The children department on all issues on children, especially child labour, plus department of social services on IPs and vulnerable groups in the community, and
- ☐ Subproject specific EAs, if recommended, must be carried out by experts registered with NEMA and be followed by monitoring and review. During the process of conducting an EA the proponent shall seek views of persons who may be affected by the Subproject. The ESSIO requires consultation of Subproject affected groups and disclosure of EA's conclusions. In seeking views of the public after the approval of the Subproject, the proponent shall avail the draft EA report at a public place accessible to project-affected groups and local NGOs/CSO/SAIC/CDDCs.

Completed by:

Name:

Position / Community:

Date:

Field Appraisal Officer (CDE):.....

Signature:

Date.....

Note:

Project category	Characteristics
High	Full and extensive EIA needed- irreversible environmental impacts; impacts not easy to pick or isolate and mitigation cost expensive; EMP design not easily done; Must have the EIA done and future annual EAs instituted

Medium	Site specific environmental impacts envisaged; mitigation measures easy to pick, not costly and EMP design readily done; need an EIA and future EAs
Low	Have minimal or occasionally NO adverse environmental impacts; exempted from further environmental processes save environmental audits
Land	Land tenure documentation needed and land resolution and consent Form needed with project affected person/community
Loss of income and assets	Income restoration plan needed
Presence of VMG/IP	Additional actions needed
Risk of Child labor/SE AH	Additional actions needed

ANNEX 4 : GRIEVANCE LODGMENT FORM

Name of Commenter/Aggrieved		Comment/Grievance Number	
Name of Organization (if applicable)			
Address and Position			
Telephone/Fax			
Email Address			
Method of Grievance Placement	Mail Email Phone Walk In (Face to Face)		
Most effective means to send a response	Mail	Email	Phone
Date and Time of Comment/Grievance	Date	Time	
Nature and location of Comment/Grievance	Please provide details of grievance.		
What outcome are you seeking?			
Additional Information			
Any Supporting Documents Attached	Yes	No	
Initial Response details			
Date of initial response:			
Resolved/Addressed by:			
Nature of Resolution:			

Date of Resolution:	

Claimant Signature (if applicable):**Date:**

NAVCDP Representative Signature:**Date:**

ANNEX 5. GRIEVANCE REGISTER

Ref No.	Date	Name		Phone	Post	Email	Description of Grievance	Date of Grievance	One-time grievance	Happened more than once	Ongoing	Expected Resolution/Redress	Action identified to resolve the grievance	Date taken	Taken by whom	Complainant satisfied	If no, why?

ANNEX 6. LABOUR MANAGEMENT PROCEDURES

-See separate attachment-

ANNEX 7: SECURITY MANAGEMENT PLAN

-See separate attachment-

ANNEX 8: SAMPLE ESIA TERMS OF REFERENCE

Background and Project Description

The Project proponent will prepare a detailed Project background and planned activities based on the respective Detailed Design of selected sanitation works prepared under the program

The Objectives of the ESIA,

The main objective of the Environment and Social Management Plan (ESIA,) will be to identify and assess impacts resulting from the proposed projects identified in the Feasibility and detailed design reports to the biophysical social and economic environment.

Scope of work ESIA Assessment:

The consultant will provide:

1. Non-technical Executive Summary: describing significant findings and key recommended actions. Describe project residual risks after implementation of the proposed mitigation measures.
2. Clear description of the proposed Sub Project. Include the following information as relevant: location; general layout; size, capacity, etc.; preconstruction activities; project / construction history, construction activities; schedule, staffing and support; facilities and services; operations; required off-site investments; life span. This section will cover institutional arrangements to describe responsibilities for environmental and social risk management for the project.
3. Description of the baseline conditions in the project area of influence to cover the physical location, environmental setting, social and economic issues. Describe valuable or vulnerable environmental, social and cultural assets in the project area, which may be at risk. Specify through maps at appropriate scales, the boundaries of the study area for assessment as well as surrounding areas likely to be environmentally affected. Describe relevant trends within the project area for potential cumulative impacts. Include description of ESIA methodology used. In this chapter, provide the summary of review of review existing studies and available data. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data will be relevant to decisions about project location, design, operation, or mitigation measures. The section indicates the accuracy, reliability, and sources of the data.

A baseline description will cover the following topics:

- The biophysical environment:
- Location of the project sites
- Geology

- Soils
- Topography
- Hydrology (surface water features and drainage)
- Climate: current climate situation and climate change projections for the area
- Fauna (including aquatic fauna) and flora
- Protected areas (e.g. wetlands, Forest Reserves)
- Existing physical structures and infrastructure
- The socio-economic environment:
 - Population and settlement
 - Land tenure (and zoning)
 - Land and natural resources use
 - Economic activities and sources of livelihood within the catchment area. (e.g. agriculture, goods and services, domestic property market)
 - Available social infrastructure (schools, hospitals etc.)
- Cultural / historical / archeological sites

Finally identify data gaps and areas not covered by appropriate studies, using good international practice World Bank as benchmarks. Propose actions to close such gaps, including costs and time estimates.

4. Description of the legal, policy and institutional framework within which the proposed Sub projects will be implemented. This section shall include local, national and international laws and standards applicable to the proposed project.
5. Detailed assessment of the anticipated impacts to the environment, social and economic aspects of the area covered by the project. Impacts will include analysis of Land ownership and availability, Loss of income/assets, SEA/SH risks, Child and forced labor risk, presence of communities meeting ESS7 criteria and specific requirements, Occupational health and safety risks, Community health and safety risks, sanitation and waste management implications by the project. This chapter will indicate the scale of impacts, whether the identified impacts are irreversible or reversible, permanent or temporary, direct or indirect, large scale or local to project site. Identify residual impacts of this project, which cannot be avoided or mitigated. Also this chapter will address issues connected to climate change and climate variability, investigating matters such as methane gases emissions from the sewer works
6. Potential scenarios and their impact on operation will be outlined and considered. Whenever possible describe impacts quantitatively, in terms of environment costs and benefits and assign economic values where possible.

Specific attention will be given to: Impacts occurring during construction phase in respect of:

- Water resources pollution (ground and surface water)
- Building of the Project civil works (e.g. sewer works, access roads, construction camps)
- Local eco-system (removal of vegetation / endangered species / bird life)
- Traffic safety (people/construction traffic on and off-site)
- Public health (construction workers/HIV/malaria/dust/noise and vibration/solid waste and sewage)
- Raw materials (source of materials/demand on local supply)
- Loss of income/asset (economic displacement of persons/communities) – with references to project RPF.
- Cultural / historical / archeological sites
- Employment
- Potential use of Child labor
- Potential use of community labor and risks
- Potential conflict in the community regarding the site selection and use of infrastructure
- Local / national economy
- Capacity building

Impacts occurring during operational phase in respect of:

- Effluent quality, quantity and use of water, aquatic biota, and sedimentation impacts
- Changes in micro-climate
- Hydrologic and limnological effects.
- Decomposition of organic matter (e.g. trees).
- Flora and fauna (vegetation, wildlife), including invasive species and aquatic weeds.
- Settlement (migration of large number of people/unemployment)
- Public health (HIV/water borne diseases, pests)
- Land and natural resources use (loss of agricultural land/source of fuel, traditional medicines)
- Landscape (effect on aesthetic quality of landscape / compatibility with surrounding area)
- Community life (community relationships/recreation/security)
- Requirements for capacity building

7. **Analysis of the project alternatives** and selection criteria in terms of siting, design, technology selection, construction techniques and phasing, degree of associated environmental and social impacts, and operating and maintenance procedures. This section will also address the assessments of Sub projects safety based on the proposed design alternatives. Include in the analysis the

sites for access roads, construction camps, quarry sites and other associated works. The comparative analysis will address (and quantify where possible): the environmental and social impacts; the feasibility of impact mitigation; capital and recurrent costs; the suitability of options under local conditions; related institutional, training and monitoring requirements. State the basis for selecting the proposed design, including the minimization of risk. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures.

8. Description of proposed **impact mitigation** and/or corrective measures for each impact identified
9. An Environmental and Social Management Plan (ESMP) presenting the project activities, potential impacts, mitigation actions, timing, targets and responsibilities, associated costs and monitoring indicators.
10. **ESIA Implementation Budget:** provide a clear statement of financial responsibilities, identify summary of costs for implementation of the proposed mitigation measures; provide detailed estimated budget for all phases of the project including planning, implementation, monitoring and evaluation, with contingencies.
11. A record of **public consultations** and other records that will indicate participation of interested and affected parties throughout the ESIA study process, including: surveys used to seek views of affected stakeholders; date and location of consultation meetings; a list of attendees, their affiliation, contact addresses and a summary. Separate record of consultations with VMGs, youth, female beneficiaries and communities meeting the requirement of ESS7. This section needs to present an approach to ongoing stakeholder engagement. In addition, a Grievance Mechanism will be described in this section.

Required Personnel will include Sociologist and Environmentalist including other key personnel depending on the sub project sector.

ANNEX 9: SAMPLE EA TERMS OF REFERENCE

1. Introduction

2. Objective of the assignment

3. Scope of the Audit

- Description of the sub- project activities.
- A review of the policy, legal and administrative framework, as well as national legislative framework plus the World Bank ESS .
- Assessment of the Potential environmental and social impacts of the sub- project activities/operations.
- Monitoring of environmental and social aspects especially those in the ESMP matrix
- Development of the Environmental and social management plan and monitoring systems;
- Public participation and consultations.
- Monitoring land ownership documentation
- Monitoring loss of income/assets and compensation made as per IRP
- Efforts made to ensure Communities meeting ESS7 criteria were consulted in culturally appropriate manner and supported in accessing project benefits

4. Focus of the of the audit

- The focus of the environmental audit shall be geared towards Environmental and social Sustainability and inclusion which shall among other aspects include detailed assessment and recommendations in the following focal areas: -
- Environmental Sustainability planning - Institutional workplace environment policy, Structures to address environmental issues, Compliance with the Environmental Impact Assessment and Audit regulations
- Pollution control- waste management interventions (solid and effluent discharge), Noise pollution control, water pollution and Air pollution control
- Climate change mitigation and adaptation in reference to the climate change response strategy and action plan- Energy management, water management, control of Greenhouse gasses
- Environmental ecological enhancement- Ecosystems and ecological restorations, conservation of ecological biodiversity.
- Environmental education and awareness
- Environmental protection and conservation through partnerships
- Access to land and sustainability of investment

- Any affected person is compensated and benefits from the project
- The infrastructure created does not lead to further tension and conflict in the community
- Tasks for the Consultant(s)

The consultant is expected to undertake the following: -

- a) Prepare a detailed description of the sub- project
- b) Carry out and present environmental data for the sub- project
- c) Update the baseline environmental monitoring for project area
- d) Carry out a detailed assessment of the environmental and social impacts as well as noting the health and safety issues of concern at sub- project site
- e) Establish the major environmental and social non-compliances based on the current practices at the project site
- f) Review of existing internal control/monitoring mechanisms, programs and procedures to identify and mitigate activities with a negative environmental impact;
- g) Undertake public consultation to gather the concerns, views/inputs of the neighbors and stakeholders who might be affected by the operations/activities of sub- project
- h) Examine records of environmental incidents and accidents and the likelihood of future occurrence of the incidents and accidents at the sub- project site
- i) Prepare a detailed Environmental and Social Management plan to address the key findings.
- j) Review of institutional, legal and policy framework relevant to the assignment and the operations/activities of the sub - project including compliance with international Multilateral Environmental Agreements (MEAs) where applicable.
- k) Prepare a detailed environmental and social audit reports for sub- project based on the Terms of reference and Pursuant to Section 68 of the Environmental Management and Coordination Act Cap 387 of the Laws of Kenya and the Environmental Management and Coordination (Impact Assessment and Audit) Regulations, 2003 and ESMF, RPF, LMP, VMGF of NAVCDP.
- l) Submit the reports to NEMA and follow-up on behalf of the proponent. The consultant shall return the NEMA-acknowledged/referenced audits to the proponent.
- m) Assist the proponent to apply and follow-up on compliance license.

5. Firm's/consultant proposal

Interested firms/consultants shall submit a proposal that includes the following: -

- Firm's profile including demonstrated ability to conduct this assignment. A detailed approach and methodology of carrying out the assignment.
- Updated curriculum vitae of the consultant(s) who will undertake the Audit including qualifications and experience. The Firm of Experts must include a lead expert who has vast experience in similar assignments.
- Current/valid practicing license from NEMA for each of the key experts for the assignment
- Contacts of 5 organizations who have recently contracted the firm/consultant(s) to carry out similar assignments
- Proposed consultancy fee in Kenya shillings (VAT inclusive)

6. Key Staff

The Consultants must as a minimum, but not limited to, provide the expertise described below, and submit a curriculum vita for each individual. Each key personnel will have specific roles which cannot be interchanged: -

(i) Team Leader

a) Qualification and Skills

A minimum of a master's degree in environmental sciences or Environmental Planning and Management from a recognized University and qualification as a Lead Expert registered with the National Environmental Management Authority and must possess a valid & current Practicing License.

b) General professional experience

At least 10 years' post-qualification experience.

c) Specific professional experience

At least 10 years professional and practical experience in undertaking Environmental and Social Impact Assessment Studies in similar assignments, 5 years of which must have been a lead expert

(ii) Environmentalist

a) Qualification and Skills

A minimum of a bachelor's degree in Environmental Sciences from a recognized University. Must be registered with the National Environmental Management Authority and must possess a valid & current Practicing License.

b) General professional experience

At least 6 years post-qualification experience.

c) Specific professional experience

At least three (3) projects demonstrating relevant professional and practical experience in environmental audits for similar sub- projects.

7. Costing

Bidders to present their costing in the manner below: -

- i. Breakdown of price per activity
- ii. Breakdown of remuneration per activity
- iii. Reimbursable per activity
- iv. Miscellaneous expenses
- v. Then a total sum for all

ANNEX 10: CHANCE FINDS PROCEDURE

Management and Mitigation Measures

1. Screening

The project will undertake screening (0) to ascertain the presence of any known cultural heritage sites including temples, mosques, churches, other sites of religious or spiritual significance (shrines) or sacred groves in the design of project interventions.

2. Consultation during preparation of sub projects for identification of Cultural Heritage

During the preparation of the subprojects the project will include questions on tangible cultural heritage such as sites of religious and spiritual significance, sacred groves, traditional water harvesting and conveyance structures, wildlife passages, and intangible cultural heritage including traditional knowledge, information on which is not ordinarily available in the public domain. The project will ensure the participation of men and women and elders as well as traditional knowledge holders in these consultations. Although Cultural Heritage may be associated with any group, community, or religion, certain marginalized or backward groups such as tribals may need to be given more focused attention in the process of identification of their cultural heritage since such communities may not have adequate representation in the institutional structure of local governance institutions i.e Community Based Organizations, etc.

3. Avoiding Cultural Heritage Sites

The project will seek to avoid disturbance to cultural heritage sites during civil works and ensure that no damage through debris disposal or noise pollution is caused at any sites of cultural significance including rocks, sacred sites or wetlands.

4. Management Actions to avoid damage to Cultural Heritage (CH)

Where activities must be undertaken near a cultural heritage site, the following measures should be taken:

- a) Train/make aware all the construction contractors of how to deal with these sites and ensure that there is supervision from contractors' side for the management of all such sites.
- b) Restore all sites to their original shape post-construction.
- c) It is advisable to take photographs, measurements, etc. of the Cultural Heritage (CH) if working in the same location in case it is needed for future reference while restoring the site.
- d) Identify the most appropriate time to undertake construction to minimize disturbance, e.g. avoid any special prayers/festivals for construction in the vicinity of the CH or on its access route.
- e) Avoid keeping power backup systems such as generators near the Cultural Heritage sites.
- f) Identify appropriate sites for waste storage and disposal of any waste generated by the project activity.
- g) Identify appropriate sites for material storage.

4. Conservation and Enhancement of Cultural Heritage, where applicable

The project will work on building on, repairing and enhancing and maintaining the traditional water harvesting and water conveyance structures (Earth pans, sandweirs, etc) and other spring shed structures in the project area. It will also attempt to build on traditional knowledge and practices on pasture management and incorporate these in the C-ESMPs.

5. Chance Finds Procedures

When artefacts or sites of cultural heritage are encountered by chance while undertaking excavation during civil works, they are known as “**chance finds**”. The project will include a “chance finds” procedure, in all contracts related to construction awarded under the project.

The steps in case of chance finds to be followed are:

- a) Stop all work and cordon off the area and do not allow anybody access to the area, unless cleared by the Kenya Museums, Area Chief, or Regional Commissioner as the case might be.
- b) Formally, report to the County Project Coordinator
- c) Based on discussions with the competent authorities identify further action.
- d) Actions at the site may require competent professionals who may need to be contacted and brought in, as needed.

ANNEX I I: NAVCDP FPOs/CDDCs/SACCOs LAND OWNERSHIP

Access to public land by implementing POs/FPOs/CDDCs

For VC-related projects proposed by FPOs, the FPOs are expected to provide land with secure land tenure as a pre-condition for approval. For the POs that do not have their own land, the County Governments need to avail themselves of the land under a leasing arrangement. To support this, the guidelines are prepared which will guide in the process.

In these guidelines, the Commission on behalf of the respective County Government, shall create public land access arrangements mainly in the form of short-term leases and reservations. This will open the opportunities to have as many FPOs as possible carryout many value chain improvement projects. These shall be reviewed periodically to ensure that the desired social economic impacts get realized in addition to ensuring the land is put to its intended use.

The leasing process shall be governed by the provision in the Land Act 20 12, with respect to the provision of access to the various users of public land. For the purposes of ease of reference, any reference to lease shall be extended to include subleases, temporary occupation licenses and agreements in respect of access interests and rights to public land.

286) Land requests categorization

There are two possible scenarios in the requests for land by the FPOs:

1. Request for land for public investments which should be reserved for such investments. Examples of these include managing markets for agricultural produce jointly run by the FPOs and the County Government. In this case the reservation of the land for the particular purpose may be deemed sufficient and backed by a formal engagement between the County Government and the FPO consented.

2. Request for land to set up processing plants and warehouses for value addition to agricultural produce.

These are fully private entities and would follow the normal land allocation processes.

287) Planning, Surveying and Servicing of land

Land being offered to the POs must be planned, surveyed and serviced in line with the Land Act 2012 provisions. In the past, County Governments have committed to have public land planned, surveyed and serviced prior to allocation of land to outfits similar to POs, but have reneged on this commitment once the approval for allocation was granted.

For reserved land, the respective County Government shall plan the land in cases where there shall be need for reallocation of land uses. The Commission shall not process applications and documentation for land for which the underlying user is different. The

County Governments are the planning entities and need to plan the areas first, before availing the land for access by the POs.

288) **Proposed process for access to land by the FPOs**

The general process to be followed is as given below:

- 1 . The FPO shall apply to the County Government through the NARIGP avenue, requesting to access public land to conduct the VC-related project proposed. This shall be in conformity with the laid down requirements for the NARIGP.
2. After vetting of the FPO and concurrency that the application merits consideration, the County Government shall identify the land to be availed to the FPO.
3. As the planning agent at the County, the County Government shall cause replanning of the reserved land if there is need for change of user from the original user to one appropriate for the FPO's venture. The County Government shall inform the Commission of the replanned areas and rationale for the planning.
4. The County Government holding land enters a leasing arrangement with the FPO as the owner of public land in the County on behalf of the public. The land to be availed under this arrangement should be planned and zoned for the intended use by the FPOs. It should also be surveyed and serviced as provided for in law.
5. The County Government shall forward the application package to the Commission. This package shall in addition to the FPO's application include among other documents, the outcome of the FPO vetting, the evidence of land being available, having been planned, surveyed, and serviced. It shall also include the commitment by the County Government to enter a formal engagement with the FPO for the land identified for the conduct of the VC-related venture.
6. Upon receipt of requests by the Commission, each request will be processed on a case-by-case basis. The process of leasing will be administered by the Commission as provided for in law. In administering this process, the Commission with concurrence of the County Government shall follow either;
 - i. Undertake the entire process right from receipt of the request to avail land from the County Government to the eventual lease and its handover to the FPO. In this scenario, the Commission will process with the procedure guided by the allocation process stipulated in Section 12-14 of the Land Act 2012. In considering the request for the lease or sublease, the Commission shall confirm that:
 - a. the legal nature of the FPOs and its capacity to undertake the stated project have had been verified by the County, ii. Process requests for consent from the County. In this case the County Government shall have the capacity to have the process managed by the County Executive.

7. The leasing period should not be shorter than 25 years or longer than 30 years and shall be negotiated and secured through registration of the entered agreements/license as provided for in the Land Registration Act 2102.
 8. The County Government shall have the requisite capacity to monitor the leases and subleases it grants. The Commission shall collaborate with the County Government in supporting its capacity to monitor these leases and subleases.
 9. At the expiry of the lease or sublease, the land shall revert to the County. Any request for renewal should be subjected to evaluation of performance on the earlier lease and pending applications for the land.
 10. The instrument to be used for registration will be mutually agreed between the County Government, FPO and the Commission and should adhere to prescriptions in the Land Registration Act 20 12.
- I I . In addition to the Terms and Conditions applicable for the lease, the following terms and conditions must be adhered to:
- a) any requests to transfer land shall only be to persons or entities adhering to the original lease conditions,
 - b) the use of the land shall be restricted to the specified user for which it was granted.

ANNEX 12: E-WASTE GUIDELINES

[Draft E-waste Regulations-1.pdf \(nema.go.ke\)](#)