



Isiolo County

County Climate Change Action
Plan

2023- 2027



REPUBLIC OF KENYA



WORLD BANK GROUP

MINISTRY OF FOREIGN AFFAIRS OF DENMARK
DANIDA | DEVELOPMENT COOPERATION



Financing Locally-Led Climate Action
(FLLoCA) Program

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Sverige

Foreword

In the face of unprecedented challenges posed by climate change, it is imperative that we come together as a global community to address this pressing issue with urgency and determination. With firm belief in the power of collective action, it is my honor to introduce this Climate Change Action Plan report.

This report is the culmination of extensive community consultations, which have been instrumental in shaping the Participatory Climate Risk Assessment (PCRA) process. Through these consultations that were undertaken at the community level in Isiolo's ten wards, we have engaged with diverse stakeholders, including government representatives, donor agencies, faith-based organisations, and implementing agencies, to capture their valuable insights, experiences, and aspirations. The outcomes of these consultations have laid the foundation for a robust and inclusive framework that will guide our collective efforts towards climate resilience.

Climate change is a global challenge that requires a coordinated response at all levels, and even more so for Isiolo, which is one of the counties most affected by drought and climate change in the Greater Horn of Africa. The County Government, as custodians of public welfare, have a crucial role to play in formulating and implementing policies that foster sustainable development while addressing climate vulnerabilities. Donor agencies and partner organisations, with their financial resources and technical expertise, can provide invaluable support to translate these policies into impactful actions on the ground. Implementing agencies, as the driving force behind project implementation, play a pivotal role in ensuring that our climate change interventions are effective, efficient, and responsive to the needs of local communities.

This report underscores the urgency of the climate crisis and emphasizes the need for swift and decisive action. It presents a comprehensive roadmap that encompasses a wide range of sectors and themes, including but not limited to agriculture, water resources, energy, and urban planning. By addressing the multifaceted dimensions of climate change, we aim to build resilience and foster sustainable development across all sectors of society.

The recommendations put forth in this report are rooted in rigorous research, innovative approaches, and best practices in Kenya and the region. They represent a careful balance between ambition and feasibility, recognizing the need for transformative change while acknowledging the constraints and challenges faced by the communities themselves, governments and implementing agencies. The proposed actions are designed to be adaptable, scalable, and context-specific, ensuring that they can be tailored to the unique circumstances and priorities of different regions and countries.

To achieve meaningful impact, it is essential that we forge strong partnerships and foster collaboration among all regulatory, funding and implementing organizations. We must capitalize on each other's strengths, share knowledge, and leverage resources to mobilize the necessary financial and technical support. By working together, we can accelerate the implementation of climate-resilient initiatives, empower local communities, and safeguard the future of our planet.

I would like to express my gratitude to all those who have contributed to this report, particularly the dedicated team of experts, researchers, and practitioners who have invested their time and expertise in its development. I would also like to extend my appreciation to the communities who actively participated in the PCRA process, providing invaluable insights that have enriched our understanding of climate risks and resilience.

The time for action is now. Let us seize this moment to unite, transcend boundaries, and build a sustainable and resilient future for generations to come. Together, we can overcome the challenges posed by climate change and create Isiolo County that is equitable, prosperous, and environmentally secure.

Hon. Ali Wario Sarite,



COUNTY EXECUTIVE COMMITTEE MEMBER,

WATER, SANITATION, ENERGY, ENVIRONMENT, MINING, NATURAL RESOURCES & CLIMATE CHANGE RESILIENCE.

Acknowledgement

The Isiolo County Government's Department of Environment and Climate Change Resilience wishes to thank the following organizations that have continuously collaborated with other national agencies and county departments in community consultations, research, implementation of adaptation actions and financial support to ensure that the Isiolo Climate Change Action Plan is developed in a participatory way involving all stakeholders.

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Acronyms

ASALs	Arid and Semi-Arid Lands
CBO	Community Based Organisation
CCAPs	Climate Change Action Plan
CIDP	County Integrated Development Plan
CIS	Climate Information Services
CoK	Constitution of Kenya
CRS	Catholic Relief Services
CSOs	Civil Society Organisations
DPPs	Drought Preparedness Programs
EMCA	Environment Management and Coordination Act
FAO	Food and Agriculture Organization
FLLOCA	Financing Locally-Led Climate Action
GBV	Gender Based Violence
GoK	Government of Kenya
ICCF	Isiolo County Climate Change Fund
IDPs	Internally Displaced Persons
IPC	Integrated Food Security Phase Classification
IPCC	Inter-Governmental Panel on Climate Change
KFS	Kenya Forest Services
KP	Kyoto Protocol
KWS	Kenya Wildlife Services
LMS	Livestock Market Support
MSMEs	Micro and Small Enterprises
NAWIRI	USAID Thrive program
NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy
NDMA	National Drought Management Authority
NEMA	National Environmental Management Authority
PA	Paris Agreement
PCRA	Participatory Climate Risk Assessment
PwDs	Persons with Disabilities
SDDA	State Department for Development of the ASALs
SDG	Sustainable Development Goal
TWG	Technical Working Group on Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank
WFP	World Food Programme
WPCs	Ward Planning Committees

Definition of terms

Term	Definition
Adaptation	Changes made in response to the likely threats and opportunities arising from climate variability and climate change.
Climate	Average weather based on the statistical description in terms of the mean and variability of relevant quantities, such as temperature, precipitation and wind, over an extended period of time.
Climate change	A statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer).
GHG	Greenhouse gas
Impact	A threat or an opportunity that may arise as a result of either the weather or climate change both in the short and long term, and represents the fact that the issue is one that is constantly evolving.
Infrastructure	Assets and systems of assets that support our society. NOTE: This includes buildings, open space systems, public domain areas and associated infrastructure, and transport, water, power and communications assets.
Level of risk	Magnitude of a risk or combination of risks, expressed in terms of the combination of consequences and their likelihood.
Mitigation	Reducing causes of climate change.
Monitoring/Tracking	Continual checking, supervising, critically observing or determining the status in order to identify change from the performance level required or expected.
Resilience	Adaptive capacity of an organisation to a complex and changing environment.
Risk	Effect of uncertainty on objectives.
Risk assessment	Overall process of risk identification, risk analysis and risk evaluation.
Risk management	Coordinated activities to direct and control an organization with regard to risk.
Vulnerability	Degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes.

Executive Summary

Isiolo County faces significant challenges due to climate change impacts. The county falls into two ecological zones, the semi-arid and arid zones, and experiences a hot and dry climate for most months of the year, with two rainy seasons. Water scarcity is a significant issue, and the agricultural sector, which relies heavily on livestock and agro-pastoralism, faces food poverty and decreased yields due to climate hazards.

Previous and ongoing efforts have been made to address these challenges, including pasture establishment, disease control, borehole construction, and adoption of sustainable agricultural practices. However, limited access to water resources, inputs, and services, as well as unsustainable cultural practices, hinder farmers' adaptive capacity. Vulnerable groups, particularly youth and women, have low adoption rates of sustainable practices. Institutions also face constraints in delivering effective services due to limited funds and human resources.

In Isiolo County, climate change impacts vary, affecting different groups during droughts. Women bear a disproportionate burden, responsible for household water and food security, while limited resources and decision-making hamper their resilience. Pastoralists suffer from water and forage scarcity, reducing livestock productivity, income, and food security. Displacement disrupts their traditional lifestyle. Agro-pastoralists face challenges in crop farming and livestock rearing, with reduced yields and food/income security. Sedentary farmers relying on rain-fed agriculture experience reduced crop production and vulnerability due to insufficient rainfall and limited access to irrigation. Resource constraints hinder adaptation efforts, affecting farmers' ability to cope with climate change.

The County Climate Change Action Plan (CCAP) plays a crucial role in addressing climate change impacts and promoting climate resilience in Isiolo County. It provides a strategic framework and guiding document for collaborative partnerships among communities, governments, and stakeholders. The CCAP includes assessment and analysis of climate change risks, identification of priority areas and objectives, development of actionable strategies, and robust monitoring and evaluation mechanisms.

The CCAP brings several benefits, including enhanced coordination and collaboration among stakeholders, strengthened local capacity, integration of climate considerations into development planning, and empowerment of vulnerable communities. By incorporating locally driven actions and considering the differentiated impacts on gender and livelihood practices, the CCAP ensures active participation and resilience of communities.

Isiolo County has enacted climate change legislation and established a climate change fund, demonstrating its commitment to climate resilience. However, challenges arose when support agencies ended their assistance, and the climate budget was reallocated. Development partners and implementing agencies are now working together to restore the climate resilient approach in the county.

The County Integrated Development Plan (CIDP) 2023-2027 proposes measures to enhance climate resilience and address climate change impacts. These measures include drought risk management, livelihood diversification, flood and stormwater management, capacity building, afforestation, and climate proofing of development projects. They prioritize adaptation, mitigation, and sustainable development, contributing to improved adaptive capacity, reduced vulnerability, and ecosystem restoration.

To ensure the success of climate change actions, it is essential to strengthen institutional and financial capacity, provide timely extension advice, reliable early warning information, and revise land use policies. Targeted interventions for vulnerable groups and the integration of climate change considerations into decision-making processes are also crucial.

Successful implementation of the CCAP requires not only financial and human resources. Implementation of the Action Plan is strongly dependent on institutional strengthening, ranging from a formal steering committee led by the highest-level public officials in the county, to a stakeholder driven technical Working Group that provides for structured coordination and collaboration between County Departments, National Government Agencies, and non-governmental implementing partners.

By implementing the CCAP and CIDP measures, Isiolo County can build a more resilient future and ensure sustainable development in the face of climate change.

1.0 Background and Context

1.1 INTRODUCTION & BACKGROUND

Isiolo County, covers an area of approximately 25,700 km². It shares borders with Marsabit County to the North, Samburu and Laikipia Counties to the West, Garissa County to the South East, and Wajir County to the North East, Tana River and Kitui Counties to the South, and Meru and Tharaka Nithi Counties to the South West. The county is administratively divided into three sub-counties: Merti, Garbatulla, and Isiolo, consisting of ten electoral wards with a population of 267,997 people (KNBS Population Census 2019).

Isiolo County falls into two ecological zones, namely the semi-arid and arid zones. The semi-arid zone, encompassing parts of Wabera Ward, Bulla Pesa Ward, Burat Ward, and Kinna Ward, supports sedentarized agro-pastoral activities. The arid zone covers Oldonyiro, Ngare Marasome, Chari, Cherab, Garbatulla, Sericho, and Kinna Wards. The annual rainfall in the county ranges between 400-650 mm (CIDP 2018-2022).

The county experiences a hot and dry climate for most months of the year, with two rainy seasons. The short rain season occurs between October and December, peaking in November, while the long rain season occurs between March and May, peaking in April. The topography of the landscape influences the amount of rainfall received, with higher ground areas near Mount Kenya and Nyambene Hills receiving between 500-670 mm of rainfall annually. The drier eastern and northern parts of the county receive less than 300 mm of rainfall. High temperatures are recorded throughout the year, with variations based on altitude. The mean annual temperature is 29 degrees centigrade. The county also experiences strong monsoon winds, particularly in July and August, which provide potential for wind-generated energy. Additionally, the county has abundant sunshine, offering significant potential for solar energy utilization (CIDP 2018-2022).

Water scarcity is a significant issue in water-stressed areas of Isiolo County, with vulnerable households surviving on as little as eight liters of water per person per day, according to the National Drought Management Authority. Agriculture plays a vital role in the county's economy, with over 80% of the population relying on livestock for their livelihoods, and 26% practicing agro-pastoralism. However, food poverty rates are alarmingly high, leading to a high dependency on relief food. Drought hazards and high temperatures have increased over the past three decades, impacting agricultural yields and exacerbating food insecurity. Climate projections indicate a continued vulnerability to more frequent drought periods, increased temperatures, and decreased intense rainfall in both seasons.

Efforts to address climate hazards in the livestock and crops sub-sectors have included pasture establishment and conservation, disease control and surveillance, borehole and watering point construction, mass vaccination, destocking, and the rearing of drought-tolerant livestock types. Crop farmers have adopted water and soil conservation practices, conservation agriculture, drought-tolerant and early-maturing crop varieties, agro-forestry, and post-harvest management and marketing. However, farmers' adaptive capacity remains low, and agricultural yields have declined due to limited access to water resources, inputs, and services, as well as unsustainable cultural practices such as overstocking. Vulnerable groups, especially youth and women, have low adoption rates of sustainable practices. Strengthening institutional and financial capacity, providing timely extension advice, reliable early warning information, and revising land use policies are essential for successful climate adaptation strategies. However, limited funds and human resources constrain the capacity of institutions to deliver these services effectively.

1.2 PURPOSE AND PROCESS OF THE CCCAP

The County Climate Change Action Plan (CCAP) plays a crucial role within the Financing Locally-Led Climate Action (FLOCCA) program, providing a strategic framework and guiding document for addressing climate change impacts by promoting climate resilience, fostering collaboration, and driving sustainable development in Isiolo County.

The CCAP serves as a comprehensive and strategic roadmap for addressing climate change impacts, natural hazards, and other stressors in Isiolo County. It aims to enhance the county's resilience by fostering collaborative partnerships between communities, national and county governments, and other stakeholders. The CCAP guides decision-making processes, ensuring the effective allocation of resources and prioritization of climate resilience initiatives. By incorporating locally driven and context-specific actions, the CCAP ensures the involvement and engagement of vulnerable communities in climate adaptation and mitigation efforts.

The CCAP comprises several key components that are integral to its effectiveness:

- **Assessment and Analysis:** A thorough assessment of climate change risks and vulnerabilities specific to Isiolo County, considering socioeconomic factors, natural resource availability, and existing adaptive capacity.
- **Priority Areas and Objectives:** Identification of priority areas for climate resilience interventions aligned with national and international climate goals. Establishment of clear objectives, targets, and indicators to measure progress and ensure accountability.
- **Action Plans and Implementation Strategies:** Development of actionable and time-bound strategies tailored to the unique needs and characteristics of each ward in Isiolo County. Strategies encompass various sectors, including water resource management, sustainable agriculture, disaster risk reduction, and capacity building.
- **Monitoring and Evaluation:** Implementation of robust monitoring and evaluation mechanisms to track the progress and effectiveness of implemented actions. Establishment of indicators, data collection methods, and reporting frameworks to support evidence-based decision-making and adaptive management.

The CCAP brings several benefits and impacts to Isiolo County:

- Enhanced coordination and collaboration among stakeholders, including communities, government agencies, development partners, and civil society organizations.
- Strengthened local capacity for planning, budgeting, and implementing climate resilience investments.
- Integration of climate considerations into development planning, promoting sustainable and climate-smart development pathways.
- Empowerment of vulnerable communities, enabling active participation in climate action and the shaping of resilience strategies.

Thus, the County Climate Change Action Plan (CCAP) is a vital tool within the FLOCCA program, providing a strategic framework for addressing climate change impacts in Isiolo County. By fostering collaboration, prioritizing actions, and empowering communities, the CCAP plays a pivotal role in

enhancing climate resilience, promoting sustainable development, and ensuring a more resilient future for Isiolo County.

1.3 UNDERLYING CLIMATE RESILIENCE CONTEXT

1.3.1 Impacts of Climate Hazards in the County

Agriculture serves as the cornerstone of Isiolo County's economy, providing vital income, savings, and social status to its population. However, the county faces significant challenges exacerbated by climate change, with over 80% of inhabitants relying on livestock and a mere 26% practicing agro-pastoralism. Alarming high food poverty rates (77%) have resulted in a heavy dependency on relief food. This summary explores the impact of climate hazards on Isiolo County's agricultural sector and highlights the need for enhanced climate resilience measures.

Over the past three decades, Isiolo County has witnessed changing climate trends, including a notable increase in drought hazards and high temperatures, particularly during the first season (January-June). Conversely, the second season (July-December) has experienced lower precipitation increases and higher mean temperatures. Short- and medium-term climate projections indicate that the county will remain highly vulnerable to more frequent drought periods, rising mean temperatures, and a decrease in intense rainfall across both seasons.

To combat climate hazards, stakeholders in Isiolo County's agricultural sector have implemented various adaptive measures. In the livestock sub-sector, efforts include establishing and conserving pastures, disease control and surveillance, construction and maintenance of boreholes and watering points for livestock, mass vaccination programs, destocking, and breeding drought-tolerant livestock breeds. Crop farmers have adopted water and soil conservation practices, conservation agriculture techniques, drought-tolerant and early-maturing crop varieties, agro-forestry approaches, and improved post-harvest management and marketing strategies.

Despite continuous efforts to enhance climate resilience both on and off farms, farmers in Isiolo County face numerous challenges that hamper their adaptive capacity. Limited access to water resources, essential farm inputs, and services, along with the unaffordability of productive technologies, have hindered the adoption of sustainable agricultural practices. Additionally, the declining quality and quantity of natural resources such as water and pastures further contribute to the inconsistent and uneven adoption of climate-smart approaches.

Isiolo County's agricultural sector, which plays a vital role in the local economy, is confronted with formidable challenges due to climate change. The need to bolster climate resilience measures in this sector is crucial for sustaining agricultural productivity and ensuring food security for the population. Addressing the limited access to water resources, farm inputs, and services, while promoting the adoption of sustainable practices, is essential to improve farmers' adaptive capacity. By investing in climate-smart technologies and innovative solutions, Isiolo County can build a more resilient agricultural sector capable of withstanding the increasing climate pressures and securing a prosperous future for its inhabitants.

1.3.2 County Climate Hazard Map

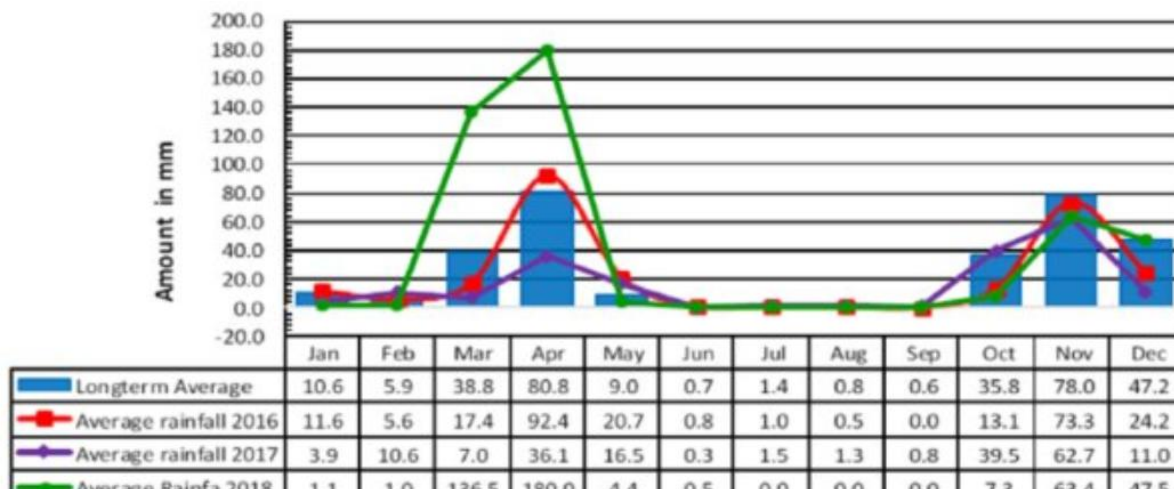


Figure 1: Average rainfall for Dec 2018 compared to 1994-2013 average NDMA (2018)

1.3.3 Summary of Differentiated Climate exposure and Vulnerability of key groups and livelihoods in the County

In Isiolo County, climate change impacts are not uniform and affect different groups in distinct ways, particularly during drought periods. These impacts can be differentiated based on gender and livelihood practices, such as pastoralism, agro-pastoralism, and farming.

Gender: Women often bear a disproportionate burden during drought periods. They are responsible for household water and food security, and the scarcity of resources exacerbates their workload. Their limited access to resources and decision-making processes restricts women's adaptive capacity and resilience to climate change, while women's roles in income generation and food production make them highly vulnerable to climate-related shocks, as their livelihoods heavily rely on agriculture and livestock.

Pastoralist communities heavily depend on livestock for their livelihoods. During drought periods, the scarcity of water and forage adversely affects their animals' health and productivity. Reduced livestock productivity leads to a decline in income and food security, exacerbating poverty levels among pastoralist communities, while displacement of pastoralists due to the search for water and pasture creates additional social and economic challenges, disrupting their traditional way of life.

Agro-pastoralists engage in both crop farming and livestock rearing. Drought periods directly impact their agricultural activities, as water scarcity and reduced rainfall diminish crop yields. The loss of crops and limited availability of forage adversely affect both food and income security for agro-pastoralist households. Agro-pastoralists face the dual challenge of managing the risks associated with both crop failure and livestock losses during prolonged droughts.

Sedentary farmers who primarily rely on rain-fed agriculture face significant challenges during drought periods. Insufficient rainfall and prolonged dry spells result in reduced crop production and yield losses. Limited access to irrigation infrastructure and technologies further exacerbates farmers' vulnerability to drought impacts. Inconsistent and uneven adoption of sustainable agricultural practices due to resource constraints hampers farmers' ability to adapt to climate change.

To address the differentiated impacts of climate change in Isiolo County, it is crucial to consider the specific vulnerabilities and needs of different groups. This can be achieved through:

- Gender-responsive approaches that empower women, promote their participation in decision-making processes, and provide them with access to resources and support.
- Tailored interventions for pastoralist communities, including improved water and forage management, livestock health services, and diversification of livelihood options.
- Enhancing the resilience of agro-pastoralists through improved water management, conservation agriculture, drought-tolerant crop varieties, and access to credit and markets.
- Supporting farmers by promoting climate-smart agricultural practices, providing access to irrigation, enhancing knowledge and skills, and facilitating market linkages.

By adopting a targeted and inclusive approach, Isiolo County can better address the differentiated impacts of climate change, build resilience among vulnerable groups, and promote sustainable livelihoods in the face of increasing climate pressures.

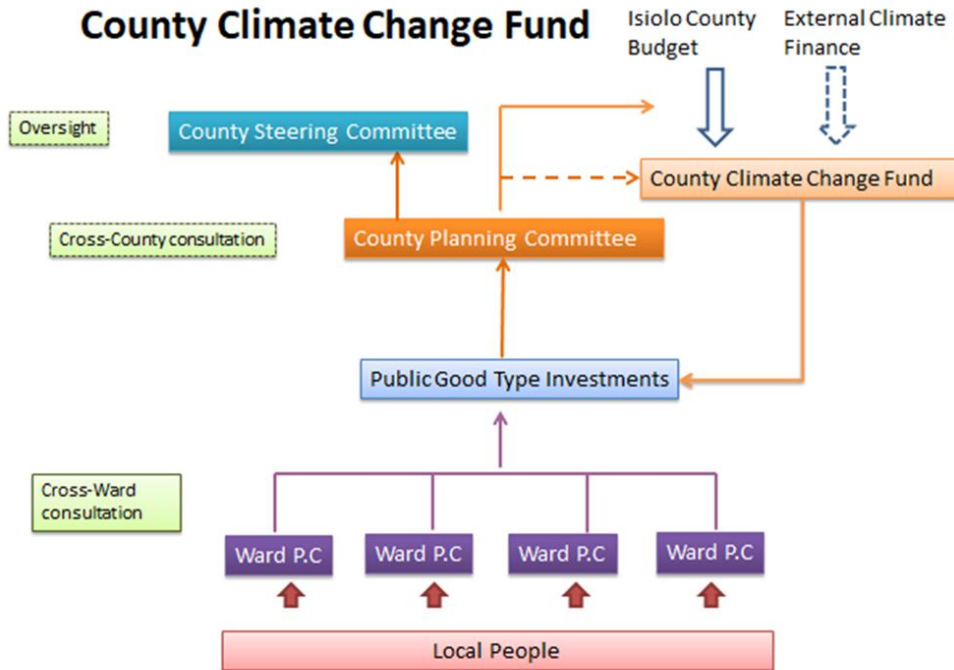
1.4 BRIEF OVERVIEW OF CLIMATE CHANGE ACTIONS IN THE COUNTY

1.4.1 Mainstreaming of NCCAP in County Actions

Isiolo was Kenya’s leading county in preparation for climate change funding, having enacted the Climate Change Act (2016); Isiolo Climate Change Fund Act (2018) Isiolo County Climate Change Finance Regulation (2019) that enabled the county to create the climate change account and allocate to it KES 30 million as the required 2% of development budget dedicated to financing climate resilience in the county in the financial years 2019/2020 and 2020/2021. The framework for climate change management was depicted as below.

Figure 2: County climate change fund

County Climate Change Fund



However, the county subsequently fell behind when key support agencies under the UK-funded Adaptation Consortium project ended. More seriously, the County Assembly reallocated the climate budget in supplementary budget for both years to meet shortfalls and urgent expenditures elsewhere.

Following intervention from the development partners different implementing agencies have once again come together to support climate resilient actions to be facilitated by the County Government, with the expectation that stakeholder engagement especially by the Technical Working Group will restore the climate resilient approach the county enjoyed.

1.4.2 Climate Change in CIDP

Isiolo's CIDP 2023-2027 proposes measures aimed to enhance climate resilience and address the impacts of climate change in the region. They include activities such as drought risk management, livelihood diversification, flood and stormwater management, landscape reseeding, capacity building of enforcement officers, afforestation, training on regenerative agriculture, implementation of climate change legislations, climate proofing of development projects, livelihood diversification, strengthening of climate change structures, implementation of environmental action plans, and capacity strengthening of environmental committee members.

These measures prioritize adaptation, mitigation, and sustainable development. By effectively managing drought risks, implementing climate-smart technologies, and diversifying livelihoods, communities can enhance their adaptive capacity and reduce vulnerability. Efforts to manage floods and stormwater help minimize damage and displacement caused by extreme weather events. Landscape reseeding contributes to ecosystem restoration and carbon sequestration, while afforestation initiatives increase forest cover and provide multiple environmental benefits.

The measures also focus on capacity building and institutional strengthening, ensuring effective enforcement of environmental regulations, and mainstreaming climate change considerations into local governance. Climate proofing of development projects ensures infrastructure resilience, and the

implementation of climate change legislations provides a legal framework for climate action. Additionally, the actions promote the integration of environmental and climate change considerations into decision-making processes and encourage collaboration among stakeholders. These efforts collectively contribute to building climate resilience, protecting the environment, and fostering sustainable development in the region.

1.4.3 Other key climate actions/strategies in the County

National Disaster Management: Increase disaster preparedness, prevention, response and recovery

- i. Promote awareness, coordination, mainstreaming and implementation of Disaster Risk Reduction concepts and measures and National Drought Emergency Fund as per DRM policy 2021
- ii. Mobilization of resources for disaster preparedness, prevention, response and recovery.
- iii. Provision of timely and reliable multi-hazard early warning information
- iv. Development and operationalization of multi-hazard contingency plan
- v. Operationalization of emergency fund in line Emergency Fund Act 2019 and NDEF
- vi. Initiate Monitoring, evaluation, accountability and learning of disaster preparedness and response actions.

Disaster risk awareness, preparedness and management

- i. Stakeholders sensitized on Sendai Framework Disaster Risk Reduction & Ending Drought Emergencies frameworks.
- ii. DRM priorities mainstreamed in annual sectors plans.
- iii. DRM policy Operationalized.
- iv. vulnerability and multi-hazard assessment and mapping conducted.
- v. Multi-Hazard contingency plan developed.
- vi. Climate, Weather and drought early warning systems strengthened.

Coordination, Training and Capacity development

- i. County DRR strengthened.

Increasing the share of renewable energy in the energy mix

- ii. Equipping of all Government institutions and facilities with solar energy technologies
- iii. Adoption of solar street light
- iv. Using and encouraging of Clean cooking technologies and fuels in the county
- v. Public private partnerships on green energy initiatives in the County

Women, Leadership and Governance

- i. Women trained in leadership trained on leadership and public participation.
- ii. Women participation in decision making.

2.0 Policy Environment

2.1 NATIONAL POLICY CONTEXT

2.2.1 The National Perspective

Kenya is highly vulnerable to the impacts of climate change due to its diverse ecosystems, dependence on climate-sensitive sectors, and high levels of poverty and inequality. The updated NDC states that Kenya is losing between 3 to 5% GDP annually due to climate impacts across the economy.

The main impacts of climate change on Kenya can be observed across various sectors and ecosystems, including:

1. **Agriculture and Food Security:** Climate change poses significant risks to Kenya's agriculture, which is a vital sector for the country's economy and food security. Changing rainfall patterns, increased frequency and intensity of droughts, and rising temperatures affect crop yields, livestock productivity, and water availability. This leads to reduced agricultural productivity, food shortages, and increased vulnerability for farming communities.
2. **Water Resources:** Kenya's water resources are under pressure due to changing precipitation patterns and increased evaporation rates. Climate change exacerbates water scarcity, especially in arid and semi-arid regions, impacting drinking water supply, irrigation for agriculture, hydropower generation, and ecosystems that depend on water availability.
3. **Ecosystems and Biodiversity:** Climate change affects Kenya's unique ecosystems, including forests, grasslands, and coastal areas. Rising temperatures, changing rainfall patterns, and more frequent extreme weather events contribute to habitat degradation, biodiversity loss, and increased vulnerability of species. Coastal areas are particularly susceptible to sea-level rise, leading to coastal erosion, saline intrusion, and threats to coastal communities.
4. **Human Health:** Climate change has direct and indirect impacts on human health in Kenya. Increased temperatures can exacerbate heat-related illnesses, while changes in rainfall patterns and temperature can influence the spread of vector-borne diseases such as malaria and dengue fever. Water scarcity and poor sanitation conditions also contribute to health risks, including waterborne diseases.
5. **Energy and Infrastructure:** Climate change impacts the energy sector, primarily hydropower generation, which is susceptible to variations in rainfall patterns and water availability. Additionally, extreme weather events like storms and floods can damage infrastructure, including roads, bridges, and buildings, leading to disruptions in transportation and communication systems.
6. **Livelihoods and Poverty:** Climate change disproportionately affects vulnerable populations in Kenya, exacerbating poverty and inequality. Rural communities dependent on agriculture and natural resources are particularly vulnerable to climate-related risks. Loss of livelihoods, food insecurity, and increased poverty levels are common consequences of climate change impacts.

Addressing the impacts of climate change in Kenya requires comprehensive adaptation and mitigation

strategies. This includes promoting climate-resilient agriculture, sustainable water resource management, conservation of ecosystems and biodiversity, improving public health systems, diversifying energy sources, and implementing climate-smart infrastructure and urban planning. International collaboration, financial support, and technology transfer are crucial to support Kenya's efforts in building climate resilience and achieving sustainable development in the face of climate change.

The National Climate Change Action Plan (NCAAP) identifies seven priority climate action areas and outlines adaptation and mitigation actions within each area. Additionally, enabling actions are identified to address the policy and regulatory environment, capacity building and knowledge management, technology and innovation, climate finance, and measurement, reporting, and verification. These actions provide guidance to the national and county governments, private sector, civil society, and other stakeholders involved in climate change efforts.

Table 1: NCCAP 2018-2022 Priority Areas

SO #	NCCAP2018-2022 Priority area	Actions required
1.	Disaster Risk Management: Reduce risks to communities and infrastructure resulting from climate-related disasters such as droughts and floods	<ul style="list-style-type: none"> ● Increase number of households and entities benefiting from devolved adaptive services ● Improve ability of people to cope with drought ● Improve ability of people to cope with floods and increase resilience of infrastructure ● Improve coordination and delivery of disaster risk management activities to effectively deal with drought, floods, landslides, disease outbreaks, and other disasters
2.	Food and Nutrition Security: Increase food and nutrition security by enhancing productivity and resilience of the agricultural systems in as much of a low-carbon manner as possible	<ul style="list-style-type: none"> ● Improve crop productivity through the implementation of climate- smart actions ● Improve crop productivity by increasing the acreage under efficient irrigation ● Increase productivity in the livestock sector through implementation of climate-smart actions ● Enhance productivity in the fisheries sector through implementation of climate-smart actions ● Diversify livelihoods to adjust to a changing climate.
3.	Water and the Blue Economy: Enhance resilience of the Blue Economy and water sector by ensuring access to and efficient use of water for agriculture,	<ul style="list-style-type: none"> ● Increase annual per capita water availability through the development of water infrastructure ● Climate proof water harvesting and water storage

	manufacturing, domestic, wildlife, and other uses	<p>infrastructure, and</p> <ul style="list-style-type: none"> ● improve flood control ● Increase affordable water harvesting-based livelihood programmes ● Promote water efficiency (monitor, reduce, re-use, and recycle) ● Improve access to good quality water ● Improve climate resilience of coastal communities ● Climate proof coastal infrastructure
4.	Forestry, Wildlife and Tourism: Increase Forest cover to 10% of total land area; rehabilitate degraded lands, including rangelands; increase resilience of the wildlife and tourism sector	<ul style="list-style-type: none"> ● Afforest and reforest degraded and deforested areas in Counties ● Reduce deforestation and forest degradation ● Restore degraded landscapes (ASALs and rangelands) ● Promote sustainable timber production on privately-owned land ● Conserve land areas for wildlife
5.	Health, Sanitation and Human Settlements: Mainstream climate change adaptation into the health sector; increase the resilience of human settlements, including improved solid waste management in urban areas	<ul style="list-style-type: none"> ● Reduce the incidence of malaria and other vector-borne diseases that increase with changes in climate ● Promote recycling to divert collected waste away from disposal sites ● Climate proof landfill sites ● Control flooding in human settlements ● Promote green buildings
6.	Manufacturing: Improve energy and resource efficiency in the manufacturing sector	<ul style="list-style-type: none"> ● Increase energy efficiency ● Improve water use and resource efficiency ● Optimise manufacturing and production processes ● Promote industrial symbiosis in industrial zones
7.	Energy and Transport: Ensure an electricity supply mix based mainly on renewable energy that is resilient to climate change and promotes energy efficiency;	<ul style="list-style-type: none"> ● Promote the transition to clean cooking with alternative clean fuels, such as: LPG, ethanol and other clean fuels in urban areas; and, clean biomass (charcoal and wood) cookstoves or other alternatives in rural areas

	<p>encourage the transition to clean cooking that reduces the demand for biomass; Establish efficient, sustainable world-class transport systems and logistic services that can withstand the expected impacts of climate change</p>	<ul style="list-style-type: none"> ● Increase renewable energy for electricity generation that is climate resilient and accounts for needs of rural areas ● Increase captive renewable energy generation capacity ● Improve energy efficiency and energy conservation ● Climate proof energy infrastructure
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2.2.2 National Legal and Policy Framework

The Constitution of Kenya (2010) created the devolved system of government comprised of the National Government and 47 County Governments. The concept of devolution goes beyond mere decentralization of government services, providing a form of self-governance at the local level and a process of equitable sharing of resources. Article 42 provides for the right to a clean and healthy environment for every Kenyan, which includes the right to have the environment protected for the benefit of present and future generations. The Fourth Schedule (Part 2) of the Constitution, requires County Government management in key sectors relevant for climate change such as agriculture, soil and water conservation, forestry, water and sanitation, and health. County Governments have a key role in implementing key provisions outlined in the constitution as well as the policy framework on climate change.

The Climate Change Act (2016) is a national legislation that enhances Kenya's response to climate change and establishes mechanisms and measures for achieving low-carbon, climate-resilient development. It mandates the development of the National Climate Change Action Plan (NCCAP), to mainstream climate change considerations into sector functions and County Integrated Development Plans, in alignment with the Constitution of Kenya (2010). This approach recognizes that climate change is a shared responsibility between the national and county governments. The Climate Change Act, 2016, as set out in Chapter 19 of the Act, is dedicated to County Governments and states:

19. Mainstreaming climate change actions into County Government function

(1) A county government shall, in performance of its functions, integrate and mainstream climate change actions, interventions and duties set out in this Act, and the National Climate Change Action Plan into various sectors.

(2) A county government shall, in development, updating and approval of the County Integrated Development Plan, and the County Sectoral Plans mainstream the implementation of the National Climate Change Action Plan, taking into account national and county priorities.

The Act also establishes the Climate Change Fund, a financing mechanism aimed at supporting priority climate change actions and interventions. It provides the necessary financial resources to implement climate-related initiatives effectively. The NCCAP 2018-2022 is a five-year plan designed to help Kenya adapt to climate change, reduce greenhouse gas emissions, and achieve low-carbon, climate-resilient development while advancing broader development goals. It builds upon the first action plan (2013-2017), aligns with the Climate Change Act (2016), and serves as a framework for fulfilling Kenya's Nationally Determined Contribution (NDC) to the Paris Agreement.

A key focus of the NCCAP is the promotion of sustainable development and prioritization of adaptation efforts, with particular attention to enhancing the climate resilience of vulnerable groups. This includes women, youth, persons with disabilities, and marginalized and minority communities. The plan recognizes their unique vulnerabilities and aims to empower them to cope with climate change impacts effectively.

To ensure inclusivity and stakeholder participation, the development of the NCCAP involved extensive consultations with over 1,000 stakeholders, including representatives from Parliament, national and county governments, civil society organizations, private sector entities, youth groups, women's groups, and marginalized communities such as persons with disabilities, pastoralists, forest resource users, and fisher communities.

3.0 Priority Climate Change Actions

3.1 IDENTIFICATION OF STRATEGIC CLIMATE ACTION PRIORITIES IN THE PCRA

Table 2: Strategic climate action priorities in the PCRA

Ward	Risk/Hazard	Livelihood/Economic System Affected	Proposed Climate Resilience Strategies	Stakeholder Group to Apply the Strategy
Cherab	<ul style="list-style-type: none"> • Drought • Resource-based conflict • Invasive species 	<ul style="list-style-type: none"> ● Agriculture – Livestock production ● Water 	<p>Short-Term</p> <ul style="list-style-type: none"> ● Awareness creation on rangeland management with respect to the grazing patterns to sustainably manage the available forage ● Training on water management and conservation techniques including water harvesting and storage ● Providing feeds on time and supporting the communities in restocking ● Timely livestock offtakes to reduce the temptation of cattle rustling <p>Mid-Term</p> <ul style="list-style-type: none"> ● Construction of boreholes ● Construction of dams to harvest stormwater during the rainy season. <p>Long-Term</p> <ul style="list-style-type: none"> ● Engaging NPR and building more police posts ● Operationalization of the national propis management strategy including allowing members of the communities to harvest the invasive species for can charcoal production to improve their livelihoods 	<ul style="list-style-type: none"> ● National government agencies including NMDA ● County Government ● CSOs ● Private sector actors ● Development partners including USAID and WFP ● NPR

Chari	Drought Floods Resource-based conflict	Agriculture – Farming and Livestock production Trade Water	<p>Short-Term</p> <ul style="list-style-type: none"> ● Enhancing offtake and restocking of livestock ● Fodder farming and preservation of local grass ● Enhancing the effectiveness of rangeland management <p>Mid-Term</p> <ul style="list-style-type: none"> ● Increasing the number of water sources in strategic community grazing areas ● Enhancing security including coordinating with the local community structure ● Commercialization of the livestock industry through local investments in a tannery, etc. ● Enhance conflict management and peace initiatives <p>Long-Term</p> <ul style="list-style-type: none"> ● Behavioural transformation to catalyse uptake of alternative Income Generating Activities (IGAs). These could include, poultry farming, fish farming, kitchen gardening, beekeeping fodder farming, and organic manure harvesting. ● Introduction of irrigation schemes along the river ● Investing in water harvesting and storage including the construction of water pans and dams 	<ul style="list-style-type: none"> ● National government through the various agencies ● County government ● Development partners including WFP and USAID through its Nawiri programme ● CSOs including World Vision and Mercy Corps, Kenya Red Cross, and Impact Kenya
Oldonyiro	Land Degradation Drought Invasive	Agriculture – Farming and Livestock production Trade	<p>Short-Term</p> <ul style="list-style-type: none"> ● Awareness creation about the risks of climate change and hazards. ● Providing social safety nets, 	<ul style="list-style-type: none"> ● National Government agencies including NDMA ● County

	<ul style="list-style-type: none"> Plant Species Poverty Poor infrastructure Poor health and malnutrition 	<p>Water</p>	<p>such as cash transfers and food assistance, to most at-risk households</p> <ul style="list-style-type: none"> ● Developing and implementing effective early warning systems to help communities to better prepare for and respond to climate change hazards. ● Developing community-based emergency preparedness and response plans ● Improving water management systems to help communities cope with the impacts of droughts and floods. <p>Mid-Term</p> <ul style="list-style-type: none"> ● Diversifying livelihoods sources to include crop cultivation, fish farming, poultry keeping, beekeeping and other climate-resilient agricultural practices ● Promoting sustainable land use practices, such as conservation agriculture and agroforestry to help increase soil moisture, reduce erosion and enhance soil fertility ● Adoption of Disaster Risk Reduction (DRR) measures, such as evacuation plans during emergencies such as floods ● Strengthening community capacity training. This should focus on among others, climate change adaptation, disaster risk reduction, and sustainable resource management. <p>Long-Term</p> <ul style="list-style-type: none"> ● Afforestation and 	<p>Government</p> <ul style="list-style-type: none"> ● Development Partners including WFP, FAO and USAID through its NAWIRI programme ● CSOs including Action Aid, World Vision, ACF, CESVI, ● Local CBOs including MID P and NRT
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			<p>reafforestation to increase forest coverage</p> <ul style="list-style-type: none"> ● Investing in improved infrastructure, such as climate smart irrigation schemes and roads to improve livelihoods and enhance market access respectively. 	
Burat	<p>Drought</p> <p>Resource-based conflict</p> <p>Disease Outbreak</p>	<p>Agriculture – Farming and Livestock production</p> <p>Trade</p> <p>Water</p>	<p>Short-Term</p> <ul style="list-style-type: none"> ● Effective and sustainable offtake of livestock to reduce losses ● Supply of livestock feeds during the dry season ● Mapping of rangelands and ensuring their effective management ● Capacity building of communities on the effects of climate change including climate-friendly and sustainable economic practices <p>Mid-Term</p> <ul style="list-style-type: none"> ● Effective engagement of the NPR to mitigate the occurrence of resource-based conflicts ● Effective management of water points to avert resource-based conflict <p>Long-Term</p> <ul style="list-style-type: none"> ● Increasing the number of water sources in the ward including boreholes and dams ● Enhancing community uptake of alternative IGAs such as climate-smart farming ● Supporting the community in water harvesting and storage for the purpose of meeting 	<ul style="list-style-type: none"> ● National government through the various agencies ● County government ● Development partners including WFP and USAID through its Nawiri programme ● CSOs including World Vision and Mercy Corps, Kenya Red Cross, and Impact Kenya

			domestic water needs and crop production	
Bulapes a	Drought Flash floods Resource-based conflict	Agriculture – Farming and Livestock production Water Trade Infrastructure	<p>Short-Term</p> <ul style="list-style-type: none"> ● Enhancing restocking of livestock ● Easing access to livestock feeds during the dry seasons ● Awareness creation of the effects of climate change and adaptation and mitigation solutions ● Adaptation of interventions to the local knowledge and practices <p>Mid-Term</p> <ul style="list-style-type: none"> ● Construction of gabions to prevent soil erosion ● Coordinating with the local community security structures to prevent conflict ● Enhancing the effectiveness of existing and new conflict management initiatives <p>Long-Term</p> <ul style="list-style-type: none"> ● Investing in water harvesting and storage including the construction of dams. These will be essential in the harvesting of surface runoff ● Behavioural transformation to catalyze uptake of alternative IGAs 	<ul style="list-style-type: none"> ● National government through the various agencies ● County government ● Development partners including WFP and USAID through its Livestock Market Support (LMS) programme ● CSOs including the Red Cross Society, Peace Link, Mid-P, Seed, Mercy Corps, CREW, Call for Change, World Vision, Action Aid, and BOMA
Kinna	Drought Floods Disease outbreaks Human-Wildlife conflict	Agriculture – Farming and Livestock production Water Trade Infrastructure	<p>Short-Term</p> <ul style="list-style-type: none"> ● Distribution of treated mosquito nets ● Continuation and enhancement of the cash transfer programme with a focus on most at-risk groups ● Providing livestock feeds to 	<ul style="list-style-type: none"> ● National government through the various agencies including KWS, KERRA and NDMA ● County

	Resource-based conflict	Tourism	<p>community members during the dry seasons</p> <ul style="list-style-type: none"> ● Awareness creation of the effects of climate change including the need for efficient water management ● Rehabilitation of the giro dima drainage systems ● Prohibition of charcoal burning ● Strategic engagement of the NPR to manage resource-based conflicts ● Penalization of negligent contractors vis-à-vis road, bridge and drainage construction <p>Mid-Term</p> <ul style="list-style-type: none"> ● Establishing and strengthening community inter-county peace forums ● Creation of an afforestation programme ● Restoration of old and construction of more gabions to control floods ● Promoting the uptake of alternative IGAs by communities through awareness creation and capacity building ● Introduction of a livestock vaccination programme ● Development of a compensation plan for community members who are victims of human-wildlife conflict <p>Long-Term</p> <ul style="list-style-type: none"> ● Investing in water sources through the construction of boreholes especially in Duse, Kulamawe, Kina Abarseti, 	<p>government</p> <ul style="list-style-type: none"> ● Development partners including WFP and USAID ● CSOs including World Vision,
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			<p>Kina North, and Qurquchi</p> <ul style="list-style-type: none"> ● Construction of drainage systems in flood-prone areas 	
Wabera	<p>Drought</p> <p>Floods</p> <p>Disease outbreaks</p> <p>Human-Wildlife conflict</p>	<p>Water</p> <p>Trade</p> <p>Infrastructure</p> <p>Education</p> <p>Youth</p> <p>Agriculture – Farming and Livestock production</p>	<p>Short-Term</p> <ul style="list-style-type: none"> ● Awareness creation and education communities on the climate change context including suitable adaptation and mitigation mechanisms that they can contribute to. ● Promote climate-smart agriculture practices that are sustainable, adaptive and resilient, such as conservation agriculture, agroforestry, and mixed farming systems ● Create social safety nets, such as cash transfers and food assistance for most at-risk groups in the community ● Community capacity building on effective water management including harvesting and storage of water, to cope with the impacts of drought <p>Mid-Term</p> <ul style="list-style-type: none"> ● Developing and implementing effective early warning systems for extreme weather events to help communities better prepare for and respond to climate change hazards. ● Developing participatory community-based emergency preparedness and response plans ● Implementation of a tree planting programme to curb desertification and enhance carbon sequestration. <p>Long-Term</p>	<ul style="list-style-type: none"> ● National government through the various agencies including KENHA, KURA, KFS and NDMA ● County government ● Development partners including WFP and USAID ● CSOs including VSF Kenya, Helping Hand International, Hope International, Community Empowerment Environmental Development (CEED), and Isiolo Conservationists Trust (ICT) ● Private sector actors including the Kenya Climate Innovation Center (KCIC)

			<ul style="list-style-type: none"> ● Investing in improved infrastructure including terraces, gabions and drainage systems to mitigate the adverse effects of floods ● Setting up of large-scale agriculture production systems that will contribute to increased access to food, job creation especially among the youth and waste management through recycling ● Implementation of DRR measures that will enable the anticipation of and quick response to climate hazards 	
Garbatulla	<ul style="list-style-type: none"> ● Drought ● Floods ● Resource-based Conflict ● Invasive Plant Species ● Disease outbreaks 	<p>Agriculture – Farming and Livestock production</p> <p>Water</p> <p>Trade</p> <p>Health</p> <p>Education</p>	<p>Short-Term</p> <ul style="list-style-type: none"> ● Destocking and effective restocking of livestock ● Fodder farming and preservation to cushion the community against the effects of extreme drought ● Coordinated and effective rangeland management in consultation with community leaders <p>Mid-Term</p> <ul style="list-style-type: none"> ● Increasing the number of boreholes in the common grazing areas especially where conflict is common ● Enhancing security including coordinating with the local community leaders ● Commercialization of the livestock industry through local investments in a tannery, etc. ● Reseeding of rangelands to ensure their sustainability <p>Long-Term</p>	<ul style="list-style-type: none"> ● National government through the various agencies ● County government ● Development partners including WFP and USAID through its Nawiri programme ● CSOs including World Vision and Mercy Corps, Kenya Red Cross, and Impact Kenya

			<ul style="list-style-type: none"> ● Behavioral transformation to catalyse uptake of alternative Income Generating Activities (IGAs). These could include, poultry farming, fish farming, kitchen gardening, beekeeping fodder farming, and organic manure harvesting. ● Introduction of irrigation schemes along River Ewaso Ng'iro. ● Investing in water harvesting and storage including the construction of water pans and dams ● Increased implementation and follow up on peace-building initiatives to ensure community cohesion in the long-term 	
Sericho	<ul style="list-style-type: none"> ● Drought ● Poverty ● Poor infrastructure ● Insecurity in the form of resource-based conflicts and banditry ● Livestock diseases ● Floods 	<p>Water</p> <p>Agriculture – Farming and Livestock production</p> <p>Health</p> <p>Infrastructure</p> <p>Trade</p>	<p>Short-Term</p> <ul style="list-style-type: none"> ● Formation and support of Dedha committee in charge of grazing land management and dispute resolution ● Effective and sustainable offtake of livestock to reduce losses ● Supply of livestock feeds during the dry season ● Establishment and effective implementation of rangeland management plans ● Capacity building of communities on the effects of climate change including climate-friendly and sustainable economic practices <p>Mid-Term</p> <ul style="list-style-type: none"> ● Effective engagement of the NPR to mitigate the occurrence of resource-based conflicts ● Effective management of water points to avert resource-based 	<ul style="list-style-type: none"> ● National government through the various agencies ● County government ● Development partners including WFP and USAID through its Nawiri programme ● CSOs including World Vision and Mercy Corps, VSO Kenya, Star of Hope, Kenya Red Cross, and Sericho Community Conservancy

			<p>conflict</p> <p>Long-Term</p> <ul style="list-style-type: none"> ● Construction of bridges, gabions and drainage systems to minimise the effect of flood water ● Increasing the number of water sources in the ward including boreholes and dams ● Enhancing community uptake of alternative IGAs such as climate-smart farming ● Supporting the community in water harvesting and storage for the purpose of meeting domestic water needs and crop production. 	
Ngaremar a	<ul style="list-style-type: none"> ● Drought ● Floods ● Resource-based Conflict ● Poverty 	<p>Agriculture – and Farming Livestock production</p> <p>Education</p> <p>Health</p> <p>Trade</p> <p>Water</p>	<p>Short-Term</p> <ul style="list-style-type: none"> ● Awareness creation about the risks of climate change and hazards. ● Providing social safety nets, such as cash transfers and food assistance, to most at-risk groups ● Effective implementation of early warning systems to help communities to better prepare for and respond to climate change hazards. ● Promote good water management practices such as rainwater harvesting and storage. ● Enhancing the effectiveness of community dispute resolution mechanisms <p>Mid-Term</p> <ul style="list-style-type: none"> ● Diversifying livelihoods sources including supporting MSMEs owned by women and the youth ● Promoting sustainable land use practices, such as conservation 	<ul style="list-style-type: none"> ● National Government agencies including NDMA ● County Government ● Development Partners including WFP, FAO and USAID through its NAWIRI programme ● CSOs including Action Aid, World Vision, ACF, CESVI, ● Local CBOs including MID P and NRT

			<p>agriculture and agroforestry</p> <ul style="list-style-type: none"> ● Strengthening community capacity training. This should focus on among others, climate change adaptation, disaster risk reduction, and sustainable resource management. <p>Long-Term</p> <ul style="list-style-type: none"> ● Afforestation and reforestation to increase forest coverage ● Promoting the adoption of climate-smart agriculture to improve livelihoods and enhance the conservation of natural resources including rivers and the soil 	
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3.2 PRIORITY COUNTY CLIMATE CHANGE ACTIONS

3.2.1 Major Livelihood strategies to reduce climate change vulnerability

Table 3: Major Livelihood strategies to reduce climate change vulnerability

Ward	Main Risk/Hazard	Livelihood Strategies to be adopted	Key Stakeholders
Cherab	Drought, Resource-based conflict	Rangeland management, water conservation, timely livestock off-takes, construction of boreholes, engagement with NPR	National Government Agencies, County Government, CSOs, Private sector actors, Development partners
Chari	Drought, Floods, Resource-based conflict	Livestock off-takes, fodder farming, water source increase, livestock industry commercialization, alternative income-generating activities, irrigation schemes	National Government Agencies, County Government, Development partners, CSOs
Oldonyiro	Land Degradation, Drought, Invasive Plant Species, Poverty, Poor infrastructure, Poor health and malnutrition	Risk awareness, social safety nets, early warning systems, emergency preparedness plans, sustainable land use, disaster risk reduction, afforestation, improved infrastructure	National Government Agencies, County Government, Development partners, CSOs, Local CBOs
Bulapesa	Drought, Floods, Resource-based conflict	Livestock off-takes, livestock feed supply, awareness creation, gabion construction, water harvesting, alternative income-generating activities	National Government Agencies, County Government, Development partners, CSOs
Kinna	Drought, Floods, Disease outbreaks, Human-	Mosquito net distribution, cash transfers, livestock feed supply, awareness	National Government Agencies, County

Ward	Main Risk/Hazard	Livelihood Strategies to be adopted	Key Stakeholders
	Wildlife conflict	creation, drainage rehabilitation, engagement with NPR, infrastructure improvement	Government, Development partners
Wabera	Drought, Floods, Disease outbreaks, Human-Wildlife conflict	Climate-smart agriculture, social safety nets, early warning systems, afforestation, improved infrastructure	National Government Agencies, County Government, Development partners, CSOs, Private sector actors
Garbatulla	Drought, Floods, Resource-based conflict, Invasive Plant Species, Disease outbreaks	Livestock off-takes, fodder farming, borehole construction, security enhancement, livestock industry commercialization, alternative income-generating activities, water harvesting and storage	National Government Agencies, County Government, Development partners, CSOs
Sericho	Drought, Poverty, Poor infrastructure, Insecurity in the form of resource-based conflicts and banditry, Livestock diseases, and Floods	Rangeland management, timely offtake of livestock, effective WRM including rainwater harvesting and storage, borehole construction, alternative IGAs, and enhancing security Capacity building of communities	National Government Agencies, County Government, Development partners, CSOs
Ngarema	Drought, Floods, Resource-based Conflict, and Poverty	Early warning systems, effective WRM practices, community dispute resolution mechanisms, livelihoods diversification, sustainable land use practices, afforestation and reforestation, and climate-smart agriculture	National Government Agencies, County Government, Development partners, CSOs

This revised table highlights the unique risks and hazards faced by each ward, along with the corresponding livelihood strategies to be adopted. It also identifies the key stakeholders involved in implementing the proposed resilience measures. By consolidating and streamlining the information, the table provides a concise overview of the main challenges and proposed actions for each ward.

3.2.2 Implementation Plan for the CCAP

Table 4: CCAP Implementation Plan

Ward	Priority Actions				Duration					
	Nature	Scope	Activities	Specific Tasks	2023	2024	2025	2026	2027	Timeline
					Budget(m)					Total
Cherab	Short-Term	Rangeland management	Development of a rangeland management plan	Social and environmental baseline survey mapping, development of a GIS database of plant infestation and grazing area maps, and plan development to include mechanisms for managing invasive plant species	136	142.8	149.9	157.4	165.3	751.4
			Formation of ward rangeland management committee	Stakeholder mapping, formation of committee, orientation, and capacity building of committee members						
			Capacity building of communities on effective rangeland management practices	Development of a training manual and guidelines, training of ToTs, tracking change						
	Mid-Term	WRM	Training communities on good WRM practices	Development of a training manual and guidelines, training of communities, tracking change						
			Construction of boreholes	Water resource tracking, infrastructure designing, and construction including piping and water access points						
	Long-Term		Construction of dams for stormwater harvesting	Landscape mapping infrastructure designing, and construction including piping and water access points						
	Short-Term	Drought management	Livestock feeding program	Risk assessment including examination of scope and impact,						

			Livestock offtake	design of a livestock feeding and offtake plan, and operationalization of the plan						
Chari	Short-Term	Rangeland management	Development of a rangeland management plan	Social and environmental baseline survey, development of a GIS database of plant infestation and grazing area maps, and plan development to include fodder farming and preservation of local grass						
	Long-Term		Commercialization of the livestock industry	Construction and operationalization of a tannery						
	Long-Term	WRM	Increasing the number of water sources in strategic community grazing areas	Construction of water pans and a dam to enhance rainwater harvesting and storage						
	Mid-Term		Introduction of irrigation schemes along the river	Feasibility study to determine viability, designing of the irrigation system, and capacity building of community on irrigated production.						
	Short-Term	Drought Management	Livestock offtake	Risk assessment including examination of scope and impact, design of a livestock offtake plan, and operationalization of the plan						
Oldonyiro	Short-Term	Drought Management	Providing social safety nets	Mapping of most at-risk groups, and development of a social safety program to include cash transfers and food assistance						
	Mid-Term		Developing and implementing an early warning system	Landscape mapping including the development of a risk index and map, and the design of a climate risk preparedness and response plan						

	Mid-Term	Rangeland Management	Livelihood diversification	Baseline study to determine feasible economic activities and climate-resilient production, capacity building of communities on IGAs, providing linkages of communities with financial institutions and markets for products						
	Long-Term		Promoting sustainable land use practices	Landscape mapping including identifying resources, introduction of conservation agriculture & agroforestry, and impact assessment						
Burat	Short-Term	Rangeland management	Development of a rangeland management plan	Social and environmental baseline survey and rangeland mapping, development of a GIS database of grazing area maps, and plan development to include fodder farming and preservation of local grass						
			Capacity building of communities on effective rangeland management practices	Development of a training manual, training of the community on good rangeland management practices, and tracking change						
	Long-Term	WRM	Increasing the number of water sources in the ward	Construction of boreholes and dam to enhance rainwater harvesting and storage						
	Mid-Term		Capacity building of communities on good WRM practices	Development of a training manual, and training of the community on good WRM practices including climate-smart agriculture						
Short-Term	Drought Management	Accelerating uptake of IGAs	Conducting a feasibility study, development of, and implementation of a capacity building program, and providing							

				linkages of communities to key stakeholders including financial institutions						
Bulapesa	Short-Term	Drought management	Livestock feeding program	Risk assessment including examination of scope and impact, design of a livestock feeding and offtake plan, and operationalization of the plan						
	Mid-Term		Livestock offtake							
			Accelerating uptake of IGAs	Conducting a feasibility study, development of, and implementation of a capacity building program, and providing linkages of communities to key stakeholders including financial institutions						
	Long-Term	WRM	Construction of dams for stormwater harvesting	Landscape mapping infrastructure designing, and construction including piping and water access points						
			Construction of gabions and drainage systems	Baseline survey including risk levels assessment, design of drainage systems including connection to water collection points such as dams						
Kinna	Mid-Term	Drought management	Provision of livestock feeds	Risk assessment including examination of scope and impact, design and operationalization of a livestock feeding plan						
	Short-Term		Providing social safety nets	Mapping of most at-risk groups, and development of a social safety program to include cash transfers and food assistance						
	Short-Term	WRM	Capacity building of communities on good WRM practices	Development of a training manual, and training of the community on good WRM practices including climate-smart agriculture						

	Long-Term		Stormwater management	Rehabilitation of the giro dima drainage system, and creation of linkages to water storage facilities						
	Long-Term		Construction of boreholes especially in Duse, Kulamawe, Kina Abarseti, Kina North, and Qurquchi	Landscape mapping infrastructure designing, and construction including piping and water access points						
	Mid-Term	Rangeland Management	Promoting sustainable land use practices	Landscape mapping including identifying resources, introduction of conservation agriculture & agroforestry, and impact assessment						
	Mid-Term		Livelihood diversification	Baseline study to determine feasible economic activities and climate-resilient production, capacity building of communities on IGAs, providing linkages of communities with financial institutions and markets for products						
Wabera	Short-Term	Drought Management	Providing social safety nets	Mapping of most at-risk groups, and development of a social safety program to include cash transfers and food assistance						
	Mid-Term		Developing and implementing an early warning system	Landscape mapping including the development of a risk index and map, and the design of a climate risk preparedness and response plan						
				Development of a participatory community-based emergency preparedness and response plan						

	Short-Term	WRM	Capacity building of communities on good WRM practices	Development of a training manual, and training of the community on good WRM practices including climate-smart agriculture						
	Long-Term			Stormwater harvesting	Restoration of old and construction of good drainage systems and gabions and creating linkages to water storage facilities					
	Mid-Term	Rangeland Management	Afforestation	Implementation of a tree planting program to curb desertification and enhance carbon sequestration.						
	Mid-Term			Livelihood diversification	Baseline study to determine feasible economic activities and climate-resilient production, capacity building of communities on IGAs, providing linkages of communities with financial institutions and markets for products					
Garbatulla	Short-Term	Rangeland management	Development of a rangeland management plan	Social and environmental baseline survey and rangeland mapping, development of a GIS database of grazing area maps, and plan development to include fodder farming and preservation of local grass						
	Mid-Term			Reseeding of rangelands to ensure their sustainability						
				Destocking and effective restocking of livestock						
	Mid-Term			Livelihood diversification	Baseline study to determine feasible economic activities and climate-resilient production, capacity building of communities					

				on IGAs, providing linkages of communities with financial institutions and markets for products						
	Long-Term	WRM	Construction of boreholes, water pans, and a dam especially in water-scarce and conflict-prone areas	Landscape mapping infrastructure designing, and construction						
	Mid-Term		Introduction of irrigation schemes along River Ewaso Ng'iro.	Feasibility study to determine viability, designing of the irrigation system, and capacity building of community on irrigated production.						
Sericho	Short-Term	Rangeland management	Development of a rangeland management plan	Social and environmental baseline survey and rangeland mapping, development of a GIS database of grazing area maps, and plan development to include fodder farming and preservation of local grass						
	Mid-Term		Capacity building of communities on effective rangeland management practices	Development of a training manual, training of the community on good rangeland management practices, and tracking change						
			Formation of ward rangeland management committee	Stakeholder mapping, formation of committee, orientation, and capacity building of committee members						
	Short-Term	Drought Management	Livestock offtake	Risk assessment including examination of scope and impact, design of a livestock offtake plan, and operationalization of the plan						
	Long-Term	WRM	Construction of boreholes, water pans,	Landscape mapping infrastructure designing, and						

			and a dam especially in water-scarce and conflict-prone areas	construction						
			Stormwater harvesting	Construction of good drainage systems creating linkages to water storage facilities						
	Mid-Term		Enhancing water storage	Promoting rainwater harvesting by providing water storage tanks						
Ngare-Mara	Short-Term	Rangeland management	Development of a rangeland management plan	Social and environmental baseline survey and rangeland mapping, development of a GIS database of grazing area maps, and plan development to include a grazeland management approach						
	Mid-Term		Reseeding of rangelands to ensure their sustainability							
			Destocking and effective restocking of livestock							
			Control of Invasive Species (Prosopis Juliflora and Acacia reficiens)							
			Accelerating uptake of IGAs							
	Long-Term		Afforestation	Implementation of a tree planting program to curb desertification and enhance carbon sequestration.						
				Capacity building on Gum and Resin business and opportunities						
	Mid-Term		Drought Management	Developing and implementing an early warning system	Landscape mapping including the development of a risk index and map, and the design of a climate risk preparedness and response plan					
Short-term	Providing social safety nets	Mapping of most at-risk groups, and development of a social								

				safety program to include cash transfers and food assistance						
	Long-Term	WRM	Establishment of two irrigation schemes in the Ward	Feasibility study to determine viability, designing of the irrigation system, and capacity building of community on irrigated production.						
			Construction of boreholes, water pans, and a dam especially in water-scarce areas	Landscape mapping infrastructure designing, and construction						

4.0 Delivery Mechanisms for CCAP

4.1 ENABLING FACTORS

4.1.1 Enabling Policy and Regulation

The Green Incentives Framework was developed by the government to promote sustainable practices and investments in various sectors of the economy, with a focus on climate change mitigation and adaptation. The framework aims to create an enabling environment by providing incentives and support mechanisms to encourage individuals, businesses, and organizations to adopt green technologies, practices, and behaviours.

The Green Incentives Framework can support Isiolo's climate actions in several ways:

1. **Financial Incentives:** incentives such as grants, subsidies, and tax incentives to support climate-friendly initiatives. Isiolo County can leverage these incentives to attract investments in renewable energy projects, sustainable agriculture, and climate-resilient infrastructure.
2. **Capacity Building and technical assistance** to enhance knowledge and skills in green technologies and practices. Isiolo can benefit from capacity-building programs to train local communities, farmers, and government officials on climate-smart agriculture, renewable energy systems, and sustainable land management practices.
3. **Establishment of market-based mechanisms** such as carbon trading and green certification schemes. Isiolo can explore opportunities to participate in carbon offset projects, which can generate additional revenue streams for sustainable initiatives and contribute to climate mitigation efforts.
4. **Public-Private Partnerships** to promote green investments. Isiolo can engage with private sector entities to develop renewable energy projects, sustainable tourism initiatives, and climate-resilient infrastructure through collaborative efforts that leverage the expertise and resources of both sectors.
5. **Policy Alignment:** The Green Incentives Framework aligns with national climate change policies and strategies, providing a cohesive approach to addressing climate challenges. Isiolo can align its climate action plans with the framework, ensuring coherence and integration with national priorities and objectives.

By utilizing the Green Incentives Framework, Isiolo County can unlock financial resources, technical expertise, and market opportunities to support its climate actions. The framework provides a structured approach to mobilize investments, build capacity, and create an enabling environment for sustainable development in Isiolo, ultimately contributing to the county's resilience to climate change and fostering a green and low-carbon economy.

4.1.2 Mainstreaming in the CIDP

The activities below have been extracted from the draft CIDP 2023-2027 that contribute to enhancing climate resilience and addressing climate change impacts in the specific context of the region. They encompass a range of measures aimed at promoting adaptation, mitigation, and sustainable development.

1. **Efforts to improve adaptive capacity and manage drought risk** involve comprehensive planning and budgeting for effective drought response. This includes implementing strategies for drought risk reduction, early warning systems, and drought contingency plans. By strengthening resilience and adaptive capacity, communities can better withstand climate-related hazards and natural disasters. Livelihood diversification and the adoption of climate-smart technologies play

a crucial role in this regard, as they enable communities to adapt to changing climatic conditions and reduce their vulnerability.

2. Another important aspect is the management of floods and stormwater. This involves developing appropriate infrastructure and drainage systems to mitigate the impacts of heavy rainfall and floods. By effectively managing stormwater, the risks of property damage, displacement, and loss of life can be minimized.
3. Landscape reseeding is a valuable approach for restoring degraded ecosystems and enhancing their resilience. It involves the establishment of native vegetation cover in areas affected by degradation or deforestation. This not only helps in mitigating climate change by sequestering carbon dioxide but also contributes to biodiversity conservation and the provision of ecosystem services.
4. Equipping and capacity building of enforcement officers is essential for effective implementation and enforcement of environmental and climate-related regulations. By providing the necessary resources, training, and support, enforcement officers can ensure compliance with environmental laws and regulations, leading to better environmental protection and sustainable development.
5. Promoting afforestation through the establishment of tree nurseries in all sub-counties is a crucial step towards increasing forest cover. Afforestation initiatives contribute to carbon sequestration, conservation of biodiversity, and the provision of ecosystem services such as watershed protection and soil erosion prevention.
6. Training pastoralists on integrated landscape management and regenerative agriculture helps them adapt their traditional practices to changing climatic conditions. By adopting sustainable land management techniques, pastoralists can enhance their resilience, improve their livelihoods, and reduce their dependence on climate-sensitive activities.
7. Implementing county climate change legislations ensures that climate change considerations are mainstreamed into local governance and decision-making processes. This provides a legal framework for climate action and enables counties to develop and implement climate change adaptation and mitigation strategies.
8. Climate proofing of development projects involves integrating climate resilience measures into the planning, design, and implementation of infrastructure and development initiatives. This ensures that projects are able to withstand climate-related risks and contribute to sustainable development in the long term.
9. Diversification of livelihoods is crucial for reducing vulnerability to climate change impacts. By promoting income-generating activities that are less climate-sensitive and encouraging entrepreneurship, communities can become more resilient and less dependent on sectors that are highly susceptible to climate variability.
10. Strengthening existing county climate change structures is essential for effective coordination, implementation, and monitoring of climate action at the local level. This includes enhancing the capacity of county climate change departments, establishing clear mandates and responsibilities, and facilitating collaboration with various stakeholders.
11. Implementing the County Environmental Action Plan enables counties to address environmental challenges, including those related to climate change, through targeted actions and strategies. This involves identifying priority areas, setting goals, and implementing measures to improve environmental management and sustainability.
12. Finally, strengthening county environmental committee members enhances their capacity to contribute effectively to environmental and climate change governance. By providing training,

knowledge-sharing platforms, and resources, committee members can play a vital role in promoting environmental stewardship, awareness, and action within their respective counties.

4.1.3 Governance - Climate Change Planning Committees

In accordance with the Climate Change (2016) provisions, the main governance body on climate planning and implementation is the Steering Committee comprised of the following:

The Steering Committee shall comprise of 13 members who shall be appointed to the Committee by the Governor. The members of the Steering Committee shall be:

1. Governor or Deputy Governor as chairperson
2. Executive Committee Member for Environment as Secretary
3. Executive Committee Member in charge of the County Treasury
4. Executive Committee Member in charge of agriculture, livestock and fisheries
5. Executive Committee Member in charge of health
6. Executive Committee Member in charge of water and irrigation
7. County Drought Coordinator or the national government official for the time being responsible for coordination of drought response in the county
8. County representative of the National Environment Management Authority
9. One representative of a duly registered public benefit organizations working in the county nominated by the umbrella organization representing the largest number of public benefit organizations in the county
10. One representative of the private sector in the county nominated by the umbrella organization representing the private sector in the county
11. One representative of women in the county nominated by the umbrella organization representing the largest number of women's organizations in the county
12. One representative of youth in the county nominated by the umbrella organization representing the largest number of youth organizations in the county
13. Fund Administrator, as an ex-officio member with no voting rights

4.1.4 Climate Information Services & Climate Data Access

Isiolo county has suffered prolonged droughts, flash floods and temperature rises, exacerbating environmental degradation from poor agricultural practices, overgrazing and deforestation, compounded by climate change, that have affected food security, destroyed huge parts of the natural resource base. As part of ensuring information availability, using referenced citations propose measures to enhance Climate Information Services and Climate Data Access and ensure it is available to all stakeholders, including farmers, policymakers, and researchers as a critical public good.

To catalyze a transformative shift towards resilience in Isiolo County, a refined and systematic approach to Climate Information Services (CIS) is paramount. CIS serves as an essential fulcrum, providing pivotal information such as meticulous precipitation data, temperature variations, comprehensive drought, and floods early warning. Further, advisories on planting seasons, agro-ecological recommendations on crop suitability, and intricate guides for pastoralists in preparation for seasonal migrations in search of water and pasture are imperative [1].

Specific Components of CIS

1. Precise Weather Forecasts: Regular, accurate, and localized weather information that includes data on precipitation and temperature variations to assist in timely decision-making for both agricultural and pastoral activities [1].
2. Early Warning Systems: Detailed alerts and advisories on imminent extreme weather events like droughts and floods, allowing for adequate preparation and mitigated impacts [1].
3. Agricultural Advisories: Strategic insights on planting seasons, crop selection aligned with

climatic conditions, and optimal agricultural practices to enhance food security and sustainable agricultural development [1].

4. Pastoralist Movement Guides: Comprehensive guidelines and advisories for pastoral communities on seasonal movements to optimize water and pasture availability [1].
5. Climate Change Impact Analysis: In-depth research and analysis on the multifaceted impacts of climate change on agriculture, livestock, water resources, and human health, to engender informed adaptation and mitigation strategies [3].

Barriers to Access

Access to CIS and Climate Data in Isiolo County is hampered by a myriad of challenges. These include infrastructural inadequacies, the paucity of advanced software, and the absence of proficient means for mass communication [1]. These barriers have culminated in diminished crop yields, escalated livestock mortality, pervasive food and nutritional insecurity, and truncated income streams, profoundly impacting the resilience of the community [2].

Effective Communication Strategies

1. Simplified Visuals: Leverage accessible and user-friendly visuals, such as maps, graphs, and charts, to distill complex climatic information, enabling comprehension across diverse demographics [1].
2. FM Radio Broadcasts: Utilize local FM radio stations to disseminate weather forecasts and early warnings, reaching remote and marginalized communities effectively [1].
3. Educational Outreach: Collaborate with schools and faith-based organizations to foster climate literacy, empowering communities to comprehend and adapt to the multifaceted impacts of climate change [1].
4. NGO and Civil Society Engagement: Mobilize NGOs and civil society organizations in the strategic dissemination of climate information, focusing on vulnerable communities, and facilitating grassroots engagement and capacity building [1].

Recommendations

- Enhance Technological Infrastructure: Investment in robust and scalable technological infrastructure is crucial to augment accessibility and reliability of CIS [4].
- Integrate Indigenous Knowledge: Harmonize modern CIS with traditional knowledge and practices, allowing for a more contextualized and holistic approach to climate resilience [5].
- Strengthen Policy Frameworks: Develop and implement coherent policy frameworks that prioritize climate resilience and facilitate the mainstreaming of CIS into developmental planning and implementation [6].
- Multisectoral Collaboration: Foster synergies among government agencies, research institutions, NGOs, and local communities to facilitate knowledge exchange, research, and innovation in climate-smart agriculture.

In summary, to amplify resilience and address the dynamic climate challenges in Isiolo County, it is critical to enhance the specificity, reliability, accessibility, and applicability of CIS. By overcoming existing barriers and leveraging multisectoral collaboration and innovative communication strategies, CIS can be a transformative tool in empowering communities, guiding policymaking, and fostering sustainable development in the region. For further information pls see [1] FAO. (n.d.). "Climate Services for Food and Agriculture". <https://www.fao.org/3/i1785e/i1785e00.pdf> [2] ReliefWeb. (n.d.). "Climate Crises, Health, and Livelihoods: Unheard tales from Garfasa community in Isiolo".

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https://www.nema.go.ke/images/Docs/EIA_1840-1849/Kenya%20State%20of%20Environment%20Report%202019-2021%20final-min.pdf

4.1.5 Resilience Planning Tools

Given the compounding challenges in Isiolo, such as droughts, flash floods, and temperature rises, enhancing climate resilience necessitates a diverse array of tools and strategies attuned to the local context. Here are several proposed Climate Resilience Tools for Isiolo County:

1. Community-Based Early Warning Systems:

- Rationale: Localized early warning systems can deliver timely information on imminent climate hazards, enabling communities to take pre-emptive measures.
- Action: Collaborate with local communities to develop and maintain community-led, technology-supported early warning systems, integrating traditional knowledge and contemporary forecasting methods.

2. Sustainable Water Management Tools:

- Rationale: Efficient water management is pivotal in arid and semi-arid lands to mitigate the impacts of water scarcity.
- Action: Implement rainwater harvesting systems, develop water conservation strategies, and invest in sustainable water infrastructure such as sand dams and water pans.

3. Climate-Smart Agriculture (CSA) Practices:

- Rationale: CSA practices integrate adaptation, mitigation, and productivity, addressing the multifaceted impacts of climate change on agriculture.
- Action: Promote conservation agriculture, agroforestry, drought-resistant crops, and sustainable livestock management to enhance food security and resilience.

4. Ecosystem Restoration and Conservation:

- Rationale: Healthy ecosystems provide essential services, such as water regulation and soil fertility, crucial for resilience.
- Action: Implement afforestation and reforestation programs, promote sustainable land management, and undertake anti-desertification measures to restore degraded lands.

5. Knowledge Sharing and Capacity Building Platforms:

- Rationale: Capacity building and knowledge sharing empower communities to understand and address climate risks.
- Action: Develop training programs, workshops, and community dialogues focused on climate resilience, sustainable practices, and adaptation strategies, involving local communities, NGOs, and government agencies.

6. Resilient Livelihood Diversification:

- Rationale: Diversified livelihoods reduce dependency on climate-sensitive sectors, enhancing resilience to climate-induced shocks.
- Action: Promote alternative livelihoods, such as eco-tourism, handicrafts, and value-added agricultural products, and facilitate access to microfinance and market linkages.

7. Climate Resilient Infrastructure:

- Rationale: Infrastructure resilient to climate extremes reduces vulnerability and enhances adaptive capacity.
- Action: Design and construct climate-resilient infrastructure, such as roads, bridges, and housing, incorporating local knowledge and sustainable materials.

8. Research and Innovation:

- Rationale: Research provides insights into climate impacts and informs the development of innovative solutions.
- Action: Foster collaborations between research institutions, universities, and local communities to conduct context-specific climate research and develop innovative resilience-building solutions.

9. Policy Integration and Advocacy:

- Rationale: Integrating climate resilience into policy frameworks ensures a systematic approach to addressing climate change impacts.
- Action: Advocate for the incorporation of climate resilience into development planning, land use policies, and governance structures and promote supportive legal frameworks and policies.

10. Climate Financing Mechanisms:

Adequate financing is crucial to implement resilience-building measures effectively. Isiolo County Government in collaboration with its multiagency partnerships with NGOs and insertional organisations through for instance the County Steering Group should mobilize resources through climate funds, grants, and partnerships and develop community-based financing mechanisms to support local resilience initiatives. FLLOCA for instance is one such instrument that can also be used for training, capacity building and assisting the County to map out potential funding sources.

11. Climate Risk Insurance:

Insurance provides a financial safety net for farmers and pastoralists affected by climate-related shocks. Several leading multilateral finance institutions such as the World Bank, The African Development Bank, KfW and bilateral agencies, have engaged Kenyan insurance and banking organisations to develop and promote accessible and affordable climate risk insurance products tailored to the needs of local communities.

12. Digital Solutions and Mobile Applications:

Digital tools can enhance access to climate information and services, facilitating informed decision-making. - Develop user-friendly mobile applications providing real-time weather forecasts, agricultural advisories, and market information.

By leveraging these proposed tools and strategies in an integrated manner, it is plausible to enhance the adaptive capacity and resilience of communities in Isiolo County, ultimately fostering sustainable development amidst the evolving climate scenario.

4.1.6 Measurement, Reporting and Verification

Effective Measurement, Reporting, and Verification (MRV) are pivotal to securing climate finance, demonstrating accountability, and ensuring the efficacy of climate action. The MRV process necessitates robust methodologies to quantify and validate emissions and removals, rigorous reporting frameworks, and comprehensive verification mechanisms.

1. Measurement:

- Objective: To accurately quantify greenhouse gas (GHG) emissions and removals and assess the impact of climate interventions using the following strategies
 - Development of Emission Inventories: Develop comprehensive emission inventories using recognized methodologies like those from the Intergovernmental Panel on Climate Change (IPCC).
 - Use of Remote Sensing and GIS Technologies: Leverage satellite imagery and Geographic Information Systems for land-use change and forestry assessments.
 - Capacity Building: Strengthen technical capacities in data collection, analysis, and management, focusing on relevant sectors like agriculture, energy, and waste management.

2. Reporting:

- Objective: to transparently communicate emissions, removals, and climate action to stakeholders and funding bodies using the following strategies
 - Establishment of a Reporting Framework: Develop a standardized, transparent, and consistent reporting framework, aligning with international reporting requirements.
 - Enhancement of Information Management Systems: Implement robust information management systems to facilitate data storage, retrieval, and dissemination.
 - Stakeholder Engagement: Foster collaborative engagements with stakeholders to ensure the inclusion of diverse perspectives and insights in reporting.

3. Verification:

- Objective: To independently assess the accuracy and completeness of reported information and ensure compliance with established standards. The strategies to realise this include
 - Third-Party Verification: Engage accredited third-party entities to conduct impartial assessments of reported data and methodologies.
 - Quality Assurance and Quality Control: Develop and implement QA/QC procedures to identify and address errors and uncertainties in reported data.
 - Capacity Enhancement: Build capacities in verification procedures and enhance understanding of international verification standards and protocols.

Capacities the County Should Develop:

- Technical Proficiency: in measurement methodologies, data analysis, and information management, tailored to the local context and sectoral priorities.
- Institutional Capacity: Strengthen institutional structures, processes, and human

resources to effectively manage the MRV process and liaise with international climate bodies.

- Stakeholder Engagement Capacity: Build capacities for multi-stakeholder engagements, enhancing collaborations between government agencies, non-governmental organizations, academia, and local communities.
- Legislative and Policy Framework: Develop supportive legislative and policy frameworks to facilitate the implementation of MRV requirements and standards.

Access to Climate Funds:

With a credible MRV system in place, Isiolo County can enhance its ability to access diverse climate funds such as the Green Climate Fund (GCF), the Adaptation Fund, and the Climate Investment Funds. These funds can be harnessed to finance climate resilience initiatives, adaptation projects, and mitigation measures, contributing to sustainable development and environmental conservation in the region.

Best Available Sources for regularly updated information:

- IPCC Guidelines for National Greenhouse Gas Inventories
- UNFCCC Reporting Guidelines
- World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol

By adhering to internationally recognized MRV processes, developing requisite capacities, and engaging with multiple stakeholders, Isiolo County can secure climate finance to actualize sustainable, resilient, and inclusive development amidst the prevailing climate challenges.

4.1.7 Institutional Roles and Responsibilities

The roles of the steering committee

1. Ensure mainstreaming of climate change into county planning and development processes;
2. Coordinate formulation and monitor implementation of the County Climate Change Action Plan, County Climate Finance Framework and any other county climate change policies, plans and strategies
3. mobilize funds into and administer the County Climate Change Fund that may be established under the Climate Change Act.
4. review, approve and monitor implementation of Regulations for administration and management of the said Fund.
5. Review and make recommendations on the biennial report on implementation of the County Climate Change Action Plan and any other reports on climate change response interventions in the county;
6. Advise the county government on legislative, policy and other measures necessary for climate change response and attainment of low carbon climate resilient development
7. Approve and oversee the implementation in the county of a comprehensive programme of climate change education, awareness creation and capacity building;
8. Provide policy direction on research, training and dissemination of information relating to climate change to the public and other stakeholders the county;
9. Ensure positive linkages, interactions and synergy between the county, neighbouring counties and the national government in climate change response programming and action;

10. Ensure a coordinated approach to climate change response programming and action within the county government, between the county government and national government, and among the different stakeholders in the county; and
11. Coordinate the formulation of a climate change reporting framework, and the preparation and dissemination of an annual report on climate change response activities in the county
12. Perform any other functions that may further the foregoing objectives and/or may be assigned by the Governor.

4.2 IMPLEMENTATION AND COORDINATION MECHANISMS

4.2.1 Directorate of Climate Change

The Climate Change Directorate or Unit plays a crucial role in the country's climate change institutional set up. The unit is responsible for coordinating and implementing climate change policies and strategies across all sectors of the economy. The Climate Change Act of 2016 requires every government department to set up a climate change unit.

The unit is responsible for developing and implementing adaptation and mitigation measures, monitoring and reporting on climate change impacts, and promoting public awareness and education on climate change issues. The unit also works with other government agencies, civil society organizations, and development partners to mobilize resources and build capacity for climate change adaptation and mitigation in efforts build a more collaborative, resilient and sustainable future.

4.2.2 County Climate Change Planning Committee

Members of the Planning Committee shall be appointed by the Executive Committee Member in charge of climate change matters. Members of the Planning Committee include:

1. Chief Officer in charge of climate change matters who shall be the chairperson
2. Director in charge of the climate change unit (CCU), who shall be the Secretary
3. County Director in charge of finance and planning
4. County Director in charge of agriculture, livestock and fisheries
5. County Director in charge of health
6. County Director in charge of water and irrigation
7. County representative of the National Environment Management Authority or a designated representative
8. County Drought Coordinator or a designated representative
9. County Director of Meteorology
10. One representative of duly registered public benefit organizations working in the county nominated by the umbrella organization representing the largest number of public benefit organizations
11. One representative of the private sector in the county nominated by the umbrella organization representing the largest number of private sector organizations in the county
12. One representative of women in the county nominated by the umbrella organization representing the largest number of women's organizations in the county
13. One representative of youth in the county nominated by the umbrella organization representing the largest number of youth organizations in the county

14. The Administrator of the Fund, who shall be an ex-officio member with no voting rights

Members of the Planning Committee at their first meeting elect a vice-chairperson from among themselves

Roles of the county climate change planning committee

1. Coordinate planning, and implementation of projects and activities for climate change response in the county;
2. Coordinate implementation of the County Climate Change Action Plan and the County Climate Finance Framework;
3. Establish guidelines to be used by Ward Planning Committees in formulating climate response projects for funding by the County Climate Change Fund;
4. Support Ward Planning Committees in development and implementation of climate response projects;
5. Coordinate development and implementation of the County Climate Change Fund Regulations;
6. Advise the Steering Committee on strategies, priority programmes, projects and activities for climate change response in the county;
7. Formulate and implement strategic actions to foster climate change education, awareness creation and capacity development in the county;
8. Coordinate research and knowledge management on climate change, its impacts and strategies for responding thereto;
9. Prepare and disseminate an annual report on climate change response activities in the county;
10. Formulate and implement a county monitoring, evaluation and reporting framework for climate change response; and
11. Perform any other functions assigned to it by the Steering Committee

4.2.3 County Climate Change Technical Working Group

The aim of the Technical Working Group (TWG) is to build stronger partnerships to support sustainable, comprehensive, locally-owned climate resilience initiatives, drawing on both humanitarian and development funding streams, harnessing local expertise and leveraging the comparative advantages of a wide range of NGOs, civil society, private sector and international organizations.

The roles for the TWG include the following:

1. Establish a joint climate resilience sector forum between the Climate Change Directorate with other key departments including Livestock, Water, Agriculture, Health and Disaster management with key national agencies such as Kenya Meteorological Department, NDMA, KFS, KWS and the Climate Smart Agriculture Department
2. Support the County Government to transform Early Warning Alerts and climate predictions to comprehensive preparedness spanning across key sectors required to enhance community resilience to extreme events including floods and droughts
3. Strengthen linkages and coherence between humanitarian and developmental interventions;
4. Base the coordination structure on a strong partnership approach especially between government, civil society, NGOs, community organisations and donor programmes;
5. Strengthen resource mobilisation for all implementing agencies and seek stable funding; and,

6. Reinforce situation analysis expertise and strengthen linkage between analysis and response.
7. Strengthen ward-level and lower administrative units' capacity to prepare for, manage and implement resilience actions together with community structures on the ground
8. Monitor and report on relevant, resilience building interventions by all implementing agencies- NGO, CBO, FBO, donor projects and local authorities
9. To ensure coordination of climate resilience interventions during normal developmental period, during emergencies and after emergencies in affected areas
10. To support administrative units and implementing agencies to develop disaster preparedness and contingency plans for the county in areas subjected to extreme events
11. To identify gaps and share information on climate resilience preparedness, planning and interventions
12. To provide a platform for learning and sharing - including dialogue on establishing links between emergency and development WASH actions through interventions that build resilience in disaster-affected communities.
13. To promote accountability and transparency in the utilization of resources (funds, supplies, etc.) for adaptation, mitigation or capacity building activities.