Republic of Kenya

Ministry of Environment,
Climate Change and Forestry

NATIONAL CLIMATE CHANGE ACTION PLAN (NCCAP) III 2023-2027

Towards Low Carbon Climate Resilient Development

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Foreword

H.E. Dr William Samoei Ruto, C.G.H

President and Commander in Chief of the Defence Forces of the Republic of Kenya

Climate change remains a major threat to our nation's economic, social, and environmental wellbeing; and indeed, that of the entire continent of Africa. Despite significant strides in economic progress and human development, our continued exposure to climate hazards has the potential to jeopardize the hard-earned developmental achievements of many years. My government's Bottom-Up Economic Transformation Agenda (BETA) and Vision 2030 are inextricably linked to our ability to build resilience and adaptive capacity to the impacts of climate change. A major challenge for us to overcome is the current low level of climate resilience and limited adaptive capacity that threatens the ability of our population and key sectors of the economy (e.g., agriculture) to withstand climate shocks.

My government is keen to continue implementing the *Climate Change Act (No. 11 of 2016)*, which provides the framework for compliance with the *Paris Agreement*, and Kenya's (2020) Updated Nationally Determined Contribution (NDC). The *Climate Change Act* is central to our climate actions at both the national and county government levels. It is important to note the progress made by county governments in the last five years in the enactment of county-level climate legislation that establishes Climate Change Funds and ward climate change committees, and provides for allocation of a minimum percentage of development budgets to finance locally-led climate actions. These gains remain at the forefront of our efforts to enhance resilience and minimise vulnerability to climate shocks. Consequently, climate change is now recognised as a cross-cutting thematic area in our planning process, as is evident in the Fourth Medium Term Plan (MTP IV), developed for implementation during the same 2023–2027 period as this NCCAP. It is the *Climate Change Act* that recognises the *National Climate Change Action Plan (NCCAP)* as a five-year iterative tool

for the integration of low carbon climate resilient initiatives across our different socio-economic sectors. Every effort has been made to ensure alignment between the NCCAP 2023–2027 and MTP IV.

This *National Climate Change Action Plan (NCCAP) 2023–2027* builds on the strong foundation laid during the implementation of the *NCCAP 2013–2017* and *2018–2022*, the *Climate Change Act*, and the *National Climate Change Framework Policy. NCCAP 2023–2027* sets out bold measures to ensure that our development remains sustainable in the event of any adverse climate change impacts, including droughts, floods, that have in the recent past occasioned far-reaching negative implications on our economy. A key action during this period is afforestation and reforestation to achieve the goal of planting and growing 15 billion trees by 2032 in order to cover at least 30% of our total land area. With a tree cover of 12.13% in 2022, we are glad that we have exceeded the minimum constitutional requirement of 10% of the total land area. Our current forest cover stands at 8.83%, and the 2032 target will enhance this further. These actions will contribute to the protection of our water towers and the management of flooding, which will translate to tangible benefits for our citizens across the different sectors. It will also contribute to the achievement of our NDC under the *Paris Agreement*.

The *NCCAP 2023–2027* is unique as its development has involved deliberate consultations with the youth and children's representatives. We have recognised the seriousness of the caution issued by the Intergovernmental Panel on Climate Change in its Sixth Assessment Report (AR6) that children who were aged ten or younger in the year 2020 are projected to experience a nearly four-fold increase in extreme events under 1.5°C of global warming by 2100, and a five-fold increase under 3°C warming. Such increases in exposure would not be experienced by a person who was aged 55 in the year 2020 in their remaining lifetime under any warming scenario. We have therefore mainstreamed actions that are focused on the youth and children. Through a new Climate Change Priority Area 8: Children and the Youth, we have identified enabling actions that aim to facilitate the participation of children and youth in implementing this *NCCAP 2023–2027*.

In addition, we have recognised that vulnerability of our communities to the impacts of climate change such as drought has become a major contribution to conflict, as well as forced displacement and mobility, especially in the ASAL areas of Kenya. For this reason, we have included several actions to enable our interventions to stop this continuous loop of violence and displacement.

It is my belief that we have improved our understanding of the climate change challenge facing us, and we will take a whole-of-government approach to ensure climate risks are adequately integrated into our planning, decisions, and implementation. We are also cognizant that while adaptation remains our priority, we have made commitments in our NDC to reduce greenhouse gas emissions by 32% in the period up to 2030 relative to the business as usual scenario, and have programmed actions in this NCCAP to achieve this.

We launch the *NCCAP 2023–2027* as Kenya hosts the entire continent for the inaugural African Climate Summit, and as we seek to chart a path of investments for climate interventions for our region and countries.

I personally commit to be at the forefront of these efforts as Chair of the National Climate Change Council so as to ensure that our aspiration of a low carbon climate resilient and prosperous Kenya is realised. Kenya now has a Ministry responsible for Environment, Climate Change and Forestry; as well as a State Department for Environment and Climate Change that can take leadership in coordinating the implementation of this NCCAP. I believe that the Bottom-Up Economic Transformation Agenda of my government will be even more successful if we diligently implement this NCCAP.

May God bless the Republic of Kenya!

Preface

Hon Soipan Tuya, CBS,

Cabinet Secretary for Environment, Climate Change and Forestry

The *National Climate Change Action Plan 2023–2027 (NCCAP 2023–2027)* presents the detailed priority actions that Kenya will embark on to address climate change during the 2023–2027 medium-term planning period. These actions aim to address the impacts of climate change, which include increased frequency and magnitude of extreme weather events in Kenya; as well as reduce greenhouse gas emissions.

Kenya's commitment to addressing climate change is exemplified through the enactment of the Climate Change Act (No. 11 of 2016), marking a significant milestone as the first dedicated legislation on climate change in Africa. Section 13 of this pioneering law mandates the development of national climate change action plans and requires the Cabinet Secretary responsible for climate change affairs to conduct a comprehensive review and update of the National Climate Change Action Plan (NCCAP) every five years. The first NCCAP was for the period 2013–2017 and the second was for 2018–2022. The *NCCAP 2023–2027* is therefore Kenya's third National Climate Change Action Plan, demonstrating the nation's ongoing dedication to strategic and progressive climate change mitigation and adaptation efforts.

The third NCCAP builds on the previous two NCCAPs through which considerable progress was made. Mitigation actions to reduce greenhouse gas emissions included increases in the supply of electricity from renewable energy sources (including geothermal, solar, and wind), and planting of trees, among others. Actions to increase climate resilience focused on addressing climate risks such as drought, floods, and changing weather patterns, including increasing the capacity of smallholder farmers to better address these risks. A summary of this progress in included in Section 3.2 of this NCCAP.

The goals of the *NCCAP 2023–2027* are to align climate change actions in the country with the Government's development agenda, including Kenya Vision 2030 and the Bottom-Up Economic Transformation Agenda (BETA); and to strengthen participation in climate change action by the private sector, civil society, women, youth, children, and the vulnerable groups within society, including the aged, persons with disabilities, members of minority or marginalised communities, and indigenous peoples.

Achievement of these goals is critical because Kenya is exposed to climate hazards or the actual biophysical events that are driven by climate change. As temperatures have risen, Kenya has experienced acute climate hazards such as floods, landslides, and wildfires, which are expected to increase in frequency and severity. Temperature rise has been recorded across all seasons but particularly during the March–April–May long rainfall season. Rainfall patterns have changed with the long rain season becoming shorter and drier, and the short rain season becoming longer and wetter. Overall, annual rainfall remains low, with the long rains declining continuously and droughts becoming longer, more intense, and tending to continue across rainy seasons. Sea levels are expected to continue to rise along Kenya's coast. Increasing sea surface temperatures, marine heatwaves, and ocean acidification alongside rising sea levels and stronger storm surges will impact marine life, and lead to coastal erosion and increased risk of flooding in the five coastal counties (Kwale, Mombasa, Kilifi, Tana River, and Lamu).

In Kenya, specific regions (such as the arid and semi-arid lands – ASALs), populations (such as women, youth, children, and poor and marginal households), and systems (such as food production and coastal systems) have a predisposition to be adversely affected by current and projected climate risks. Communities and systems in the ASALs are highly vulnerable to climate change because of high levels of poverty and recurring droughts. Climate-induced disasters, including desert locusts and fall armyworms, as well as floods, prolonged dry spells, and heat waves have disrupted agro-pastoral activities, altered mobility patterns, and exacerbated the scarcity of natural resources, thereby worsening vulnerability for individuals and communities. Women and men in ASALs experience greater competition over resources than in other areas, and face more severe negative impacts of climate risks such as drought. Kenyan ASALs are experiencing rising populations and in-migration from the country's densely populated highlands and experience lower access to infrastructure, such as potable water, electricity, and telecommunication facilities. Compounding this vulnerability is the prevalence of multiple forms of conflict, including disputes over natural resources, inter-ethnic violence, cattle rustling, border and land conflicts, drug trafficking, and terrorism. Persons with disabilities, children and youth, and the elderly are also vulnerable because of potential impacts of climate change on their health, which is often related to their limited mobility.

In order to overcome these vulnerabilities, and address the adverse impacts of climate change, *NCCAP 2023–2027* proposes priority actions for implementation over the five-year period. These actions are classified in eight (8) *Climate Change Priority Areas:* Disaster Risk Management; Food Security and Nutrition; Water, Fisheries and the Blue Economy; Forestry, Wildlife and Tourism; Health and Human Settlements; Manufacturing; Energy and Transport; and Children and the Youth. The priority actions, building on achievements from the 2018–2022 period, propose adaptation and mitigation interventions, as well as enabling actions to facilitate their implementation. An implementation matrix has been prepared for each priority area, with an estimated budget that will guide execution. Importantly, each *Climate Change Priority Area* has a set of discrete National Indicators, as well as Key Performance Indicators to enable tracking and reporting of progress over the 2023–2027 period.

I am pleased that the *NCCAP 2023–2027* has been prepared and will be implemented in context of Kenya's National Long-Term Low Emission Development Strategy (LTLED) 2022–2050 that sets out the overarching vision, objectives, and priority interventions that will successfully abate emissions in the country through a fair and cost-effective course, ensuring a transition towards a desirable, climate resilient and carbon-neutral economy by 2050. Every effort has been made to ensure alignment between the LTLED, Kenya's NDC, Kenya's NAP, and this NCCAP.

The Ministry of Environment, Climate Change and Forestry envisages that diverse actors in the National Government, County Governments, private sector, civil society as well as our development partners will play a key role in realising the goals of *NCCAP 2023–2027* and the achievements expected by 30 June 2028. We recognise that challenges and difficulties are likely, especially in mobilising required finances and resources, but the Government of Kenya will make every effort to ensure success.

Acknowledgments

Eng. Festus K. Ng'eno

Principal Secretary, Environment, Climate Change and Forestry

The *National Climate Change Action Plan (NCCAP) 2023–2027* is a five-year plan to guide Kenya's climate change actions, with the aim of reducing greenhouse gas emissions and lessening vulnerability to climate impacts. The NCCAP is a requirement of the *Climate Change Act, 2016*, which seeks to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development, in a manner that prioritises adaptation. The *NCCAP 2023–2027* is the third iteration of Kenya's national action planning process, as required by the *Climate Change Act*. It therefore builds on the *NCCAP 2013–2017* and *NCCAP 2018–2022*.

This *NCCAP 2023–2027* is important for several reasons. First, it has been developed to support implementation of Kenya's updated NDC that was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in December 2020. Second, the plan will support the implementation and achievement of Kenya's goal to plant and grow 15 billion trees by 2032, and raise the national tree cover to 30% of our total land area. Finally, we launch this plan as Kenya hosts the African continent who are joining us for the inaugural African Climate Summit that is being held in Nairobi in parallel with the UNFCCC Africa Climate Week on 4–6 September 2023.

The development of the *NCCAP 2023–2027* was guided by a Steering Committee that was appointed by the Cabinet Secretary for Environment, Climate Change and Forestry. The consultation process involved the participation of state departments and agencies of the national government, county governments, civil society, the private sector, and academia. A wide range of individuals and institutions participated in the development of the *NCCAP 2023–027*. I take this early opportunity to recognise and applaud their individual and collective efforts.

Technical inputs to the *NCCAP 2023–2027* were enriched through the Adaptation and Mitigation Technical Working Groups, whose membership was inclusive and drawn from the national and county governments, civil society, academia, and the private sector. Contributions from members of the Steering Committee and the Technical Working Groups, both at individual and corporate levels, are greatly appreciated. The Ministry of Environment, Climate Change and Forestry is also grateful to the national and international climate change experts that provided valuable technical inputs to the process.

I wish to commend the Climate Change Directorate for providing technical leadership and leading the process of developing the *NCCAP 2023–2027*, including managing contributions from contracted experts. I recognise the experts for their professionalism and diligence throughout the process of developing *NCCAP 2023–2027*.

NCCAP 2023–2027 was prepared through an extensive consultation process. Various stakeholders from a cross-section of the population including representatives from the national and county governments, civil society, academia, women's groups, youth groups, marginalised and minority groups, and the private sector, were consulted. Their inputs and candid views form the basis of this NCCAP and are gratefully acknowledged. It is appreciated that effective implementation of *NCCAP 2023–2027* will require continued input from these stakeholders, and increased partnerships and enhanced support from development partners.

The preparation of the *NCCAP 2018–2022* would not have been possible without the support of development partners. These include the Government of Germany through the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) NDC Assist Project, and the United Nations Development Programme (UNDP) through the Climate Promise Project to whom we remain indebted for their invaluable support. Other support, including technical input, was received from the United Nations Children's Fund, Alliance of Biodiversity International and the International Center for Tropical Agriculture Africa hub with support of CGIAR Initiative on Climate Resilience, International Livestock Research Institute, Kenya Red Cross Society, and the NAP Global Network Secretariat, International Institute for Sustainable Development. I thank all these institutions for their invaluable support.

It is envisaged that the *NCCAP 2023–2027* will guide the roles of the national government, county governments, and various non-state actors including development partners. We hope this plan will guide all actors in aligning their funding preferences with Kenya's aspirations to attain a low carbon climate resilient economy. We remain grateful to their commitment to walk alongside Kenya in this journey.

The Ministry of Environment, Climate Change and Forestry is committed to the implementation of this Plan, and will lead efforts to increase forest cover to at least 30% of Kenya's land. The Ministry will work with the National Climate Change Council to ensure a coordinated and effective approach that will involve the national and county governments and other stakeholders across the Kenyan society in the implementation of this NCCAP.

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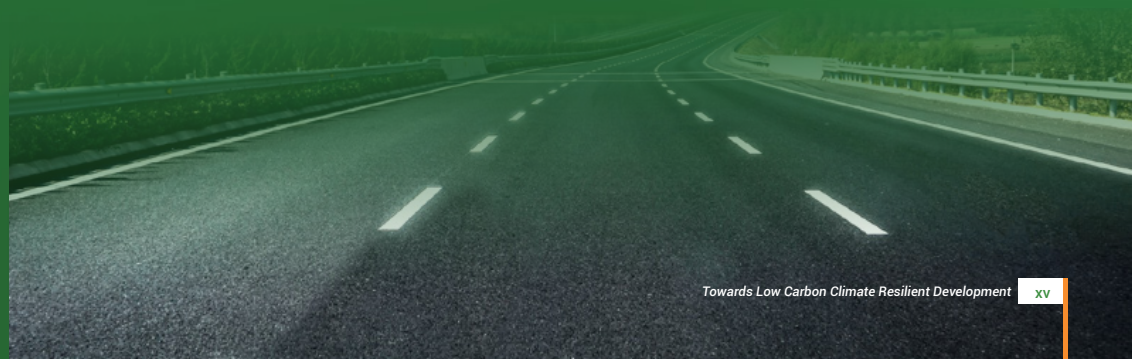

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Acronyms and Abbreviations

AR6	Sixth Assessment Report
ASAL	Arid and Semi-Arid Land
ATAR	Adaptation Technical Analysis Report
BAU	Business as usual
BETA	Bottom-Up Economic Transformation Agenda
BEV	Burning ethanol vapours
BRT	Bus Rapid Transit
CBD	United Nations Convention on Biological Diversity
CCCF	County Climate Change Fund
CCD	Climate Change Directorate
CDM	Clean Development Mechanism
CEC	County Executive Committee
CIDP	County Integrated Development Plan
CIS	Climate Information Services
CO_2	Carbon dioxide
CoG	Council of Governors
CoP	Conference of the Parties
CORSIA	Convention on International Civil Aviation
COVID-19	Coronavirus 2019
CSA	Climate Smart Agriculture
DRM	Disaster Risk Management
EAC	East African Community
EDE	Ending Drought Emergencies
EPRA	Energy and Petroleum Regulatory Authority

Acronyms and Abbreviations

ERC	Energy Regulatory Commission
FAO	Food and Agriculture Organization
FAW	Fall armyworm
FLLOCA	Financing Locally-led Climate Action Program
GCF	Green Climate Fund
GDC	Geothermal Development Corporation
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
ICAO	International Civil Aviation Organisation
ICT	Information and communication technology
IGAD	Intergovernmental Authority on Development (in Eastern Africa)
ILRI	International Livestock Research Institute
IMO	International Maritime Organisation
IOM	International Organization for Migration
IPCC	Inter-Governmental Panel on Climate Change
KAA	Kenya Airports Authority
KALRO	Kenya Agriculture and Livestock Research Organization
KAM	Kenya Association of Manufacturers
KCAA	Kenya Civil Aviation Authority
KEBS	Kenya Bureau of Standards
KEFRI	Kenya Forestry Research Institute
KenGen	Kenya Electricity Generating Company Ltd.
KENHA	Kenya National Highways Authority

Acronyms and Abbreviations

KEPSA	Kenya Private Sector Alliance
KeRRA	Kenya Rural Roads Authority
KETRACO	Kenya Electricity Transmission Company
KFS	Kenya Forest Service
KIRDI	Kenya Industrial Research and Development Institute
KMA	Kenya Maritime Authority
KMD	Kenya Meteorological Department
KNBS	Kenya National Bureau of Statistics
KES	Kenya Shilling
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
LEAP	Low Emissions Analysis Platform
LPG	Liquified propane gas
LTLED	Long-term Low Emission Development Strategy
LULUCF	Land use, land-use change and forestry
M&E	Monitoring and evaluation
MALD	Ministry of Agriculture and Livestock Development
MAM	March–April–May
MECCF	Ministry of Environment, Climate Change and Forestry
MEPS	Minimum Energy Performance Standards
MITC	Ministry of Industrialisation, Trade and Cooperatives
MoEP	Ministry of Energy and Petroleum
MoH	Ministry of Health
MoTWH	Ministry of Tourism, Wildlife and Heritage

Acronyms and Abbreviations

MoYASA	Ministry of Youth Affairs, Sports and the Arts
MLPWH&UD	Ministry of Lands, Public Works, Housing and Urban Development
MMBEMA	Ministry of Mining, Blue Economy, and Maritime Affairs
MRT	Ministry of Roads and Transport
MRV	Measurement, Reporting and Verification
MSME	Micro, small and medium enterprise
MTAR	Mitigation Technical Analysis Report
MTP	Medium Term Plan
MWSI	Ministry of Water, Sanitation and Irrigation
NAP	National Adaptation Plan
NCCAP	National Climate Change Action Plan
NCCC	National Climate Change Council
NCCRC	National Climate Change Resource Centre
NCCRS	National Climate Change Response Strategy
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDE	National Designated Entity
NDEF	National Drought Emergency Fund
NDMA	National Drought Management Authority
NEMA	National Environment Management Authority
NIE	National Implementing Entity
NMT	Non-Motorised Transport
OND	October–November–December
REA	Rural Electrification Authority

Acronyms and Abbreviations

REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
SDG	Sustainable Development Goal
SGR	Standard Gauge Railway
SIS	Safeguards Information System
TLU	Tropical Livestock Unit
TNTEP	The National Treasury and Economic Planning
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WASH	Water, Sanitation and Hygiene
WMO	World Meteorological Organization
WRA	Water Resources Authority

Measurement Units

ha	Hectare
km	Kilometre
m^3	Cubic metre
mm	Millimetre
MCM	Million cubic metre
$MtCO_2e$	Million tons of carbon dioxide equivalent
MW	Megawatt

Executive Summary

The *National Climate Change Action Plan 2023–2027 (NCCAP 2023–2027)* presents the detailed priority actions that Kenya will embark on to address climate change during the 2023–2027 medium-term planning period. Kenya's economy is very dependent on climate-sensitive sectors such as agriculture, water, energy, tourism, wildlife, and health. The increasing intensity and magnitude of weather-related disasters in Kenya reduces crop and livestock production, diminishes livelihoods, aggravates conflicts mostly over natural resources, displaces communities, and contributes to security threats. At the county and national levels, scarce government resources are re-allocated to address the costs of floods and droughts at the expense of social programmes such as education and health.

The economic costs of climate change impacts are high, estimated to have amounted to between 3% and 5% of GDP per year over the past decade. These costs could rise to between 6.5% and 8.5% of GDP per year between 2021 and 2050 without appropriate climate change action. Climate change is a significant threat to Kenya's future development, including the achievement of the Kenya Vision 2030 goals and the Bottom-Up Economic Transformation Agenda (BETA).

The preparation of this NCCAP is mandated by the Climate Change Act (No. 11 of 2016), which requires the Government of Kenya to develop actions plans to guide the mainstreaming of climate change into sector functions and county planning processes. NCCAP 2023–2027 seeks to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritises adaptation. The goals of the NCCAP 2023–2027 are to:

1. Align climate change actions in the country with the Government's development agenda, including Kenya Vision 2030 and the Bottom-Up Economic Transformation Agenda (BETA); and
2. Strengthen the participation in climate change action by the private sector, civil society, women, youth, children, and vulnerable groups within society, including older members of society, persons with disabilities, members of minority or marginalised communities, and indigenous peoples.

This third NCCAP builds on the previous two NCCAPs by which considerable progress was made. It provides a framework for Kenya to deliver on its Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC), its National Adaptation Plan 2015–2030 (NAP), and its National Long Term Low Emission Development Strategy 2022–2050. NCCAP 2023–2027 guides the climate actions of the National and County Governments, the private sector, civil society, and other actors including women, children and youth, as Kenya transitions to a low carbon climate resilient development pathway.

Adaptation actions are prioritised in the NCCAP 2023–2027 because of the devastating impacts of droughts, floods, and extreme weather events in Kenya, and the negative effects of climate change on vulnerable groups, including children, youth,

women, older members of society, persons with disabilities, members of minority and marginalised communities, displaced persons, and migrants. Emphasis is on actions that help to scale up preparedness and response efforts to help people adapt, reduce vulnerability to future risks, and minimise and address losses and damages. The adaptation actions will be undertaken, where possible, in a way that limits greenhouse gas (GHG) emissions, so as to ensure that the country achieves its NDC under the Paris Agreement of reducing GHG emissions by 32% by 2030, relative to the business-as-usual scenario of 143 $MtCO_2eq$.

Mitigation actions have been identified in the NCCAP 2023-2027, across six key sectors. Forestry will be the main source of abatement in this implementation period that is expected to result to 37.3MtCO2eq in GHG emissions reductions. Overall, the prioritised mitigation actions would result to total GHG emissions reduction of 79MtCO2eq by 2027, when fully implemented.

The preparation of the NCCAP 2023–2027 emphasised stakeholder consultation and engagement, recognising the importance of their inputs for a plan that is owned and implemented by all stakeholders across Kenya. Extensive consultations were held at various stages of preparing and reviewing NCCAP 2023–2027 with numerous stakeholders including the Adaptation Technical Working Group and the Mitigation Technical Working Group, both of which were comprised of experts drawn from the public sector, private sector, civil society, marginalised and indigenous peoples and local communities including women, county governments, academia and development partners. It is important to note that the Climate Change Directorate (CCD) under the Ministry of Environment, Climate Change and Forestry engaged with Kenyan youth across the 47 counties on priority climate change actions. A two-fold process was used: 1) in conjunction with GIZ and the United Nations Children's Fund (UNICEF) a series of regional capacity building and consultation workshops were held; and 2) through UNICEF over 14,000 children and youth were engaged on the Yunitok platform. This was instrumental in ensuring intergenerational equity was upheld during the preparation of this NCCAP.

Priority Climate Change Actions

The priority climate action areas, their strategic objectives, and main actions are set out in the table below. The detailed descriptions in NCCAP 2023–2027 include information on the problem being addressed, the actions needed to address the problem, sector-specific enabling actions, expected results, national-level indicators, alignment with the BETA Agenda, and relevant institutions to deliver the actions. Gender considerations are mainstreamed across all priority action areas.

Kenya's National Climate Change Action Plan 2023-2022

AIM

To further Kenya's sustainable development by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritises adaptation.

Disaster Risk Management

Reduce risks to communities and infrastructure resulting from climate-related disasters and enhance institutional preparedness and response.

- Increase number of households and entities benefiting from devolved adaptive services.
- Strengthen the ability of people to better cope with disasters.
- Improve coordination and delivery of disaster risk management.
- Improve the ability of people to cope with disasters caused by climate hazards.
- Improve management of climate change-driven mobility and displacement.
- Improve processes to manage climate-related security risks.
- Enhance protection and role of children and youth in disaster risk reduction.

Food and Nutrition Security

Increase food and nutrition security by enhancing productivity and resilience of the agricultural sector in as low-carbon manner as possible.

- Enhance the uptake of CSA technologies in crop production systems.
- Increase crop productivity through improved irrigation.
- Diversify livelihoods to adjust to a changing climate.
- Increase adoption of sustainable land management.
- Increase on-farm water harvesting and storage, wastewater recycling, and area under irrigation.
- Improve productivity in the livestock sector through the implementation of CSA interventions.
- Improve productivity and resilience of farmers and pastoralists.
- Enhance contribution of youth to food and nutrition security.

Water, Fisheries and the Blue Economy

Enhance the resilience of the Blue Economy and water sector by ensuring access to and efficient use of water for agriculture, manufacturing, domestic use, wildlife, and other uses.

- Increase annual per capita water availability through the development of water infrastructure.
- Improve access to good quality water, increased sewerage coverage, and onsite sanitation.
- Promote water efficiency (monitor, reduce, re-use, and recycle).
- Increase gender- and youth-responsive affordable water harvesting-based livelihood resilience programmes.
- Increase crop productivity through improved irrigation.
- Increase on-farm water harvesting and storage, wastewater recycling, and area under irrigation.
- Increase adoption of sustainable land management.

- Improve the ability of people to cope with disasters.
- Enhance sustainable Blue Economy and fisheries development.
- Enhance contribution of youth to sustainable Blue Economy development.

Forestry, Wildlife and Tourism

Strengthen the ability of forest, tree, and wildlife resources to respond to the impacts of climate change, provide climate mitigation solutions, and improve resilience of social systems across various landscapes.

- Reduce emissions from deforestation and forest degradation.
- Reduce emissions from land degradation outside forests.
- Incentivise tree-growing value chain enterprises.
- Enhance the resilience of wildlife, their habitats, and their ecosystems.
- Enhance contribution of youth to climate actions in the forestry and wildlife sectors.
- Enhance climate resilience of tourism destinations and their ecosystems.

Health, Sanitation and Human Settlements

Mainstream climate change adaptation into the health sector; and increase the resilience of human settlements, including improved solid waste management in urban areas.

- Enhance management of climate-sensitive diseases.
- Reduce GHG emissions from medical waste management.
- Enhance climate smart urban planning and affordable and social housing development.
- Adopt waste hierarchy.
- Enhance composting/biological processing of waste.

Manufacturing

Improve energy and resource efficiency in the manufacturing sector.

- Enhance energy efficiency.
- Promote resource use efficiency and circular economy in industrial processes.
- Promote green building design and construction.

Energy and Transport

Energy

Ensure an electricity supply mix based mainly on renewable energy, an electricity system that is resilient to climate change and promotes energy efficiency, and encourage the transition to clean cooking.

- Promote clean, affordable, and quality alternative renewable energy sources.
- Enhance electricity network expansion and improvement, as well as electricity access in grid and non-grid areas.
- Promote clean cooking fuels and technologies.
- Promote geothermal energy for alternative (direct) uses.
- Climate proof energy infrastructure.

Transport

Establish efficient, sustainable, world-class transport systems and logistics systems that withstand the projected impacts of climate change.

- Reduce traffic idling.
- Develop efficient public transport operations, including Bus Rapid Transit in Nairobi.
- Develop and improve non-motorised transport facilities.
- Transition to electric mobility.
- Climate proof transportation systems.
- Improve the rail sector's contribution to reducing emissions.
- Explore alternative propulsion technologies.
- Green and climate proof airport infrastructure.
- Improve the air transport sector's contribution to reducing GHG emissions.
- Improve decarbonisation in the maritime transport sector.

Enabling Actions to Engage Children and the Youth

NCCAP 2023–2027 recognises the importance of engaging children and youth in the implementation of climate change action. The consultation process engaged with Kenyan youth across the 47 counties on what they felt should be the priority climate change actions. The 10 enabling actions set out in the table below aim to facilitate the participation of children and youth in implementing this NCCAP 2023–2027.

Children and the Youth	
CY1.	Develop a children and youth climate change engagement strategy.
CY2	Enhance children and youth engagement in national and county climate change policy processes.
CY3	Establish and operationalize county youth climate change innovation hubs.
CY4	Build capacity of children and youth on climate change technologies and innovations.
CY5	Build capacity of children and youth on climate change and risk management education and practice.
CY6	Build the capacity of children and youth on climate action.
CY7	Develop a youth platform for accessing climate finance information and initiatives.
CY8	Empower youths in climate change advocacy and financing.
CY9	Build capacity of youth on development of bankable climate change project proposals.
CY10	Increase in climate finance for building resilience of child critical services.

Enabling Actions to Support the Delivery of Priority Climate Actions

Twenty-one crosscutting enabling actions are required to implement the priority adaptation and mitigation actions. These enabling actions, listed in the table below, equip government and stakeholders with the knowledge, skills, technologies, and financing needed to deliver and report on climate actions. The crosscutting enabling actions are listed below.

Enabling Policy and Regulatory Framework	
P1	Prioritise, develop, and implement the needed regulations and sector plans to effectively implement the Climate Change Act, 2016 through a multi-stakeholder process that includes women, youth, children, and marginalised and minority groups.
P2	Support alignment of county legislation to the Climate Change Act, 2016. Support county governments to develop climate change legislation and regulations, including County Climate Change Fund regulations and operationalisation of ward climate change committees.
Capacity Development and Knowledge Management	
C1	Establish Community Information Centres in counties.
C2	Strengthen the capacity of national government institutions to implement the NCCAP.
C3	Build the capacity of county governments in such areas as establishing climate change coordination units, climate change response, climate finance, and monitoring and reporting.
C4	Build the capacity of stakeholders, including private sector, civil society, and vulnerable groups, including women, youth, persons with disabilities, and marginalised and minority communities, in such areas as climate change responses, climate finance, and reporting and monitoring.
C5	Develop and operationalise a public awareness and engagement strategy.
C6	Integrate climate change in the education system.
Technology and Innovation	
T1	Provide climate information services and early warning systems.
T2	Promote gender-responsive climate technologies and innovation in the private sector.
T3	Identify policy and fiscal incentives to promote uptake of climate-friendly technologies.
Climate Finance	
F1	Operationalise the Climate Change Fund.
F2	Enhance capacity to mobilise and manage climate finance. Develop a climate investment plan to mobilise resources for NCCAP 2023–2027.
F3	Build capacity of county governments to mobilise and track climate finance.
F4	Improve tracking of and reporting on climate finance.
F5	Build capacity of youth, civil society, and the private sector to develop bankable projects and assess climate risk.
F6	Participate in the development of market-based mechanisms domestically and internationally, and enhance capacity to engage in carbon market activities.
Measurement, Reporting and Verification Plus (MRV+)	
M1	Establish the National Climate Change Registry.
M2	Establish the adaptation Monitoring and Evaluation component of the MRV+ system.
M3	Establish the MRV system for mitigation to prepare GHG inventories and track mitigation actions for NDC reporting.
M4	Operationalise the Climate Business Platform to support non-state actors in reporting on climate change actions.

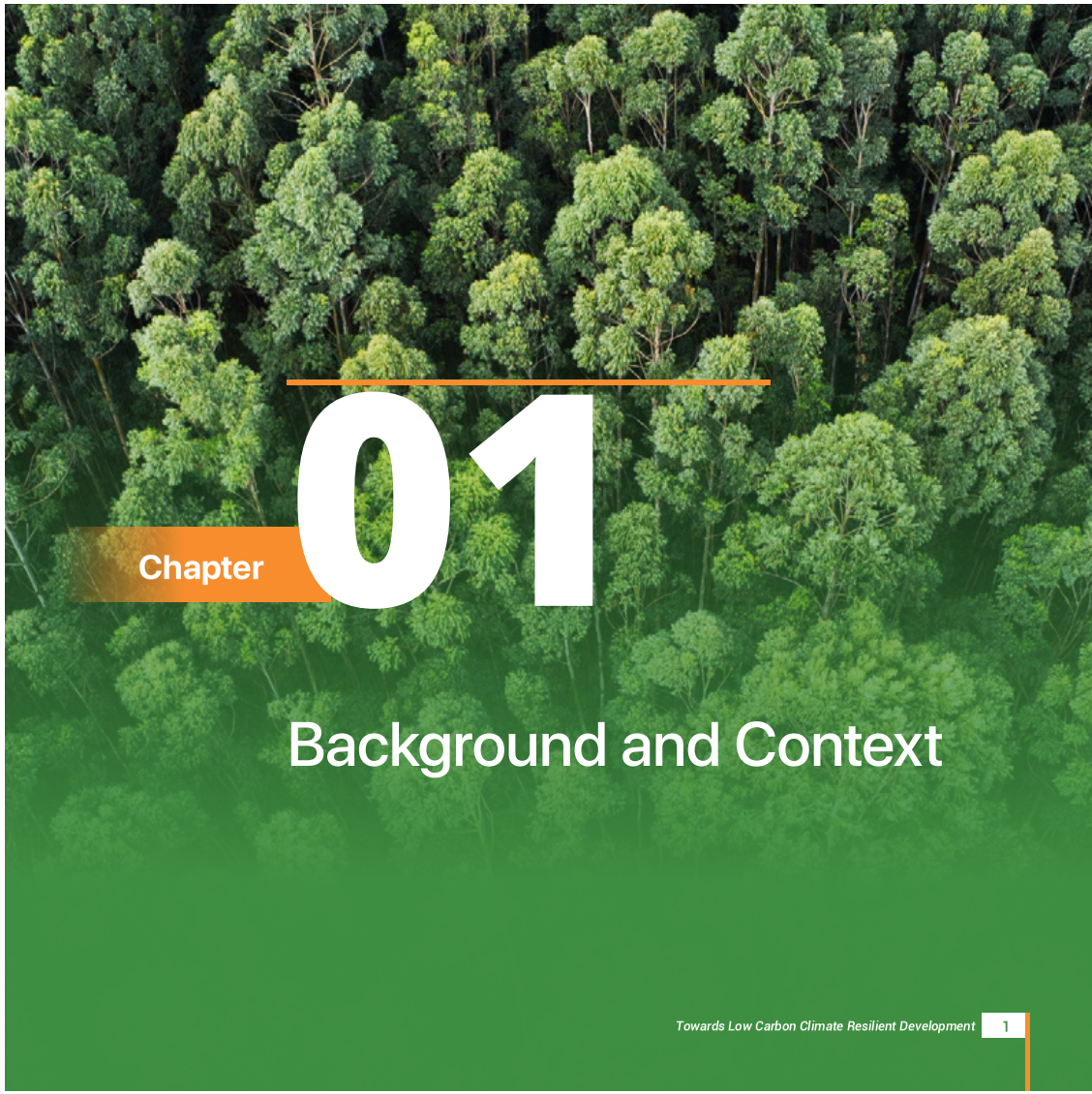
Delivering the NCCAP

The Climate Change Act of 2016 outlines institutional structures and responsibilities aimed at guiding the oversight and management of the National Climate Change Action Plan (NCCAP) for the period of 2023–2027. The National Climate Change Council assumes the overarching coordination role for climate change affairs, including providing guidance for the execution of the NCCAP for the specified timeframe. The Cabinet Secretary overseeing climate change affairs is tasked with presenting the action plan to the Council for approval and is also responsible for reporting to both the Council and Parliament on the progress of NCCAP implementation. Additionally, the Climate Change Directorate, situated within the Ministry of Environment, Climate Change, and Forestry, is entrusted with coordinating the execution of NCCAP 2023–2027, which encompasses relevant monitoring and reporting activities.

State departments and national public entities will work through their climate change units to integrate NCCAP 2023–2027 into strategies and implementation plans, and to report to the Council on an annual basis on performance and implementation. County governments are responsible for integrating and mainstreaming climate change actions into their County Integrated Development Plans, and designating a County Executive Committee member to coordinate climate change affairs. Most county governments have established County Climate Change Funds that aim to enhance access to climate finance and to channel that funding to the community level.

NCCAP 2023–2027 requires that various actors – including the national government, county governments, private sector, civil society, youth groups, and development partners – play key roles in realising the goals of NCCAP 2023–2027. Scaling up of finance will be critical to implement the priority actions in this NCCAP 2023-2027, which is expected to cost Kshs. 4,177,270 Million to implement over the five-year period based on budget projections. A need-based investment plan for this NCCAP 2023–2027 will be developed to project the investment requirements and guide resource mobilisation,

Kenya will therefore need to explore various finance streams, including domestic budget allocations, carbon markets, international sources (including through financial mechanisms established under the UNFCCC such as the Green Climate Fund, Loss and Damage Fund, Adaptation Fund, and Global Environment Facility; and other finance through multilateral and bilateral institutions), and investment and financing from the private sector.



Chapter 01

Background and Context

1.1 Introduction

This National Climate Change Action Plan 2023–2027 (NCCAP 2023–2027) presents the detailed priority actions that Kenya will embark on to address climate change during the 2023–2027 medium-term planning period. These actions aim to address the impacts of climate change, which include increased frequency and magnitude of extreme weather events in Kenya. These events have led to loss of lives, diminished livelihoods, reduced crop and livestock production, large-scale displacement and migration of communities, and damaged infrastructure, among other adverse impacts. An example is the torrential rains and severe flooding that were witnessed in the country in the past four years during the March–April–May long rainfall seasons that have devastated communities, most of which were already struggling to recover from prolonged droughts and the negative effects of COVID-19. The invasion of the country by desert locusts, as well as the fall armyworm (FAW), has presented a significant challenge to the agriculture sector and to the country's food security. Climate change is a significant threat to Kenya's future development, including achievement of the Kenya Vision 2030 goals and the government's Bottom-Up Economic Transformation Agenda (BETA).

Kenya takes climate change seriously. This is demonstrated by its enactment of the Climate Change Act (No. 11 of 2016), which is the first climate change-dedicated legislation in Africa. It provides the regulatory framework for an enhanced response to climate change, and mechanisms and measures to transition to low carbon climate resilient development. This pathway emphasises sustainable development, while prioritising adaptation, and recognising the importance of enhancing the climate resilience of vulnerable groups, including children, women, youth, persons with disabilities, the elderly, and the marginalised and minority communities.

Section 13 of the Climate Change Act, 2016 provides for the development of national climate change action plans to prescribe measures and mechanisms to mainstream adaptation and mitigation actions into sector functions of the national and county governments. The Act requires the Cabinet Secretary responsible for climate change affairs to review and update the NCCAP every five years. The first NCCAP was for the period 2013–2017 and the second was for 2018–2022. NCCAP 2023–2027 is, therefore, Kenya's Third National Climate Change Action Plan.

This third NCCAP builds on the previous two NCCAPs by which considerable progress was made. Actions to reduce greenhouse gas (GHG) emissions included increases in the generation of electricity from renewable energy sources (including geothermal, solar and wind), and planting of trees, among others. Actions to increase climate resilience focused on addressing climate risks such as drought, floods, and changing weather patterns, including increasing the capacity of smallholder farmers to better address these risks. A summary of this progress is included in Section 3.2.

In addition, since 2018, most county governments have enacted climate change legislation that supports locally-led climate action, and the establishment of County Climate Change Funds (CCCFs). Many of the county governments have prepared climate risk assessments and others are in the process of doing this, as well as activating ward-level climate change committees, and dedicating a percentage of their development budgets for the CCCFs.

At the national level, Kenya's National Adaptation Plan (NAP) that provides guidance on medium- and long-term adaptation priorities was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2016[1] The national government submitted its Updated Nationally Determined Contribution (NDC) to the UNFCCC in 2020, which sets out Kenya's contributions to address global climate change goals.[2] In 2023, the Government of Kenya approved its National Long Term Low Emission Development Strategy 2022–2050 (LTLED strategy) that sets out a long-term vision for mitigation and adaptation for the country to 2050, including that Kenya will move toward net zero emissions by 2050 and will prioritise adaptation actions that address the greatest climate risks and reduce socioeconomic losses. NCCAP 2023–2027 highlights the priority actions needed over the 2023–2027 period to deliver on the NAP, the 2020 NDC commitments, and the LTLED strategy.

Chapter 1 sets out the goal of the NCCAP and the methodology applied in its development. Chapter 2 provides an updated analysis of the context of climate change in Kenya, including vulnerability to climate risks, impacts of climate change, and the GHG emissions scenario. Chapter 3 is a situational analysis that examines the political, economic, social, technological, environmental, and legal environment; and reviews the progress in the implementation of the priority actions under NCCAP 2018–2022. Chapter 4 is an overview of the regulatory and policy environment that guides climate change action. Chapter 5 is the core of this document, setting out the priority adaptation and mitigation actions to address climate change in eight action areas. Chapter 6 presents the enabling actions that are required to implement these priority actions, in such areas as the policy and regulatory environment, capacity building, technology, and finance. Chapter 7 sets out the implementation plan to guide governments, communities, civil society, private sector entities, and other stakeholders in taking action to achieve the goals of this NCCAP over the 2023–2027 five-year period.

1.2 Goal of the NCCAP 2023-2027

The NCCAP 2023–2027 seeks to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritises adaptation. The goals of the NCCAP 2023–2027 are to:

01 Align climate change actions in the country with the government's development agenda, including Kenya Vision 2030 and the Bottom-Up Economic Transformation Agenda (BETA); and

02 Strengthen the participation in climate change action by the private sector, civil society, women, youth, children, and vulnerable groups within society, including older members of society, persons with disabilities, members of minority and marginalised communities, and indigenous peoples.

The Plan helps to further Kenya's development aspirations by providing a framework for:

01 Delivering Kenya's NDC, NAP, and LTLED strategy during the 2023–2027 period;

02 Mainstreaming climate change adaptation and mitigation into sector functions at the national and county levels; and

03 Scaling up finance for climate change actions, including participation in global carbon markets and improved access to climate finance.

1.3 Approach Used to Develop NCCAP 2023–2027

The Ministry of Environment, Climate Change and Forestry (MECC&F) led the preparation of the NCCAP 2023–2027 through the Climate Change Steering Committee that was comprised of experts from the government, Council of Governors, civil society, and the private sector. The work of the steering committee was supported by the adaptation and mitigation technical working groups that led the preparation of the Adaptation Technical Analysis Report (ATAR) and Mitigation Technical Analysis Report (MTAR). The Climate Change Directorate (CCD), situated in the MECC&F, led the technical analysis and the broad stakeholder consultations. Figure 1 below includes a summary of the NCCAP III process and the stakeholder consultation arrangements.

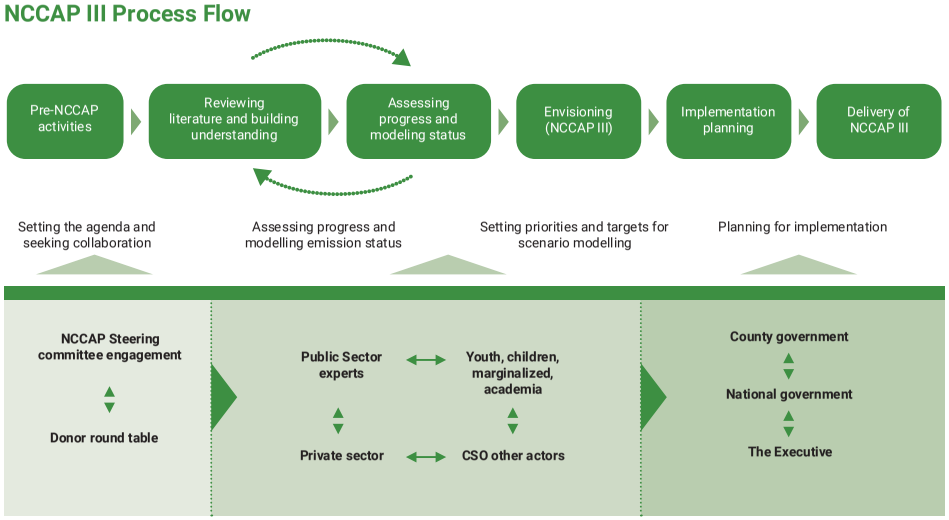


Figure 1: Summary of the NCCAP III Process and the Stakeholder Consultation Arrangements

The two reports, the ATAR and MTAR, provided the technical assessments that underlie the actions for the 2023–2027 five-year period. Groups of technical experts reviewed various documents including the 2018–2022 NCCAP progress implementation reports; 2020 technical analysis for the updated NDC; 2020 updated NDC; 2022–2050 Long-term Low Emission Development Strategy; and 2023–2027 Medium Term Plan (MTP) to Vision 2030. They further provided the main climate change actions for each priority area, and government experts provided the budget information for the priority climate change actions. The level of achievement in emissions reductions from the implementation of actions in the 2018–2022 NCCAP was calculated. In addition, emissions projections for the 2023–2027 period were determined for the priority actions identified in each of the mitigation sectors through modelling using the Low Emissions Analysis Platform (LEAP). This integrated scenario modelling tool was used to analyse energy and non-energy emissions and mitigation scenarios. The outcomes of this modelling are described in detail in the MTAR.

The preparation of the NCCAP 2023–2027 emphasised stakeholder consultation and engagement, recognising the importance of their inputs for a plan that is owned and implemented by all stakeholders across Kenya. Extensive consultations were held at various stages of preparing and reviewing the NCCAP 2023–2027 with numerous stakeholders including the Adaptation Technical Working Group and the Mitigation Technical Working Group, both of which were comprised of experts drawn from the public sector, private sector, and civil society. Consultations were also held with the private sector under the auspices of the Kenya Private Sector Alliance (KEPSA). As well, the consultation process engaged with representatives from civil society, marginalised and indigenous peoples and local communities including women, county governments, academia, and development partners. It is important to note that the CCD under the MECC&F engaged with Kenyan youth across the 47 counties on the priority climate change actions. A two-fold process was used: 1) in conjunction with GIZ and UNICEF a series of regional capacity building and consultation workshops were held; and 2) through UNICEF over 14,000 children and youth were engaged on the Yunitok platform. This was instrumental in ensuring intergenerational equity was upheld during preparation of this NCCAP.

Chapter 02

Climate Change Context in Kenya

Climate change impacts exert a detrimental effect on the economy, particularly due to its heavy reliance on climate-sensitive sectors like agriculture, water, energy, tourism, wildlife, and health. The economic ramifications of these impacts are substantial, estimated to range between 3% and 5% of GDP over the past decade.[4] These consequences are primarily attributed to global warming stemming from greenhouse gas (GHG) emissions, for which Kenya bears negligible historical or current responsibility, accounting for approximately 0.1% of total global emissions.

The NCCAP 2023–2027 recognises that action is needed to reduce GHG emissions that are projected to increase due to population and economic growth. Kenya's mitigation or low-carbon actions seek to help to keep GHG emissions lower than the projected trajectory and to deliver co-benefits, including sustainable development, green growth, and resource efficiency.

Nonetheless, adaptation is the priority for Kenya, recognising that climate change impacts are very detrimental to the country's population, impacting livelihoods and causing increasing levels of displacement and migration.

Scaling up of finance will be critical to implement the priority actions in the NCCAP 2023–2027. Kenya will need to explore various finance streams, including domestic budget allocations, international sources (including through financial mechanisms established under the UNFCCC such as the Green Climate Fund (GCF), Adaptation Fund, and Global Environment Facility (GEF); and other finance through multilateral and bilateral institutions), and investment and financing from the private sector.

Kenya is well positioned to benefit from the emerging carbon markets, selling carbon credits generated from various sectors that are aligned with the NDC commitments. Kenya has significant experience to build on, having registered 20 Clean Development Mechanism (CDM) projects,[5] and participated in 29 Programmes of Activities. Kenya has issued over 12.3 million Certified Emission Reductions with the top three sectors being renewable energy (geothermal and wind), improved cookstoves, and water purification.[6] In addition, Kenya has hosted a voluntary carbon standards portfolio totalling 72 activities, including in the forestry, agriculture, and blue economy sectors.[7] Amongst these are 51 registered Gold Standard activities, 19 Voluntary Carbon Standard projects and 2 Plan Vivo projects. In addition to voluntary markets, progress has been made for Kenya's participation in jurisdiction/compliance REDD+ markets by advancing the development of benefit sharing mechanisms, a registry, safeguards, and a Safeguard Information System. Amendments to the Climate Change Act were enacted by Parliament in 2023, setting up a legal framework for Kenya's active participation in carbon markets.

2.1 Climate Hazards

Kenya is exposed to climate hazards or the actual biophysical events that are driven by climate change. Slow onset climate hazards, such as temperature increase, drought, changes in precipitation patterns, and sea level rise have intensified.[8] Acute climate hazards, such as extreme precipitation, floods, landslides, and wildfires, are expected to increase in frequency and severity in Kenya.

Slow Onset Climate Hazards

Temperature Increase

The Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) reported that temperature increases, mainly due to human-caused climate change, were detected across Africa and many African regions warmed more rapidly than the global average. In East Africa, which includes Kenya, the AR6 reported that mean temperatures over the region increased by 0.7°C–1°C from 1973 to 2013, depending on the season. Increases in maximum and minimum temperatures were evident across the region accompanied by significantly increasing trends of warm nights, warm days, and warm spells, with the greatest increases found in northern and central regions.[9]

This aligns with the situation in Kenya where temperature rise has been recorded across all seasons but particularly during the March–April–May (MAM) long rainfall season, as illustrated in Figure 2 for Kitale, Mombasa, and Lodwar stations.

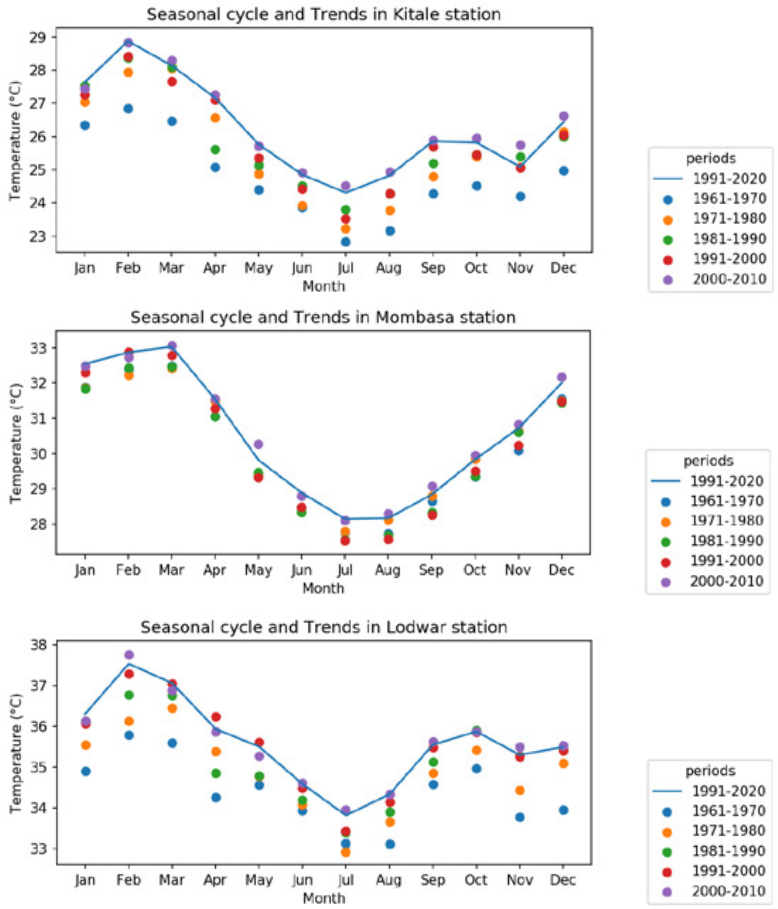


Figure 2: Variability and Trends of Mean Temperature across Seasonal Cycles in Select Kenya Towns between 1991 and 2020

Source: Kenya Meteorological Department (KMD), 2023.

This is consistent with the Kenya Meteorological Department (KMD) State of Climate Report (2022) that reported that Kenya's mean annual temperature has increased by 1.0°C since 1960 at an average rate of 0.21°C per decade and is projected to continue rising by 1.7°C by the 2050s.[10] KMD observed that several weather stations in 2022 recorded maximum temperature values exceeding long-term averages, and minimum temperatures that were higher than long-term averages.[11] Figure 3 below illustrates a comparison of 2022 average temperature with the long-term mean (1991–2020) for Kitale, Mombasa, and Lodwar stations. The cold season for Kenya (June to August) had the greatest deviation from normal compared to the other months of the year.

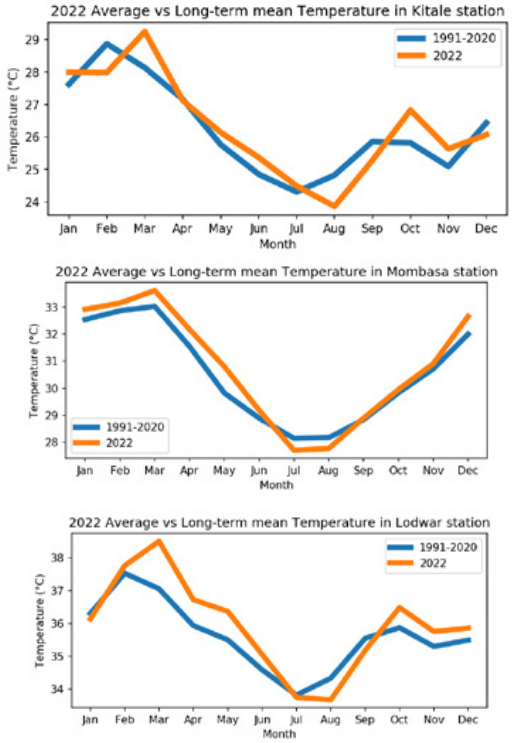


Figure 3: Comparison of 2022 Average Temperature for Kitale, Mombasa, and Lodwar with the Long-term Mean Temperature (1991–2020)

Source: KMD, 2023.

There are variations across the country, with less warming along the coastal region of the country[12] and higher temperature increases noted in some of the Arid and Semi-Arid Lands (ASAL) counties. For example, five counties have seen temperature increases of greater than 1.5°C over the past 50 years (Baringo and Turkana, 1.8°C; West Pokot and Elgeyo Marakwet, 1.19°C; Narok , 1.75°C; and Laikipia, 1.59°C).[13]

Changing Precipitation Patterns

Rainfall patterns have changed with the MAM long-rain season becoming shorter and drier, and the October–November–December (OND) short-rain season becoming longer and wetter. Overall annual rainfall remains low, with the long rains declining continuously and droughts becoming longer, more intense, and tending to continue across rainy seasons.[14] The World Metrological Organization (WMO) reported in 2023 that rainfall in East Africa was below average for five consecutive wet seasons, the longest such sequence in 40 years with Ethiopia, Kenya, and Somalia particularly hard hit.[15]

The rainfall was well below average across the region in the MAM and OND rainy seasons, with major impacts on agriculture and food security. In the northern and eastern pastoral and marginal agricultural areas of Kenya, the number of acute food insecure people was estimated to be 4.4 million between October and December 2022, almost 90% higher on a yearly basis. [16]

Extreme rainfall events have occurred with greater frequency and intensity. The frequency of rainfall events that cause floods has also increased over the MAM rainfall season, particularly during the month of April as seen in Figure 4 below. Heavy rainfall events in the East African region increased from an average of less than three events per year in 1980s, to over seven events per year in 1990s, and ten events per year from 2000 to 2006.[17]

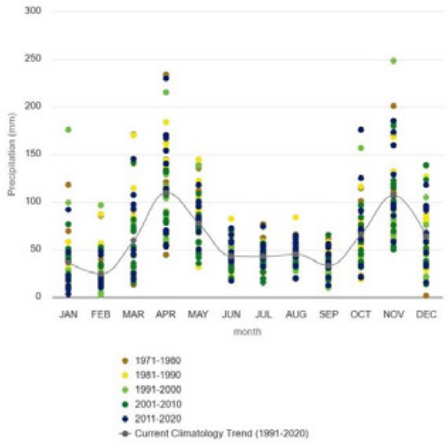


Figure 4: Variability and Trends of Precipitation Across Seasonal Cycles in Kenya, 1971–2020

Source: World Bank Group, 2023

Higher than average rainfall has contributed to rising water levels in the Rift Valley Lakes (such as Lake Bogoria, Lake Baringo, Lake Turkana, Lake Nakuru, and Lake Naivasha) that have led to flooding and submerged communities.

Precipitation trends in Kenya are projected to remain highly variable and uncertain, with significant geographical diversity in rainfall trends. Average rainfall is expected to increase by mid-century, particularly during the OND short rains, and there is some consensus that the OND short rains will deliver more rainfall than the MAM long rains by 2030–2040.[21]

Sea Level Rise

Sea-level rise caused by climate change is impacting the coastal areas of Kenya, a result of thermal expansion of the ocean due to warming as well as the addition of water from melting glaciers and ice sheets. The sea level rise along the Western Indian Ocean (3.6 mm/year) is slightly higher than the global mean value of 3.4 mm/year. In addition, the coastal areas of the Western Indian Ocean are subject to significant inter-annual variability especially during El Niño–Southern Oscillation (ENSO) events.

Acute Climate Hazards

Kenya continues to experience acute climate hazards such as extreme precipitation, extreme weather, droughts, floods, landslides, and wildfires, which are expected to increase in frequency and severity. Drought is defined as conditions that are significantly drier than normal or otherwise limiting moisture availability to a potentially damaging extent or as conditions where there had been a prolonged absence or marked deficiency of precipitation.[22] Floods result from water overflows that may result from intense and/or long-lasting precipitation, snowmelt, dam break, or reduced conveyance or landslides. Floods include river floods, flash floods, urban floods and sewer floods. The nature of floods depend on precipitation intensity, volume, timing, antecedent conditions of rivers and their drainage basins. Human encroachment into flood plains may increase the flood damage potential.[23] Landslides occur when masses of rock, earth, or debris move down a slope caused by disturbances in the natural stability of a slope which can follow/accompany heavy rains or follow droughts.[24] They can also occur as mudslides, when the masses of rock, earth or debris are water saturated. Degraded lands are more vulnerable to landslides. Wildfires refer to any unplanned and uncontrolled fire started on vegetation such as forest.[25]

Climate change is therefore causing an increase in average global temperatures, increasing temperatures, changing precipitation patterns, and rising sea levels creating significant environmental and economic disruption and adversely affecting Kenyans. The impacts of climate change and climate-related disasters are felt at the household level through food insecurity, damage to property, increased prices of food and fuel, and declining access to water and other environmental services. At the national level, repeating cycles of floods and droughts have had large socio-economic impacts and high economic costs as scarce government resources are re-allocated to address climate emergencies.[26]

2.2 Vulnerability to Climate Change

Climate vulnerability is the propensity of human and natural systems to be adversely impacted by climate hazards.[27] Vulnerability is influenced by the level of exposure and sensitivity to a range of current climate hazards and the likelihood of being more exposed to these risks in the future. In addition, vulnerability is influenced by the capacity to adapt to changing climatic risks. Table 1 below is a summary of climate hazards and climate change vulnerability in Kenya, including the key sources, vulnerability regions and groups.

Table 1: Summary of Climate Hazards, Climate Vulnerability, and Climate Risks in Kenya

Climate Hazards	Climate Change Vulnerability
Acute Increased frequency and severity of: • Heat stress • Extreme weather events • Floods • Landslides • Wildfires **Chronic / Slow onset** • Drought • Sea level rise and stronger storm surges • Ocean acidification	**Key sources of vulnerability** • Poverty, with 18% of the population considered extremely poor in 2022 (living on less than USD 1.90 per day); high levels of multi-dimensional poverty in the ASALs • Significant disparities between rural and urban areas, poverty rates in rural areas were 6.5 times higher than urban areas in 2022 • Population growth, with 75% of the population under the age of 35 in 2019 • Gender inequality • High reliance of the national economy and local livelihoods on natural resources • High dependence on rainfed agriculture and insufficient irrigation systems; 98% of agriculture production is rainfed • Water scarcity and mismanagement of water resources • Environmental degradation, including loss of forest cover • Pastoral mobility • Insecure land tenure and land fragmentation • Migration to urban areas • Poor urban and land-use planning; rapid and haphazard urbanisation • Large number of informal settlements due to rural–urban migration • Limited access to quality healthcare, particularly in rural areas • Inadequate access to improved technologies • Inadequate finance to address climate change priorities **Particularly vulnerable regions** • Arid and Semi-Arid Lands (ASALs) • Low-lying coastal regions

Climate Hazards	Climate Change Vulnerability
	Particularly vulnerable groups • Pastoralist communities, hunters and gatherers, and fisher communities • Women • Children/Youth • Persons with disabilities • Elderly • People with small landholdings and/or livelihoods dependent on natural resources • People living in informal settlements

In Kenya, specific regions (such as the ASALs), populations (such as women, children, youth, and persons with disability, senior citizens, poor and marginal households), and systems (such as food production and coastal systems) have a predisposition to be adversely affected by current and projected climate hazards. Poverty, for example, has affected the ability of communities in Kenya to adapt to climate change; and small landholdings limit crop diversification for small farmers. Kenya is recognised as highly vulnerable to climate change impacts and has been ranked 149 out of 181 countries in the 2020 Notre Dame Global Adaptation Initiative (ND-GAIN) Index (see Figure 5).[28] The high levels of climate vulnerability in Kenya can be attributed to poverty; low-lying coastlines; heavy dependence on rainfed agriculture; water scarcity; insecure land tenure; environmental degradation; and related conflicts over natural resources like water and pasture during the very dry seasons. [29]

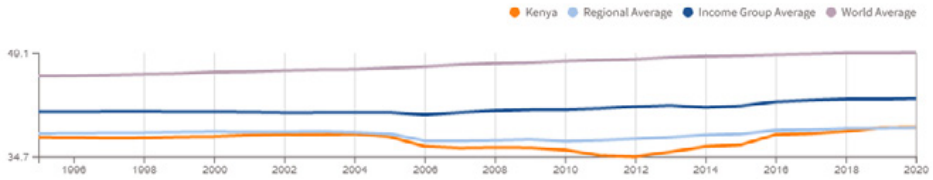


Figure 5: ND-GAIN Index for Kenya

Source: USAID Data Services. (n.d.). *International Data and Economic Analysis: ND-GAIN Overall Country Index.* https://idea.usaid.gov/cd/kenya/environment-and-global-climate-change

Communities and systems in the ASALs – which constitute up to 89% of the land area and 38% of Kenya's total population[30] – are highly vulnerable to climate change because of high levels of poverty and recurring droughts. Climate-induced disasters, including desert locusts and fall armyworms (FAW), as well as floods, prolonged dry spells, and heat waves have disrupted agro-pastoral activities, altered mobility patterns, and exacerbated the scarcity of natural resources, thereby worsening vulnerability for individuals and communities. Women and men in ASALs experience greater competition over resources than in other areas, and face more severe negative impacts of climate risks such as drought. Kenyan ASALs are experiencing rising populations and in-migration from the country's densely-populated highlands and experience lower access to infrastructure, such as potable water, electricity, and telecommunication facilities. Compounding this vulnerability is the prevalence of multiple forms of conflict, including disputes over natural resources, inter-ethnic violence, cattle rustling, border and land conflicts, drug trafficking, and terrorism.

Kenya's rapidly increasing population and subsequent migration to urban areas increases vulnerability to climate change. In 2020, about 51% of the urban population in Kenya lived in informal settlements that were poorly planned and without basic infrastructure and services.[31] These informal settlements are most at risk and vulnerable to the adverse effects of climate change as they largely occupy ecologically sensitive ecosystems. Many of the urban poor that live in informal settlements are highly exposed to floods; and face food insecurity contributed to by high food prices and the nationwide drought.

The most climate vulnerable groups include remote and pastoralist communities, hunters and gatherers, and fisher communities that are affected by climate change because of environmental degradation and growing competition for land and water.[32] The vulnerability level of households in pastoral rangelands is largely determined by the gender and education level of the household head.[33] For example, women-headed households are highly vulnerable to climate change due to lack of ownership and control over productive assets. The role of women as primary caregivers and providers of food and fuel makes them more vulnerable when flooding and droughts occur. During drought, women trek long distances to search for water for domestic use; while during floods, they spend a significant amount of time searching for firewood. In some instances, the drought causes them to resort to negative coping mechanisms.[34]

Persons with disabilities, children, and the elderly face heightened vulnerability due to the potential impacts of climate change on their health, often exacerbated by limited mobility. Notably, children and youth constitute a significant portion of the Kenyan population. As of 2019, youths under the age of 35 accounted for 75% of the population comprising children (0–14 years) – 18,541,982 (39.0%), adolescents (10–19 years) – 11,631,929 (24.5%), and youths (18–34 years) – 13,777,600 (29.0%).[35] Extreme weather events such as floods and droughts; an increase in temperatures; and climate change-exacerbated conflict pose unique threats to children's health, well-being, and future prospects. Kenya's Constitution and legislation requires that the best interests of the child should predicate any decisions concerning children, including climate actions. In addition, children and young people are the bridge between the present and future generations, and as such climate decisions and actions should have their welfare as a priority.

2.3 Impacts of Climate Change resulting from Climate Hazards

Socio-economic losses associated with climate change in Kenya over the past decade amounted to between 3% and 5% of GDP per annum.[36] Modelling estimates in the LTLED strategy suggest that Kenya's losses could rise to between 6.5% and 8.5% of GDP per annum between 2021–2050.[37] Kenya could lose up to USD 11 billion each year because of climate change, however the modelling indicates that about one-third of this loss can be averted through adaptation action.[38] The Fourth Medium Term Plan (MTP IV 2023–2027) has identified the increasing frequency and severity of droughts and floods, and occurrence of pests and diseases due to climate change as major challenges to achieving the objectives of MTP III 2018–2022.[39] In the period 2018–2022, Kenya faced different disasters resulting from climate hazards that had tremendous negative social and economic impacts.

Many of the impacts of climate change in Kenya can be lessened or addressed through the adaptation actions that are set out in this NCCAP 2023–2027. Many of these impacts cannot, however, be completely avoided due to financial or adaptive capacity limitations. There are increasing examples of displacements of populations and abandonment of pastoral, farming, and fishing livelihoods because of the impacts of climate change (such as drought, floods, and rising lake levels).[40] This is resulting in incidences of economic and non-economic loss and damage in communities, which are expected to increase as the global temperatures continue to rise. The national and county governments and communities cannot currently meet the costs of these climate impacts, many of which go beyond what can be addressed through adaptation funds. Kenya will work to access the Loss and Damage Fund under the UNFCCC, which is expected to fill gaps that current climate finance institutions do not meet.

2.3.1 Impacts of Droughts

Droughts have devastated livelihoods, triggered local conflicts over scarce resources, increased human–wildlife conflicts, led to deteriorating health conditions, eroded the ability of communities to cope, and at times resulted in forced displacement. Droughts cause declines in water levels affecting agricultural activities and livestock keeping, and in the worst cases causing loss of lives.[41] Droughts impact an average of 6.5 million Kenyans annually (13% of the population); this is projected to rise to 34% of the population in the future.[42] Droughts account for losses equal to 8% of GDP every five years.[43] While the impacts of drought are experienced across Kenya, the impacts are particularly acute in the ASALs, as discussed in this section. An example is the death of an estimated 2.5 million head of livestock in 2022 as a result of drought, which caused economic losses of more than USD 1.5 billion.[44]

The 2014–2018 drought was declared a national emergency in February 2017. At that time, it affected 23 out of the 47 counties, and then continued into 2018. Lamu and Taita Taveta counties received no rainfall at all in January and February 2018, whereas they typically receive up to 50 mm of rainfall in those months. The prolonged failure of rain and drought conditions continued into 2019, when West Pokot, Turkana, and Baringo counties required food aid because of reduced food availability. The OND 2018 rainfall was below normal, and was followed by below normal rainfall in the MAM 2019 long rain season in Northwestern Kenya, precipitating further drought conditions. Below normal rainfall during the 2019 OND season resulted in drought conditions and worsening livelihood conditions in Garissa, Mandera, and Wajir counties. The food security situation in the ASAL counties in 2019 was at one of the lowest levels in the last 15 years.[45]

The 2019–2023 drought was reported as the most severe and longest in 40 years, claiming the lives of people and livestock, while threatening the livelihoods of millions of Kenyans.[46] It caused massive displacement of populations with an estimated 508,104 people displaced by drought across five counties in Kenya by February 2023,[47] and its negative effects were worsened by the preceding COVID-19 pandemic. In February 2023, it was reported that around 4.4 million people (27% of the ASAL population) were facing high levels of Acute Food Insecurity, with about 774,000 people facing emergencies characterised by very high acute malnutrition/excess mortality or having to employ emergency livelihood strategies including sale of assets.[48] 3.6 million people were classified as facing a food security crisis characterised by above-usual malnutrition, or were marginally able to meet minimum food needs but only by depleting essential livelihood assets or through crisis-coping strategies. Acute malnutrition across the ASAL counties increased in early 2023 .

Due to the prolonged drought, farmers did not have substantive crop production for five consecutive seasons. The impacts were apparent in 2022 when drought conditions and depressed rainfall in many parts of the country severely impacted the agriculture, forestry, wildlife and fisheries sector, which contracted by 1.6% in that year compared to a contraction of 0.4% in 2021. The 2023 Economic Survey reported that production of many agricultural commodities declined in Kenya in 2022 compared to 2021 levels, as listed below.

- Maize production decreased from 36.7 million bags in 2021 to 34.3 million bags in 2022.
- Tea production decreased from 537,800 tonnes in 2021 to 535,000 tonnes in 2022.
- Horticultural exports decreased from 405,500 tonnes to 392,000 tonnes in 2022.
- The quantity of marketed milk decreased from 801.9 million litres in 2021 to 754.3 million litres in 2022 largely due to scarcity of fodder for livestock because of low rainfall.

At the same time, the volume of sugarcane deliveries increased from 7.8 million tonnes in 2021 to 8.7 million tonnes in 2022, largely on account of favourable weather conditions in sugarcane growing areas. Coffee production increased from 34,500 tonnes in 2021 to 51,900 tonnes in 2022, partly attributed to conducive weather conditions in the coffee growing areas and improved crop husbandry.[49]

Drought has negatively impacted the pastoralists over years and led to the loss of 70% of livestock and the death of more than 2.5 million head of livestock in the ASALs in 2022.[50] High rates of livestock mortality were noted in several counties during the month of March 2023. The most affected counties with above-normal livestock mortality rates (5%) were the ASALs and included Marsabit, Kajiado, Isiolo, Samburu, Turkana, Wajir, and Mandera.[51] It is estimated that 1.8 million extra cattle in Kenya could be lost by 2030 because of increased drought frequency.[52]

Recurring droughts have forced an estimated 30% of livestock owners out of pastoralism over the past 20 years.[53] From 2007 to 2017, losses in livestock populations due to drought-related causes amounted to about USD 1.08 billion.[54,55] The slaughter of livestock was increasingly adopted as an offtake measure due to shortage of pasture as a result of the prolonged drought. Thus, the number of cattle and calves slaughtered increased by 11.6% from 2,004,900 head of livestock in 2021 to 2,237,400 in 2022. Sheep and goats, and pigs slaughtered increased by 14.9% and 9.5% to 10,893,000 head and 389,300 head in 2022, respectively.[56]

The prolonged drought has resulted in a decline in household incomes in pastoral areas over the last few years due to low livestock sale values and the absence of milk to sell. Pastoral households are increasingly dependent on off-farm income sources, primarily derived from livestock herding, small businesses, petty trade, the sale of firewood and charcoal, and participation in charcoal labor. According to FEWS NET, households engaged

in herding earned on average around KES 4,333 to 6,111 per month (approximately USD 30 to USD 43 per month) in 2023, while households engaged in charcoal labour earned around KES 500 per day (approximately USD 3.60 per day) and can work around 19 days a month. Overall, the off-own farm income is mainly used to purchase food and, to a lesser extent, to cover education-related expenses.[57]

Food commodity prices skyrocketed while the purchasing power of most vulnerable households decreased, with terms of trade at a seasonal low in early 2023. Seven ASAL counties, predominantly characterised by pastoral livelihoods, were by February 2023 most affected, with 45% or higher of their total population facing a food security crisis: Samburu (45%), Tana River (45%), Turkana (50%), Garissa (55%), Mandera (55%), Marsabit (55%), and Wajir (55%).[58]

The UN Children's Fund reported that drought has increased gender-based violence, and issues that emerge during droughts include school drop-outs, teen pregnancies, transactional sex for basic needs including water, violence against children, child migration, and family separation. Child marriage has increased as families resort to giving girls in marriage in an attempt to replenish livestock that was lost during the drought.[59]

In marginal agricultural areas, it was reported that agricultural waged labour opportunities were low in March and April 2023 due to the delayed start to the rains in the MAM season. To earn income, households relied on off-own farm income that included producing and selling charcoal and firewood, livestock herding, and petty trade to earn income for food.[60] The amount allocated for the Hunger and Safety Net Program by the government was expected to increase by 31.7% from KES 4.1 billion in 2021/22 to KES 5.4 billion in 2022/23.[61] This is important because by February 2023, it was estimated that 970,214 children (6–59 months), and 142,179 pregnant and lactating women were acutely malnourished and would require treatment over the year. Importantly, the number of children and pregnant and lactating women that were estimated to be acutely malnourished in February 2023 marked a 3% and 6% increase, respectively, since June 2022.[62]

The ASALs support more than 90% of the wildlife that are the mainstay of the tourism sector, and these animals are impacted by drought through death, changes in the migratory patterns, and increased conflicts between people and large mammals like elephants. Kenya Wildlife Services (KWS) reported that in some years, more animals die from drought than poaching in Kenya.[63] The severe drought that was alleviated with the onset of rains in March 2023 saw significant numbers of wildlife species dying from lack of water and pasture and increased human–wildlife conflicts. KWS reported that the Amboseli ecosystem lost over 6,000 individual wildlife from 20 species in the most recent drought, the highest numbers recorded in that area.[64] Drought in 2021 and 2022 caused drought-related mortalities of several large mammal species in eight conservation areas (see Figure 6).

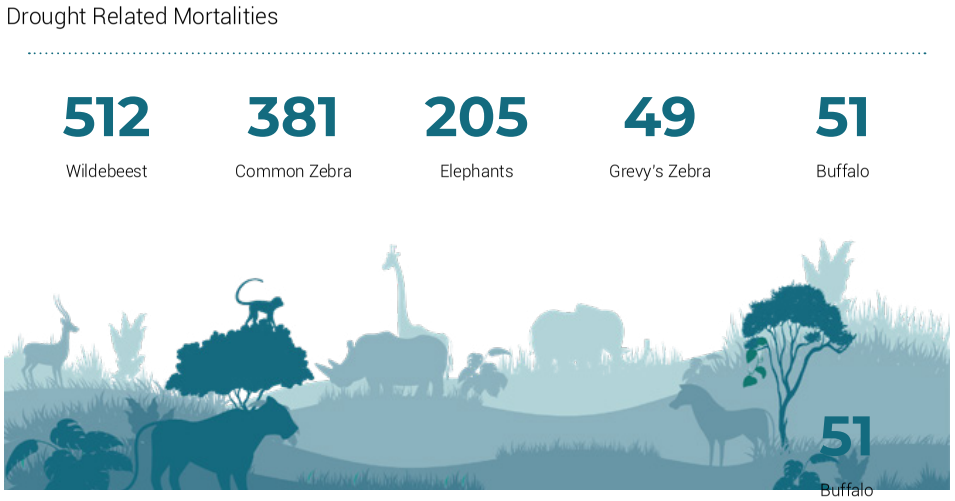


Figure 6: Drought-related Mortalities of Select Large Mammals in Eight Conservation Areas, 2021–2022

Source: Mwiu, S., Ngene S.,, Omondi, P., Ndeereh, D., Lala, F., Muteti, D., Khyale, C., Bundotich, G., Omengo, F., & Maina, P. (2022). *The Impacts of the Current Drought on Wildlife. Nairobi*: Wildlife Research and Training Institute. Page iii.

Drought and flooding has impacted the migratory patterns of wildlife, including the annual wildebeest–zebra–gazelle migration. Since 1977, the number of annual migrations has dropped from four to one, the number of animals migrating has decreased, and the time spent in Kenya has declined to 1.5 months from 4 months. While human settlements impact migration, drought is also a consideration as it impacts the availability and quality of grazing pastures.[65]

Drought also increases the incidence of human–wildlife conflict as animals enter human settlements in search of food and water. This has devastating impacts for humans, as lives are lost, and livestock and crops needed for livelihoods are destroyed. The impacts are also devastating to the wildlife that are maimed or killed as people strive to protect their lives and properties.[66]

2.3.2 Impacts of Floods

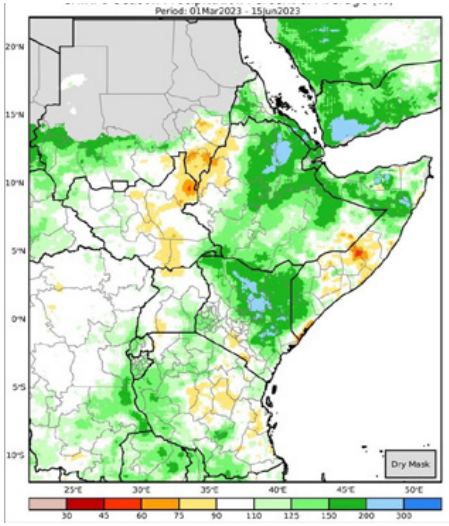
In Kenya, the recurrence of extreme rainfall events leads to floods and inundation. Major floods periodically afflict the Winam Gulf of Lake Victoria, the Lower Tana basin, and the coastal regions. Floods impact an average of 75,000 Kenyans annually, with increasingly significant numbers being in the informal urban settlements. The estimated costs of floods are about 5.5% of GDP every seven years.[67] Between 1990 and 2015, a total of 43 flood disasters happened in Kenya. This is equivalent to an average of 1.65 flood disasters per year. On average, each flood disaster affected 68,000 people.[68]

The NCCAP 2018–2022 progress reports indicated that floods in early 2018 claimed over 183 lives, displaced more than 225,000 people including over 145,000 children, and closed over 700 schools. Forty (40) out of 47 counties were affected. The floods also submerged an estimated 8,782 hectares of farmland, destroying crops within the same counties that had been affected by drought, and killed more than 19,000 livestock. The floods were associated with cholera outbreaks in at least five counties, and people experienced upsurges in mosquito-borne diseases, such as malaria and dengue fever. The heavy rainfall of the OND 2019 rainfall season resulted in widespread flooding that led to the displacement of many families, especially near the Kenyan border with Ethiopia. In 2020, floods adversely impacted more than 800,000 Kenyans in 29 counties; including about 300 people that died and 100,000 people that were displaced. [69]

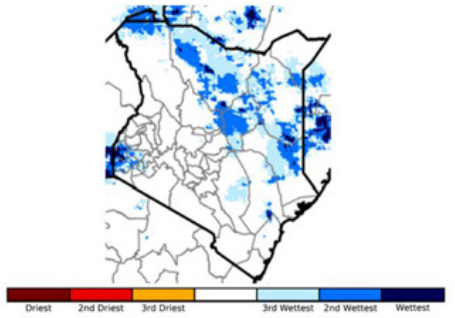
In 2021, due to heavy seasonal rains in some areas, a total of 55,002 people were displaced by floods in seven counties in Western Kenya, and the Rift Valley, and in Nairobi informal settlements by midyear. Flooding due to heavy rainfall, was experienced in parts of Garissa, Kitui, and Tana River counties in late November and early December 2021, affecting 2,500 households.[70] In 2022, farmers in Garissa county had not recovered from the adverse effects of the 2019 floods that destroyed the irrigation infrastructure and some farms were cut off after the Tana River changed course.[71] By March of that year, a total of 1,923 hectares of agricultural land were destroyed in 12 counties (Kisumu, Homa Bay, Busia, Migori, Tana River, Taita Taveta, Nairobi, Narok, Trans Nzoia, Elgeyo Marakwet, Siaya, Isiolo, and Marsabit). In Mandera, farms along River Daua remained wet from the flooding witnessed during the MAM 2023 which delayed planting. There is a risk that above average rainfall may lead to increased incidences of Rift Valley Fever and livestock losses from flash floods.[74]

FEWS-NET forecasts indicated that the expected above average 2023 OND short rainfalls were expected to create conditions conducive for the outbreak and spread of the vector-borne viral zoonotic Rift Valley Fever in January 2024 in Wajir, Marsabit, Garissa, Tana River, Kajiado, and Kitui counties.[75] The occurrence of Rift Valley Fever would likely result in quarantines across the affected areas, including bans on livestock movement and sales to curb its spread.

The 2023 MAM rainfalls were, cumulatively, more than 150% of the 40-year average across much of the south-eastern marginal agricultural areas and the Lake Victoria basin. They were also the third or second wettest season across much of northern and north-eastern Kenya recorded in the past 40 years (see Figure 7).



CHIRPS Season Precipitation Percent of Average (%).



CHIRPS Season Precipitation Rank since 1981 shows that the MAM 2023 rainfall season was the second or third wettest season across much of northern and north-eastern Kenya in 40 years.

Figure 7: Trends during the 2023 March–April–May Rainfall Season in Kenya

Source: Climate Hazard Center. (2023). Climate Hazards Group InfraRed Precipitation with Station (CHIRPS) Data. https://www.chc.ucsb.edu/data/chirps

Significant water level increases in the Rift Valley lakes, ranging from 21% in Lake Naivasha to 123% for Solai, have been mainly caused by increases in rainfall since 2010. This has resulted in significant differences between minimum and maximum water levels (e.g., 8.2 metres for Lake Baringo and 6.4 metres for Lake Nakuru). An estimated 400,000 people have been affected by the floods that have inundated homes, schools, hospitals, and farms; with large economic impacts.[76]

2.3.3 Impacts of Sea Level Rise

Estimates show that 267,000 Kenyans will be at risk from coastal flooding by 2030 because of sea level rise. An increase of 30 centimetres of sea water at the Kenyan coast is capable of submerging Mombasa and 17% of coastal areas.[77] This could be a threat to the country's economy, and to the movement of imports and exports by Kenya and countries that use the port of Mombasa, as the area supports tourism and fishing industries, and has the largest seaport in East Africa.[78]

2.3.4 Impacts of Desert Locusts and Fall Armyworm

Heavy rains in the Arabian Peninsula in 2019 and 2020 created conditions that caused a severe desert locust outbreak that affected Kenya and other countries in the East Africa region. These recent intense outbreaks of locusts, which were first witnessed in Kenya in decades, can be linked to anthropogenic climate change and the increased frequency of extreme weather events.

Damage to the 2019 crops was minimal, but the insects caused substantial crop losses in 2020.[79] The desert locust outbreaks affected 26 counties (15 ASAL counties) and the Food Security and Nutrition Working Group reported that approximately one-third of cropping households and half of livestock-rearing households in East Africa experienced locust-related crop and pasture losses.[80] A total of 609,999 ha (30,213 ha of cropland and 579,786 ha of pastureland) were lost as a result of the locust invasion in the 16 most affected counties.[81] The locust invasion led to hunger in both humans and livestock; cases of diarrhoea; and even death of livestock after ingestion of the locust droppings, which also affected open water sources carried by runoff water which caused stomach ailments in human beings. Displacement and conflicts increased as communities sought alternative food and feed for their livestock in the affected areas.[82] March 2021 saw a significant decline in the swarms of desert locusts due to control measures and below-normal rainfall.[83]

Since 2016, the fall armyworm (FAW) has become a major pest in Kenya, causing losses of about a third of the annual maize production, estimated at about 1 million tonnes.[84] In April 2023, the Ministry of Agriculture and Livestock Development (MALD) reported FAW incidences afflicting maize crop across different counties.[85] For example, all sub-counties in Baringo county reported unprecedented and devastating outbreaks of FAW. Increased infestation of FAW was reported in Trans Nzoia county, while Homabay county reported a high incidence of FAW despite ongoing rains. Climate change is a contributor to increased FAW infestations, which cause destruction not only of maize, but also sorghum and rice.[86]

2.3.5 Impacts on Conflict and Climate Security

Exposure to climate hazards under a context of high vulnerability can undermine human security and exacerbate the risk of conflict. At the same time, the presence of conflict has a significant effect on the well-being of an affected population and can increase their vulnerability to climate risks. This reinforcing feedback loop can potentially trap societies in a "vicious circle" of increased vulnerability and fragility, whereby the presence of conflict and insecurity further undermines their capacity to adapt and cope with the effects of climate extremes and variability, while the impact of climate worsens the underlying drivers of conflict.[87]

Cross-border and cross-county conflicts, particularly in the ASALs that are highly dependent on climate-sensitive activities, could be exacerbated by climate change. The scarcity of natural resources, which is worsened by climate change, is a driver of conflict.[88] For example, water scarcity is high and the few water points available are shared by livestock, people, and wildlife, amplifying the spread of waterborne diseases for both livestock and humans. In order to adapt to increasingly frequent dry spells and inadequate water and pasture, pastoralists are forced to adopt long alternative routes for transhumance or dig deep wells on the dry river beds. Trekking distances during the 2022 drought went up by 150%, with most pastoralists walking 20 to 35 kilometres daily to bring their livestock to water sources and return home.[89] In the ASALs, conflicts often arise in areas where there is higher water availability compared to the surrounding dry grasslands, as the search for grazing land and water forces migration from the lowlands to highlands. This increases competition over natural resources and increases the likelihood of conflict as pastoralists and their livestock, farmers, and wildlife are trying to access water and fodder within a limited space. Grazing routes often belong to specific clans and conflict can occur if these routes are not respected by other groups or they are in an insecure and contested area. This means that pastoralists have to opt for longer migratory routes, such as in north-eastern Kenya along the Turkwel and Kerio rivers, where high levels of insecurity have repeatedly forced pastoralists to migrate with their livestock to water sources in neighbouring Karamoja, Uganda. As the bordering Karamoja region is also suffering from the effects of drought, new concentrations of people and livestock are over-exploiting available resources, with the potential to spark new sources of conflict.[90] Cross-border conflicts could increase with neighbouring countries, such as Ethiopia, Tanzania, and Uganda, when pastoralists compete for food, water, and grazing lands.

Watering points often become a source of conflict, especially in the dry season. Grazing corridors between pastoral and agricultural sectors that are too narrow, causing animals to graze on the crops on either side, also have the potential to aggravate conflicts between farmers and herders. The below average 2022 long (MAM) rains resulted in poor rangeland conditions due to poor pasture regeneration. Across the pastoral counties, 80% to 90% of all livestock species migrated to dry season grazing areas and were expected to remain for the remainder of the season.[91] The long drought also induced the occurrence of resource-based conflicts in grazing areas where different herders and communities congregate, as well as sparking inter-communal conflicts due to migration of livestock herders into private ranches and farms.[92]

Conflicts within and between farmers and pastoralists communities further exacerbate security risks. For instance, Turkana, Marsabit, Isiolo, Wajir, Garissa, and Mandera experience occurrence of high conflict with different severities of drought stress.[93] Most of the areas that experience co-occurrence of high conflict and high drought stress are in Turkana (Turkwel, Kanamkemer, Kang'Atotha, Lake zone, and Lodwar Township wards) and Marsabit (Illeret ward) counties (see Figure 8). The most frequent conflict events reported in these areas are riots, violence against civilians, and protests. Further diving into the climate and conflict dynamics of the country, community-based rapid assessments on climate-related security risks served to broaden the scope of such mapping exercise, encompassing Laikipia, Baringo and Busia.[94]

Figure 8 below shows climate security hotspots in Kenya, defined as co-occurrence of conflict (high – red/orange to moderate/low – grey), climate and socio-economic risks.

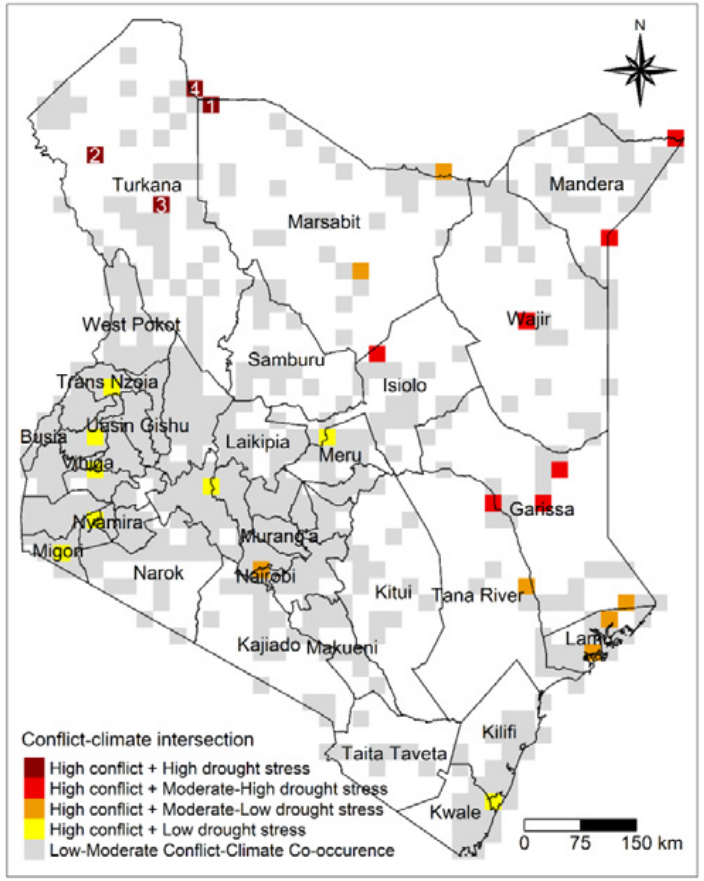


Figure 8: Climate Security Hotspots in Kenya

Source: Kenduiywo et al. (2023). CGIAR FOCUS Climate Security [95]

The dark red dots identify areas where high level of conflict co-occurs with harsh climatic conditions (high drought stress) and high level of socio-economic risks. In (1) Illeret, a high level of conflict and high drought stress co-occur with high level of undernutrition (wasting) and high level of inequality (years of education of males and females). In (2) Nakalale, Kakuma, Letea, Lopur, Songot and (3) Turkwel, Kanamkemer, Kang'Atotha, Lodwar Township, high levels of conflict and high drought stress co-occur with high levels of inequality and resource scarcity (estimated using a combination of the following variables: Shannon's livestock diversity index, Tropical Livestock Units, crop and pasture area, soil organic carbon content (fertility), irrigated area (number of km^2), piped water (% of households with piped water), percentage of forest loss per year, net primary production (NPP) average, and upper bound NPP. In (4) Lake Zone, a high level of conflict and high drought stress co-occur with a high level of inequality.

Therefore, the groups most vulnerable to climate and security risks are found in the high conflict areas that co-occur with adverse climate conditions, and include those areas with high levels of drought and low precipitation in the Northwest of the country, and in the pastoral and fishing zones of Turkana and Marsabit counties. These groups require targeted interventions because these areas are also exposed to different combinations of socio-economic and environmental vulnerabilities related to undernutrition, inequality, and natural resource scarcity. Compared to national averages, the communities are characterised by different combinations of low socio-economic status, such as low levels of education, high food insecurity, high proportions of economic dependence, and limited access to public services.[96]

Many artisanal fisher communities suffer from severe poverty and are impacted by climate change-induced storms and heavy rainfall that cause seas to get rough, especially in the May–June–July periods, when they are unable to fish or risk their lives attempting to earn income. The economic cost of impacts of climate change on fisheries and aquaculture is estimated to reach 3% of GDP per annum by 2030, and possibly 5% by 2050.[97]

The Banyala community in Busia county, for instance, have largely transitioned to subsistence farming and small-scale cash crop production since the 1990s due to the plummeting of fish stocks in Lake Victoria and increasingly harsh regulations from Kenyan and Ugandan governments. However, the increase in flooding has made it increasingly difficult for the Banyala community to find alternative sources of livelihoods, and they are now forced to go deeper into the lake and across the Ugandan border in order to fish. This is putting them at risk of arrest, torture, destruction of property, and death by Ugandan authorities and pirates. In this sense, the effects of climate change are forcing populations to maintain a livelihood strategy that puts them at risk of lawbreaking and insecurity.[98]

2.3.6 Climate Change Impacts on Vulnerable Groups

Impacts on Women

Women are vulnerable to climate change. Their role as primary caregivers and providers of food and firewood makes them more vulnerable when flooding and droughts occur. Drought compromises hygiene for women and girls, as the little water available is used for drinking and cooking. Whilst men's and boys' hygiene would also be threatened under drought, water scarcity has a greater impact on women's and girls given their addition hygiene needs during menstruation, pregnancy and menopause. Similarly, women's sanitation requirements are usually higher, considering they cannot easily urinate without facilities/into waterless urinals/without using toilet paper etc. and states like pregnancy can also increase the frequency by which they need to urinate, for example. It also negatively affects women's time management in the household. When nearby wells and water sources run dry, women and girls travel long distances to search for water. Longer dry seasons mean women have to work harder

to feed and care for their families. In both urban and rural areas, women have multiple demands in the home, workplace, and community, which leave less time for their political involvement and active participation in decision-making processes. Women in traditional communities may be subject to cultural beliefs that deny them equal opportunities and rights. Women are also more likely to experience poverty, less likely to own land, and have less socioeconomic power than men, which makes it difficult for them to recover from climate disasters that affect infrastructure, jobs, and housing.

Kenya's 2021 Gender Analysis that explored mainstreaming gender in Kenya's NDC explains that the impacts of climate change on women are particularly acute in the agriculture and water sectors. Women make up about 75% of the labour force in small-scale agriculture, yet hold only 10% of land titles and only 1.63% of agricultural land. When food availability is threatened by extreme weather events, the burden of sustaining families falls disproportionately on women and girls. Climate change is increasing water scarcity, which impacts women and girls in rural areas where only 14% of people have access to tap water, as women and girls are more likely to fetch water from springs, wells, boreholes, and streams. In times of water scarcity, women and girls travel long distances for water and have less water for hygiene.[99] Loss of income in the agricultural industry due to extreme weather events and drought increase the risk of intimate partner violence, with a 60% increase in violence against women reported in counties that experienced severe weather events between 2008 and 2014.[100] It is important to note that stakeholder engagement of children in particular will likely be moderated through their mothers, carers and educators, who are predominantly women. In this context, it is thus imperative to ensure that consultation with women on children's behalf is in addition to consultation with women on their own behalf, to avoid the pitfall of only instrumentalising women as tools or entry points to accessing children and neglecting them as a target group in their own right.

Impacts on Children and the Youth

Over 75% of the Kenyan population are children and the youth, aged 35 years and below[101] who are disproportionately affected by climate change. They face an increased burden due to extreme weather events such as floods, droughts, and rising temperatures. Climate change exacerbates conflicts, posing threats to the health, well-being, and future prospects of children and youth. The progress achieved in child health and development over the past decades is at significant risk of erosion. Children and young people are more vulnerable than adults to climate and environmental shocks, both physically and physiologically. They are less able to withstand and survive shocks, highly susceptible to nutrition deficits, and face an elevated risk of death from diseases aggravated by climate change.

The impacts of climate change and environmental degradation hinder access to essential services, pushing vulnerable children deeper into poverty and exposing them to the worst consequences of climate change. This impact is most evident among children under the age of 5, who experience unique physiological and emotional development. The Paris Agreement recognises climate change as a human rights issue, emphasizing the inclusion of children's rights and intergenerational equity. The right to a healthy environment is recognised as a powerful tool to protect children from the impact of environmental degradation and climate change.[102] Recently recognised by the UN General Assembly, this right is entrenched in Kenya's Constitution, and pertinent to effective implementation of all other rights outlined in the United Nations Convention on the Rights of the Child and the Universal Declaration of Human Rights.

According to the IPCC, children who were aged ten or younger in the year 2020 are projected to experience a nearly four-fold increase in extreme events under 1.5°C of global warming by 2100, and a five-fold increase under 3°C warming. However, such increases in exposure are not anticipated to be experienced by a person who was aged 55 in the year 2020 during their remaining lifetime under any warming scenario.[103]

In Kenya, climate change manifests through various environmental hazards, particularly floods, droughts, and heat stress caused by rising temperatures. Floods pose numerous issues, especially for children who are vulnerable to water-borne diseases due to inadequate sanitation. They also suffer from nutrition deficits caused by crop failure. When schools flood and become inaccessible or unusable, children face multiple risks as schools provide not only education but also meals, water, sanitation facilities, and social services. Special attention should be given to vulnerable groups of children, such as those with disabilities and those facing displacement.

The increasing frequency and intensity of droughts, coupled with limited access to water caused by facilities that lack resilience to climate change, significantly impact children's lives. Girls, in particular, spend more time searching for water from distant sources for themselves and their families. The farther they travel, the higher the risk of violence they face, including sexual violence. Fetching water and other domestic activities resulting from droughts disrupt children's education, with the most vulnerable missing out entirely. Limited access to safe water also exposes children to life-threatening water-borne diseases such as cholera and diarrhoea.

According to the 2022 Long Rains Season Assessment Report by the Kenya Food Security Steering Group, the number of children aged 6 to 59 months requiring treatment for acute malnutrition rose from 754,906 in February 2022 to 884,464 in July 2022.

Changes in climatic conditions, including temperature, rainfall patterns, and humidity, pose significant hazards for children. Projected changes in climate threaten the progress made in the health sector. Malaria, Rift Valley fever, malnutrition, water-borne diseases (such as cholera), scabies, jiggers, and lice infestations are among the negative impacts anticipated in Kenya's near- and long-term future. Moreover, the incidence and seasonality of other critical stressors to which children are vulnerable, such as heat stress, air pollution, asthma, vector-borne diseases (e.g., malaria, dengue, schistosomiasis, and tick-borne diseases), water-borne and food-borne diseases, and diarrheal diseases, are expected to rise. Given their physiology, children are more susceptible to temperature and humidity changes than adults, with young children especially vulnerable to heat stress as they may be unable to communicate or regulate their body temperature.

However, children and youth are not mere victims of climate change; they must also be empowered and provided opportunities to become agents of change in their communities, at the national level, and globally. By acknowledging and creating an enabling environment for children and youth to exercise their right to participate, climate action can become more widespread and sustainable. The systematic consultation and participation of children and youth must be inclusive, considering the diverse ages, genders, and social backgrounds affected differently by climate change. By incorporating climate change and disaster risk reduction education, collaborating with youth-led groups at the county and community level, building capacity, and cultivating young climate action champions, youth will drive awareness, understanding, and resilience-building efforts regarding climate change.

As mentioned earlier, the impacts of climate change undermine the effective realisation of the rights enshrined in the Convention on the Rights of the Child. These include prioritising the best interests of the child (Article 3), the rights to life, survival, and development (Article 6), the right to family relations and protection from separation (Articles 9, 10), the right to voice (Article 12), the right to the highest attainable standard of health (Article 24), the right to an adequate standard of living (Article 27), and the right to education (Article 28). Therefore, it is crucial to adopt a holistic approach to climate adaptation action that prioritises the needs of children as a highly vulnerable group, with particular attention to the most vulnerable among them. Children facing multiple vulnerability factors, such as those living in poverty, those with disabilities, and children on the move, require special consideration as they are highly susceptible to climate shocks. Children and youth have the right to be included and given a platform to participate in climate action. Empowering them with the knowledge and tools needed to tackle climate change will yield dividends in the country's resilience, well-being, and prosperity. Children and youth in Kenya are key stakeholders in addressing the climate crisis and promoting sustainable development more broadly.

Although children and young people are highly vulnerable to the impacts of climate change, they must not be viewed as passive victims. In fact, they have been at the forefront of the climate action movement worldwide, and are agents of change for a more sustainable planet. By recognising the vulnerability of children and young people to the impacts of climate change, NCCAP 2023–2027 also recognises their right as active participants in finding solutions.

Persons with disabilities

The 2019 Population and Housing Census recorded that 2.2% of the population were Persons with disability, with 57% being women, and 43% men. Mobility disability was the most prevalent nationwide. Climate change has been demonstrated to have both a direct and indirect impact on the effective enjoyment of the rights of persons with disabilities.

Persons with disabilities are often among those most adversely affected in an emergency, sustaining disproportionately higher rates of morbidity and mortality, and at the same time being among those least able to have access to emergency support.[104] Vulnerable groups, including socially marginalised populations, children, older persons and those with disabilities are especially at risk of displacement resulting from hazards such as floods and droughts.[105]

In Ganze, Kilifi county, communities have experienced a significant rainfall deficit during the 2018–2022 drought, causing a food and water crisis that has disproportionately affected women and girls with disabilities. The county is among 23 ASAL counties in Kenya that faced severe drought, which created new hardships for many women with disabilities, such as a loss of income and disruption to reproductive healthcare.[106] Similarly, in Kajiado county, women with physical disabilities had to travel longer distances and face long queues in search of water. Many were separated from their husbands who had left home in search of pasture for their cattle, leaving them without carers, and with little support from the community.[107]

The adverse impacts of climate change on individuals with multiple vulnerability factors, including women and girls with disabilities, require adequate measures that take into account their specific requirements and ensure their participation in disaster response planning for emergency situations and evacuations, humanitarian emergency response and healthcare services.[108]

Impacts on Pastoralists: Mobility and Displacement

There is evidence of human mobility of vulnerable groups in Kenya that is linked to climate change. Environmental and climate change factors play a significant role in shaping human mobility, with sudden onset disasters and slow-onset processes leading to different migratory outcomes. The impacts are felt differently by different age and gender groups according to their social context, which should be taken into account by integrating gender, human rights-based, and participatory approaches in the design and implementation of policies and programmes related to the climate change–migration nexus. There is a need to address knowledge gaps by understanding and applying local knowledge and practices in the development of appropriate adaptation responses. This will help to reduce the context-specific vulnerability of communities to the impacts of climate change. Migrants can contribute significantly by building climate resilience of communities and adaptive capacities to climate change, through such actions as diaspora engagement, skills and knowledge transfers, remittances and investment, or activities with host communities.

Human mobility is influenced by various interconnected factors, with reliance on resource-based livelihoods being one significant driver affected by the adverse impacts of climate change. Decreased agricultural productivity serves as a primary catalyst for rural-to-urban migration, often resulting in resettlement in risk-prone areas and informal settlements. Additionally, resource scarcity, often intertwined with historical land conflicts, may lead to displacements. Moreover, floods, droughts, and landslides contribute to the movement of people in affected regions.

Nevertheless, improved migration management stands as an effective adaptation mechanism to address these climate impacts.

Pastoral mobility, for instance, has historically been a commonly employed adaptation strategy to protect livestock productivity and minimise localised environmental degradation. However, climate-related extremes have progressively decreased the availability of water and pasture, meaning that pastoralist communities are increasingly forced to migrate towards and compete for the same resource bases.

The disruption of traditional pastoral migratory routes might therefore indirectly increase the probability of inter-communal conflict over natural resources, for example between pastoralist groups and between pastoral and agricultural communities.[109] Pastoral mobility is impacted by the decreased availability of natural resources, the deterioration of pastoral and agro-pastoral livelihoods, and the effects of extreme climatic events. Limiting or shifting the traditional mobility patterns is likely to render such communities even more vulnerable to climate shocks in the long term, especially when climate-related impacts make traditional migration routes impractical. For example, flooding has impacted the mobility patterns of ten communities that are affiliated with pastoralism (approximately 4 million people from the Borana, Dasanech, Gabra, Maasai, Pokot, Rendille, Sakuye, Samburu, Somali, and Turkana communities).[110]

In the aftermath of severe drought worsened by the failure of the MAM and OND rainfall seasons in 2022, the International Organization for Migration (IOM) assessed drought-induced mobility (see Table 2). Garissa county experienced the largest number of people departing, with 42,500 households leaving to search for coping options. The county also reported a significant loss of livestock or land becoming unproductive due to the drought with over 72,600 households dropping out of pastoralism and losing their capital and livelihood opportunities. This is a worrying outcome as pastoralism was the primary source of livelihoods in 95% of all the wards, which was largely decimated by the drought.[111] In Samburu county, pastoralist drop-outs were reported in 100 of 110 sub-locations accounting to 25,528 households. 52% of the pastoralist drop-outs were recorded in 2021 and 2022.[112]

Table 2: Total Number of Households Assessed as Impacted by Displacement

County	Sub-County details	Absentees (Households)	Arrivals (House-holds)	Returnee (House-holds)	Foreign Nationals (Households)
Samburu	3 Sub-Counties 110 sub-locations 686 settlements	7,879	9,736	4,772	15
Marsabit	9 Sub-Counties 134 Sub-Locations 1,045 Settlements	9,134	6,232	5,219	1,452
Isiolo	3 Sub-Counties 88 Sub-Locations 566 Settlements	4,067	4,852	2,070	157
Turkana	7 Sub-Counties 174 Sub-Locations 1,867 Settlements	21,044	22,627	18,816	1,005
Garissa	356 settlements	42,500 households	34,169	26,172	3,510 with 3,180 in Garissa township

Source: IOM, aggregated from 2022-2023 mobility tracking reports for the 5 counties.

The displacement of foreign nationals who come to Kenya was reported in the five counties. In Marsabit county, 99% of the foreign nationals were Ethiopians and 93% reported drought as the main reason for the movement, while others reported ethnic clashes. In Isiolo county, foreign nationals were mostly from Ethiopia, followed by Somalia. They reported drought, resource-based conflict, and clashes as the three major reasons for the forced movement. Cross-border forced displacement can have serious consequences, especially insecurity. In April 2023, 32 Turkana herders from Kenya were jailed for 20 years each in Uganda for illegally possessing firearms and ammunition.[113]

A 2023 IOM analysis of the treatment of human mobility in national and county climate change and disaster risk reduction frameworks in Kenya showed there has been increasing recognition of human mobility, starting from 2010, when the National Climate Change Response Strategy (NCCRS) was developed as the first climate change framework. Nonetheless, the study found that the NCCRS, NAP, and NCCAP 2018–2022 failed to consider all elements of human mobility, which includes migration, displacement, and planned relocation.[114]

2.4 Impacts of Climate Change by NCCAP 2023–2027 Sectors

Table 3 below highlights the risks and impacts organised by NCCAP 2023–2027 priority action areas.

Table 3: Highlights of Risks and Impacts Organised by NCCAP 2023–2027 Priority Action Areas

NCCAP 2023-2027 priority action areas	Climate risks and impacts in NCCAP 2023–2027 priority action areas
 Disaster Risk Management	Increased number of food insecure and malnourished people.
	Negative impact on livelihoods and need for alternative livelihoods.
	Submerged lake communities.
	Increased pastoral mobility, and potential conflict due to diminishing natural resources. Pastoralist communities are increasingly forced to migrate towards and compete for the same resource bases.
	Increases in insecurity and conflicts within Kenya and across borders.
	Declines in school attendance and increases in school dropout rates.
 Food and Nutrition Security	Deterioration in access to food
	Soil erosion and declines in soil quality .
	Changing dates of sowing and transplanting.
	Declining crop yields in most areas and for many crops due to insufficient availability of water, pests, and diseases. Uncertainty regarding the impact of production of specific crops, but likely reduction on yields of maize and beans, and potential reductions of export cash crops (tea, coffee, horticulture).
	Reduced crop production in the ASALs due to temperature increases and lower and erratic precipitation.
	Increased livestock mortality.
	Reduced livestock production due to lack of grazing lands, reduced access to water and heat stress.
	Expected changes in livestock disease patterns, and potential for re-emergence of climate related diseases and pests.

NCCAP 2023-2027 priority action areas	Climate risks and impacts in NCCAP 2023–2027 priority action areas
 Water, Fisheries and the Blue Economy	Water shortages and reduced availability of water for irrigation, livestock production, household use, wildlife and industry.
	Decrease in groundwater table.
	Wetlands and riverine systems are in danger of being transformed into other ecosystems due to rising temperatures.
	Modification of coastal ecosystems.
	More coastal flooding and changing patterns of shoreline erosion.
	Submergence of low-lying areas and increase in water logged areas.
	Increase in salt water intrusion, particularly if accompanied by lower rainfall.
	Damage to crit ical coastal infrastructure, such as the port of Mombasa.
	Negative impact on economic benefits of blue economy investments, including declining fisheries, damage to coastal ecosystems and tourism.
	Declines in fisheries and livelihoods dues to ocean acidification and warming oceans, and inability to fish due to storms.
	Thinning of coastal and aquatic biodiversity due to the effects of temperature increase on nesting and feeding grounds.
	Decline of productivity of fisheries in inland waters.
 Forestry, Wildlife and Tourism	Changes in the growth, composition and regeneration capacity of forests resulting in reduced biodiversity and reduced capacity to deliver forest goods and services.
	Increased forest exposure to pathogens, invasive species, and new pests and diseases.
	Reduced provision of environmental resources and economic activity.
	More frequent and intense forest fires.
	Death of animals due to drought.
	Increased human-wildlife conflict as animals seek water and food.
	Changes in migratory patterns and routes, including animals that track seasonal changes in vegetation and migratory birds that use seasonal wetlands, with implications for park boundaries.
	Tourist facilities affected by reduced water availability and lack of access due to damage to roads, buildings and other infrastructure.
	Adverse impacts on ecologically sensitive tourist destinations.
	Potential for species extinction.

NCCAP 2023-2027 priority action areas	Climate risks and impacts in NCCAP 2023–2027 priority action areas
 Health, Sanitation and Human Settlements	Greater risks of death and physical and psychological disease and injury.
	Greater risk of vector-borne diseases, including malaria spreading to higher altitudes.
	Increase in the incidence of Rift Valley fever, scabies, jiggers and lice infestations.
	Higher incidence of water-borne diseases such as cholera and typhoid.
	Increased risk of under-nutrition.
	Reduced labour productivity and work capacity.
	Increase in risk of collapse of buildings, declining health of buildings, and loss of value as a result of more frequent and heavier rain events and water encroachment, and storm surges in coastal areas.
	Building and property damage and destruction, with safety risk to humans.
	Migration from rural to urban areas leading to overcrowding of informal settlements, often in risk-prone areas.
	Forced migration or displacement.
	Heat islands in urban settlements.
 Manufacturing	Reduced water for manufacturing processes.
	Increased cost of inputs for manufacturing processes, potential decline in inputs for the agro-processing sector.
	Damage to manufacturing sites and job losses.
	Damage to and destruction of physical and natural infrastructure.
	Disruption of transportation networks.
	Disruption to communication networks.

NCCAP 2023-2027 priority action areas	Climate risks and impacts in NCCAP 2023–2027 priority action areas
 Energy and Transport	Reduced water availability for hydroelectricity generation.
	Damage to electricity generation, transmission and distribution infrastructure.
	Decline in forest productivity restricts availability of fuelwood.
	Increased demand for energy as high temperatures encourage the use of air conditioners and refrigeration.
	Damage to port facilities from increasingly severe storm events and sea level rise.
	Damage to infrastructure including roads, bridges and rail.
	Interruptions to maritime, road, rail and air networks because of flooding and heavy rainfall events.
	Softened and expanded pavement, creating rutting and potholes, and warping of rail tracks because of increased temperatures.
 Children and Youth	Children aged 10 or younger in 2020 are projected to experience a nearly four-fold increase in extreme weather events under 1.5°C of global warming by 2100, and a five-fold increase under 3°C warming.
	Increases in teen pregnancies, violence against children, child migration, and family separation. Girl children and female youth face a greater risk of violence, including sexual violence, as they travel further to fetch water.
	Increases in child marriage as families resort to giving girls in marriage in an attempt to replenish livestock that was lost during the drought.
	Declines in school attendance and increases in school dropout rates.
	Highly susceptible to nutrition deficits; more likely to suffer malnutrition and under-nutrition than adults.
	Elevated risk of death from disease aggravated by climate change, such as malaria.
	More susceptible to temperature and humidity changes than adults, with young children especially vulnerable to heat stress.

Source: Government of Kenya. (2023). ATAR III, 2023–2027.

2.5 The Greenhouse Gas Emissions Scenario

2.5.1 The GHG Emissions Baseline Scenario

For the NCCAP 2013–2017, Kenya's GHG emission reference case was meticulously prepared and extensively detailed in the mitigation background report. The process involved creating an inventory of historical GHG emissions spanning from 1990 to 2010 and projecting emissions through to 2030.

In 2010, the agriculture and forestry sectors, along with other land use activities, emerged as the primary contributors to emissions, collectively constituting approximately 67% of total emissions. This significant proportion was mainly attributed to emissions from livestock and deforestation, respectively. Following closely, the energy demand sector accounted for about 14% of emissions in 2010, with transportation trailing behind at approximately 10%.

The emission projections to 2030 formed the baseline against which to demonstrate the abatement potential of low-carbon/mitigation development options out to 2030. The growth rate of emissions was expected to be the greatest in the electricity sector, where emissions were projected to increase more than twenty-fold from 2010 to 2030 because of high levels of fossil fuels used for electricity generation. Emissions in the transportation sector were expected to increase by almost six times in the same time period, with waste and energy demand emissions approximately doubling. The agricultural sector was expected to continue to dominate emissions, mainly because of livestock enteric fermentation and manure management, with the relative share of agriculture in total emissions expected to remain constant to 2030. The forestry sector was expected to experience a decline in emissions from 2020 onward because of reduced deforestation and increases in the number of trees, as a result of tree-planting programmes and a projected reduction in wood harvesting.

In the absence of targeted mitigation interventions, the Business-as-Usual (BAU) GHG emissions projections show that emissions could amount to 143 $MtCO_2eq$ by 2030. This projected baseline is based on scenarios that were established for the NCCAP 2013–2017. In the baseline scenario, by the year 2030, the highest amount of emissions would come from the energy sector, particularly from electricity generation (energy supply), which when combined with energy demand (without transportation) would account for 51 $MtCO_2eq$ (35.7% of the total national emissions) in 2030. Energy is followed by agriculture with projected emissions of 39 $MtCO_2eq$ (27%), forestry (land use, land-use change and forestry-LULUCF) with 22 $MtCO_2eq$ (15%), and transportation with 21 $MtCO_2eq$ (5%) (see Table 4).[115]

Table 4: GHG Emissions Reference Case: Business-as-Usual Baseline Emission Projections to 2030

Sector	Baseline GHG Emissions ($MtCO_2e$)							
	1995	2000	2005	2010	2015	2020	2025	2030
Forestry (LULUCF)	10	21	18	21	26	25	23	22
Electricity generation	0	1	1	1	1	12	24	41
Energy demand	4	5	5	6	7	8	9	10
Transportation	4	4	4	7	9	12	16	21
Agriculture	24	23	26	30	32	34	36	39
Industrial processes	1	1	1	2	3	4	5	6
Waste	1	1	2	2	2	3	3	4
Total	**44**	**56**	**57**	**69**	**80**	**98**	**116**	**143**

Source: Government of Kenya. (2013). Mitigation. Kenya's National Climate Change Action Plan 2013–2017.

2.5.2 Potential GHG Emission Reductions through Mitigation

Kenya has undertaken various analyses to identify potential GHG emission reductions through mitigation action in key sectors out to 2030, including the NDC sector analysis report (2017), NCCAP 2013-2017 and 2018-2022, Second National Communication (2015), and the Updated NDC technical analysis (2020).[116] The National Long-term Low Emission Development Strategy (2023) considers a longer time frame to 2050 (see Table 4 below).[117] The updated NDC and the LTLED strategy are intended to have consistent mitigation targets from 2020 to 2030, with the long-term strategy considering emission reduction potential to 2050.

Table 5: GHG Emission Reduction Potential Relative to BAU Emissions in the Projections set out in the NDC, NCCAP I and II, and LTLED Strategy

Sector	NDC Sector analysis		NCCAP I & II Targets		Updated NDC Targets Potentials			LTS Targets	
	2030 BAU Emissions projection	2030 Emission reduction commitment	2015 emission reduction potential	2022 emission reduction potential	2022 emission reduction potential	2025 emission reduction potential	2030 emission reduction potential	2050 BAU emission projection	2050 abatement/ sink potential
Forestry (Abatement)	22	20.1	2.71	10.4	10.4	14.3	20.8	52.2	52.2
Forestry (Sink)									-41.1
Electricity generation	41	9.32	0.28	9.2	19.2	28.8	40.7	24	18.3
Energy demand	10	6.09	2.74	7.1	4	5.7	7.4	35	31.3
Transportation	21	3.46	1.54	1.9	1.9	3	4.7	76	75
Agriculture	39	2.77	0.63	2.61	2.7	5.3	9.7	87	49.8
Industrial processes and product use	6	0.78	0.26	0.45	0.8	1.4	2.4	14	12.6
Waste	4	0.39	0.05	0.36	0.7	0.7	0.8	16	14.3
Total	**143**	**42.9**	**8.21**	**32.02**	**39.7**	**59.2**	**86.5**	**304.2**	**253.5**

Source: Government of Kenya, MTAR 2023–2027.

The agricultural sector is expected to be a main source of emissions in 2050, but adopting the long-term agricultural sector strategy can ensure modest growth of livestock numbers and land converted to agriculture. In this NCCAP 2023–2027, the agriculture (crops and livestock) sectors have also proposed interventions such as sustainable land and pasture management and climate smart actions to address GHG emissions while increasing climate resilience.

Over the past 20 years, deforestation and shrinking forest cover has meant that the LULUCF sector has been a net emitter. In 2018, the sector contributed 52 $MtCO_2e$ of emissions. Kenya's forest cover was reported to be 8.83% of total land area in 2021 according to the national forest resources assessment report.[118] This was an increase from forest cover of 5.9% of total land area in 2018 according to the 2019 national forest reference level for REDD+. The LT-LED strategy used data from the 2019 forest reference level to model emission projections in the LULUCF sector. The LT-LED analysis determined that Kenya's forests provide an opportunity to be a carbon sink by absorbing more carbon from the atmosphere than they release. By reducing deforestation and increasing afforestation, the LULUCF sector could become a net carbon sink that removes 41 $MtCO_2e$ per year by 2050.

2.5.3 Emissions Reductions in the Period 2018–2022

This section provides a summary of the level of achievement in emissions reductions in Kenya in 2022, the end year of NCCAP 2018–2022 drawn from the Mitigation Technical Analysis Report (MTAR 2023–2027), which is Annex 1 to this NCCAP. The detailed analysis and additional explanations can be found in the MTAR.

Table 6: Summary of Progress Toward Achieving NDC Target Emissions by Sector in 2022

Sector	**Reference / BAU scenario emissions in 2022**	**2022 NDC target - Total expected emissions** ($MtCO_2eq$)	**2022 Actual emissions** ($MtCO_2eq$)	**Level of achievement in 2022** *(NDC target emissions less actual emissions)*
Energy Demand	8.4	5.3	6.8	Actual emissions were higher than the targeted emissions (deficit – below NDC target)
Energy Supply / Electricity Generation	16.8	14.4	1	Actual emissions were less than the targeted emissions (exceeded NDC target)
Transport	13.6	11.5	11.8	Actual emissions were higher than the targeted emissions (deficit – below NDC target)
Agriculture	34.8	33.1	49.6	Actual emissions were higher than the targeted emissions (deficit – below NDC target)
IPPU / Manufacturing	4.4	4	4.1	Actual emissions were higher than the targeted emissions (deficit – below NDC target)
Waste	3	2.8	2.7	Actual emissions were less than the targeted emissions (exceeded NDC target)
Forestry	24.2	13.4	47.3	Actual emissions were higher than the targeted emissions (deficit – below NDC target)

Source: MTAR 2023–2027

Table 6 above demonstrates the level of achievement in emissions reductions by 2022, indicating whether the NDC target was exceeded, or there was a deficit. In summary, actual emissions were less than the NDC target in two sectors (electricity generation and the waste sector) while in all other sectors, actual emissions were higher than the targeted emissions, resulting in a deficit.

Analysis on the impacts of the proposed mitigations actions in the 2023–2027 period on GHG emissions is set out in the MTAR while a summary for the relevant actions is indicated in Chapter 5.

Chapter 03

Situational Analysis

3.1 The Political, Economic, Social, Technological, Environmental and Legal (PESTEL) Environment

The effective delivery of NCCAP 2023–2027 requires a conducive and enabling political, economic, social, technological, environmental, and legal environment, discussed in this section.

3.1.1 Political Environment

The political leadership at the national and local levels supports prioritisation of climate action.

The President, through Executive Order No. 1 of 2023, established the Ministry of Environment, Climate Change and Forestry (MECC&F), and designated a State Department that is directly responsible for Environment and Climate Change. County governments have designated specific County Executive Committee Members (CECMs) to be responsible for climate change, as required by the Climate Change Act. The national government has appointed a Climate Envoy based at the Presidency to provide advice on matters related to climate change policy and action, and to represent Kenya in regional and international forums and negotiations on climate change.

BETA is the Government's plan that is geared towards economic turn-around and inclusive growth through a value chain approach. It identifies policy priorities expected to result in positive impacts on the economy and the welfare of households. Specifically, the priorities address key objectives namely: bringing down the cost of living, eradicating hunger, creating jobs, expanding the tax base, increasing foreign exchange earnings, inclusive growth, and uplifting the lives and livelihoods of those at the bottom of the pyramid. This will be achieved through targeted investments in five core pillars: Agricultural Transformation and Inclusive Growth; Micro, Small and Medium Enterprises (MSME) Economy; Housing and Settlement; Healthcare; Digital Superhighway and Creative Economy.

Relevant priorities in BETA that could lower vulnerability to the impacts of climate change and enhance inclusive development include:

1. ***Agriculture Transformation and Inclusive Growth,*** which includes:
   - Channelling KES 250 billion between the 2023 and 2027 financial years towards the sector.
   - Deploying modern agricultural risk management instruments, crop and livestock insurance schemes, and commodity market instruments such as forward contracts, futures contracts, and price stabilisation schemes to ensure farming is profitable and income is predictable.
   - Transforming two million poor farmers from food deficit to surplus producers through input finance and intensive agricultural extension support.
   - Raising productivity of key value food chains and other value chains such as maize, dairy, and beef.
2. ***Transforming Micro, Small and Medium Enterprises*** including provision of KES 50 billion a year for MSMEs through savings and credit corporations, venture capital, equity funds, and long-term debt.
3. ***Housing and Settlement,*** including provision of 250,000 housing units every year under affordable long-term housing finance schemes; and giving developers incentives to build more affordable housing.
4. ***Healthcare,*** including providing National Health Insurance Fund coverage for all Kenyans; and setting aside a KES 100 billion seed deposit towards strategic programmes including climate-sensitive diseases such as malaria.
5. ***Digital Superhighway and Creative Economy,*** including laying a 100,000 kilometre fibre optic connectivity network and rolling out fibre to counties, villages, schools, and over 24,000 businesses and homes.

BETA has been mainstreamed into MTP IV 2023–2027 which also prioritises climate interventions, including finance. The core BETA pillars will be implemented through five BETA sectors: Finance and Production; Infrastructure; Social; Environment and Natural Resources; and Governance and Public Administration. These five sectors represent an amalgamation of the 25 sectors of the MTP III (2018–2022).

MTP IV has identified the effects of climate change, including floods, prolonged droughts, and rising water levels, as a major risk to its implementation. It has also recommended the implementation of climate change adaptation and mitigation actions as a risk management measure. Therefore, the priority actions identified in NCCAP 2023–2027 are an important pathway for addressing the identified risks to MTP IV and the BETA.

Kenya is currently implementing the Financing Locally-led Climate Action (FLLOCA) project through which all 47 counties have put in place the governance frameworks (county climate laws, policies, and action plans) for local climate action, and are progressing in setting aside a minimum 1.5% of their development budgets for climate actions, allocated through the respective County Climate Change Fund. Further, County Climate Action Plans are mainstreamed into the County Integrated Development Plans (CIDPs) implemented over five years through the Annual Development Plans (ADPs).

Kenya is active on the continental and global climate deliberations including active participation in the UNFCCC negotiations, and hosting the inaugural African Climate Summit in September 2023.

3.1.2 Economic Environment

Kenya's economic growth for 2022 slowed down to 4.8% from 7.6% in 2021 due to the adverse impact of the multiple shocks that affected the economy. The growth in 2022 was supported by expansion of the services sectors while the agricultural, forestry and fishing sector contracted for the second consecutive year; contracting by 1.6% in 2022 and 0.4% in 2021. This is attributed to the prolonged drought effect that also contributed to a slowdown in growth in the manufacturing as well as that of the wholesale and retail trade sectors. The economy is expected to expand by 5.5% in 2023 as measures are implemented to address shocks such as the Russian invasion of Ukraine that has negatively impacted prices of commodities that Kenya imports, such as wheat and petroleum.

A number of the country's planned development projects, including some that relate to actions in NCCAP 2023–2027, may not receive adequate budgetary allocations due to competing demands for the revenues collected by the governments. Nonetheless, recent taxation measures are likely to boost climate-resilient investments. For instance, the 2023 Finance Act has zero-rated the Valued Added Tax (VAT) for Liquefied Petroleum Gas (LPG); and for inputs or raw materials locally purchased or imported for the manufacture of animal feeds. Recent government actions promote clean cooking through the zero rating of Bioethanol Vapour (BEV) Stoves (cooking appliances and plate warmers for liquid fuel). In 2023, EPRA approved a new electric-mobility tariff to encourage uptake of electric vehicles. The tariff, set at KES 16 and KES 8 during peak and off-peak hours, respectively, is lower than the standard domestic or commercial tariffs. These measures are consistent with the BETA priority to enhance private investments that deliver economic returns as well as climate results.

The government's commitment to low carbon climate resilient development is evident from the budgetary allocations to projects that support climate change mitigation, like the Bus Rapid Transit (BRT) for the Nairobi metropolitan area that was allocated KES 1.1 billion for the 2023/24 financial year. The country has seen an increase in renewable energy investments with the coming online of the Lake Turkana Wind Power (LTWP) Project, and the Kipeto Wind Power Project, both private investments. The LTWP is complemented by construction of a 438 km associated transmission line by the Government of Kenya through KETRACO. There have been various solar power projects during the NCCAP 2018–2022 period, either private or publicly funded that continue to enhance the climate resilience of the electricity generation sub-sector, while contributing to the reduction of GHG emissions in line with the 2020 NDC. A supportive economic environment is therefore key to successful delivery of the NCCAP 2023–2027.

3.1.3 Social Environment

The country's social situation is key to the success of the NCCAP 2023–2027. The overall poverty rate has continued to decline since 2015. In 2021, 38.6% or 19.1 million individuals were living in overall poverty.[119] This was compared to 42.9% or 20.9 million living in overall poverty in 2020.[120] Around 7.1% and 5.8% in 2020 and 2021, respectively, were hardcore (or extreme) poor, implying that 3.4 million people in 2020 and 2.8 million people in 2021 lived in abject poverty and were unable to afford the minimum required food consumption basket even if they allocated all their expenditure on food alone.[121] Extreme poverty incidence remained higher in rural areas than urban areas over the 3 years.

Biomass remained the dominant energy source for households. A 2019 Clean Cooking Study estimated that the annual market value of charcoal consumed at the domestic level alone is KES 68 billion.[122] The study also reported that 64.7% (8.1 million) of households in Kenya still used wood as their primary cooking fuel, followed by LPG at 19% (2.4 million) and charcoal at 10% (1.3 million). About 4.3 million households were found to depend solely on fuelwood for cooking. According to the Clean Cooking Study, between 1999 and 2018, the number of households using LPG increased about six times from approximately 0.6 million to 3.7 million (54% urban and 18% rural households, respectively, now use LPG). In 2023, the Kenya Demographic and Health Survey (2022) reported that 63.63% and 9.6% of urban and rural households were using clean cooking fuels and technologies which include stoves/cookers using electricity, LPG/natural gas/ biogas, solar, and alcohol/ethanol. During the same period, 16.9% and 7.7% of urban and rural households were using charcoal for cooking; and 9.2% and 80.1% of urban and rural households were using wood fuel for cooking.[123]

The recent VAT zero-rating of BEV stoves, especially cooking appliances, may enhance uptake of ethanol cooking fuels. The National Clean Cooking Strategy that is under development aims to meet the government's ambitious goal of "Universal Access to Clean Cooking by 2028" and contribute to the NDC target to abate GHG emissions of 2.8 $MtCO_2eq$ by 2030.

3.1.4 Technological Environment

Actions relating to technology and innovation are important enablers of success for the adaptation and mitigation actions described in Section 6. The overall objective is to support the sectors to promote appropriate technologies for delivery of adaptation and mitigation actions, such as water harvesting, climate information services, and clean lighting and cooking technologies. This will be achieved through technology development and transfer that is defined by IPCC as "a broad set of processes covering the flows of know-how, experience, and equipment for mitigating and adapting to climate change amongst stakeholders such as governments, private sector entities, financial institutions, civil society, and academia"[124]. Kenya is well known for technological innovations, such as MPESA, and most recently the government has teamed up with private actors in the telecom and banking ecosystems to deliver the *Hustler Fund* on a technological platform. The use of the e-voucher system for delivery of fertiliser subsidies to farmers across Kenya is another example of technology playing a role in investments that can increase climate resilience.

The digital superhighway and a creative economy is one of the priorities of the government's BETA platform. This aims to invest in technological solutions that create economic opportunities for the population, and provide relief from reliance on economic sectors vulnerable to climate shocks. Kenya's evolving technological capability, and disruptions, will be a valuable tool in delivery of the NCCAP 2023–2027.

3.1.5 Environmental Situation

Environmental degradation is a major driver of vulnerability to climate risks. Degraded ecosystems in Kenya are vulnerable to drought, and water scarcity adversely affects crop production, livestock, wildlife and electric generation. Forests play important ecological functions that enhance resilience. For this reason, the constitutional requirement to increase national tree cover to at least 10% of the total land area is important for tree growing in forest and non-forest lands. According to the 2021 National Forest Resources Assessment Report, Kenya has 7,180,000 ha of tree cover representing 12.13% of the total land area. Further, 37 out of 47 counties have a tree cover percentage higher than the constitutionally set target of 10%. In addition, Kenya has a national forest cover of 5,226,191.79 ha, representing 8.83% of the total area, with the central region, and parts of the western and coast regions being the most forested.[125] Rehabilitation of degraded lands, and sustainable land management interventions formed part of the priority actions in the NCCAP 2018–2022, and will be continued due to the multiple benefits to the environment, and the economy.

According to the National Water Policy (2021), water scarcity remains a major challenge for the country with an annual national water availability per capita of about 452 m^3. The 2030 National Water Master Plan projects that water demand will increase in all catchment areas, and the water balance is expected to be tight in all areas. Water demand includes domestic, industrial, irrigation, livestock, wildlife, and inland fisheries. According to the Master Plan, for the year 2010, the Athi Catchment Area had a higher water deficit than other catchment areas because it covers the cities of Nairobi and Mombasa, which are water demand centres on account of population size and economic activity. In the year 2030, the water deficit is projected to increase in all catchment areas due to drastic water demand compared with the year 2010, especially for Athi, Tana, and Rift Valley catchments, while for Ewaso Ng'iro the deficit is likely to result from higher evapotranspiration and lower precipitation as the catchment area covers an arid and semi-arid zone. The integrated catchment approach and ecosystem-based protection, especially in the upper catchments was a priority action in the NCCAP 2018–2022. This was together with addressing water wastage and reducing non-revenue water from a national average of 43% to 20% but this was not achieved as the non-revenue water levels rose to 45%.[126] As water is critical to social and economic progression, policy actions and investments to climate proof the sector will be necessary, including catchment protection, infrastructure and water efficiency.

The country has recently adopted a policy and law governing sustainable waste management. Once implemented, it will enhance circular management of solid waste including establishment of landfills, and contribute to lowering GHG emissions from this sector in support of the NDC.

It is clear that efforts are underway to restore and improve the environment for posterity but challenges remain. This require additional investments and policy measures that are set out in the NCCAP 2023–2027.

3.1.6 Legal Environment

The Constitution of Kenya sets the foundation upon which the Climate Change Act (No. 11 of 2016) was enacted by Parliament. The Climate Change Act establishes the legal framework on which all climate action in Kenya is anchored. Through implementation of the Climate Change Act, national government entities, including State Departments and State Corporations have, in compliance with the Climate Change Act, established Climate Change Units that coordinate the mainstreaming of climate actions. This law requires public entities, at the national and county levels, to integrate climate considerations into their planning, budgeting, decision-making, and implementation in order to support Kenya's objective of pursuing a low-carbon climate resilient development pathway.

3.2 Review of Progress of Implementation of the NCCAP 2018–2022

The Government of Kenya made substantial progress implementing the second NCCAP from 2018 to 2023. Implementation of adaptation and mitigation actions helped the government achieve domestic priorities and international obligations under the UNFCCC. The government tracked progress on climate action and identified learning through the preparation of two annual NCCAP implementation progress reports (2018/2019 and 2019/2020); a 2021 assessment of progress of the implementation of the NAP in the agriculture sector,[127] and consultations with stakeholders.

The second NCCAP included 22 adaptation actions, 9 mitigation actions, and 5 actions that met both adaptation and mitigation goals in 7 priority sectors. Enabling actions were identified for each sector and 28 enabling actions were prioritised in 6 cross-cutting areas. This section includes a short summary of progress on these adaptation, mitigation, and enabling actions, and an overview of lessons learned.

3.2.1 Progress on Adaptation

The priority actions on adaptation in the NCCAP 2018–2022 helped to deliver on the commitments identified in Kenya's NDC and the medium- and long-term goals set out in the National Adaptation Plan (NAP) 2015–2030. Over the 2018–2023 period, the Government of Kenya and its partners took action to reduce climate change-related vulnerabilities and to build adaptive capacity.

Emphasis during the period was on disaster risk management and preparedness, humanitarian action, and response actions to help the country address the impacts of drought, floods, and extreme weather events. At the national level, work was undertaken to issue cash transfers in areas impacted by drought through the Hunger Safety Net Programme and the National Safety Net Programme. Drought and flood early warning systems, climate information services, dam safety systems, and flood control systems were installed or improved to help communities cope with and manage climate risks.

Progress in the agriculture sector included increased acreage under sustainable land management, increased access to index-based crop and livestock insurance, reclamation of degraded lands, range rehabilitation and reseeding, increased acreage under conservation agriculture, and a reduction in pre- and post-harvest losses. Land productivity increased by 40%, more than 80% of smallholder farmers adopted at least one climate smart agriculture technology, and there was a large increase in the utilisation of climate information in the crops sub-sector. Increased investment in post-harvest equipment, such as solar dryers for cereals and compatible crops, needs to be scaled up.

Access to water for crops and livestock increased through enhanced water harvesting and storage, and drilling of boreholes and construction of water pans/dams; although the exploitation of irrigation remained challenging and underutilised. Livestock management improved through re-seeding of rangeland, and dairy farmers were supported to adopt efficient practices, although continued support is needed to assist farmers to adopt cattle breeds that are better resistant to drought conditions. The fisheries sector benefited from the establishment of fish cages and fishponds, and coastal fisher persons benefited from social safety net interventions. To increase adaptive capacity, 67,175 farmers, 90,000 pastoralists, and 250 fishers received support to transition to specialised and market-oriented outputs.

Water availability was increased through improved catchment

management plans, construction of dams, and improved water harvesting and storage infrastructure. The NCCAP goal of lowering non-revenue water levels from 43% to 20% was not met and requires attention going forward. The resilience of coastal communities increased through tree growing and the establishment of nurseries for mangrove rehabilitation. In the health sector, the incidence of malaria was reduced despite an increase in new malaria areas. Two urban centres screened their existing dumpsites for vulnerability to climate change and developed adaptation plans.

3.2.2 Progress on Mitigation

Work continued to increase the area of forest cover, recognizing the importance of prioritizing mitigation actions that have adaptation and sustainable development benefits. Forest cover increased to 8.83 percent of the total area. Achievements included tree planting, restoration of degraded forests, implementation of REDD+ projects, preparation and implementation of woodland management plans, preparation of ecosystem-based management plans for several national parks and reserves, increase in the acreage of wildlife habitat conserved, and establishment of commercial forest plantations. Private sector entities were key players in supporting the government in its afforestation and forest restoration projects.

The increase in the use of improved cooking stoves helped to reduce deforestation, as well as promoted the use of cleaner and more efficient fuels at the household level. About 740,000 households adopted ethanol for cooking, 20,000 biogas units are in use, and 10 percent of TVET institutions are using solar and biomass and energy-saving cookers. The government reduced the import duty on efficient biomass cookstoves, and reduced the tariff on LPG. A setback in the area of energy efficiency was losses in electricity transmission that increased from 18 percent to 22 precent because of technical and commercial losses.

Kenya continued to increase the percentage of renewables (geothermal, hydro, wind, solar) in its electricity generation mix, with renewable electricity generation comprising 88 percent of the electricity grid mix (11 % fossil fuels and 1% imports). Solar mini-grids were installed and wind projects established in several counties.

Work was undertaken to improve the resilience of energy and transportation infrastructure, including modifying hydropower projects to enable them to deal with unpredictable rainfall that impacts the electricity generating capacity of dams. Climate-proofing of transport infrastructure included undertaking a climate vulnerability assessment of the 740 km road being constructed under the Horn of Africa Gateway Development project and adjusting the design to improve drainage structures, and climate proofing of 3,098 km of roads.

With regard to addressing energy demand, the manufacturing sector focused on energy audits and energy efficiency, and several companies worked to save energy in their operations.

minimum performance standards were introduced for 6 household appliances. At the household level, 4.25 million compact fluorescent lights were distributed to 1.4 million households.

In the transport sector, progress was made in improving public transport with an extension of the Standard Gauge Railway (SGR) from Nairobi to Naivasha, with feeder public transport to improve last mile connectivity. Design of the Bus Rapid Transit (BRT) for Nairobi was completed and one line was under construction in 2023. At least 4,678,000 tonnes of freight from Mombasa to Nairobi were shifted from road to rail; Kenya Airways purchased two fuel-efficient aircraft; and 449 km construction of non-motorised transport facilities were constructed across the country. 15 electric buses were put into operation in 2022, and efforts have ramped up to promote electric vehicles including piloting of 2- and 3-wheelers, and reduced tariffs for electric vehicles.

Kenya continued with the implementation of Clean Development Mechanism (CDM) projects in such sectors as reforestation, energy efficiency, geothermal, wind and hydro.

3.2.3 Progress on Enabling Actions

The five overarching enablers – policy and regulatory framework; technology and innovation; capacity development and knowledge management; climate finance and resource mobilisation; and transparency and MRV+ – were meant to enhance the delivery of the actions set out in the seven priority areas. Highlights of progress in these five areas, based on the information in the two progress reports (2018–19 and 2019–20), are listed below.

Policy and Regulatory Framework

- 47 counties prepared county climate change policies and legislation.
- Draft National Wildlife Climate Change Adaptation Strategy developed in 2021.
- National Biodiversity Strategy and Action Plan, 2019–2030 highlighted adaptation interventions.
- Guidance on Climate-related Risk Management, 2021, issued by the Central Bank, guides institutions licensed under the Banking Act on climate-related risk management.
- The National Environment Management Authority (NEMA) revised the Environmental Impact Assessment and Strategic Environmental Assessment to include climate change.
- National Wetlands Restoration Strategy, 2023.
- Strategy to grow 15 billion trees by 2032.
- LT-LED prepared and launched in 2023 during the African Climate Summit.
- Climate Change Act amended in 2023 to provide carbon markets regulatory framework and streamline institutional arrangements.
- NDC updated in 2020.
- National Climate Change Learning and Awareness Strategy.
- Adaptation Communication, 2023.
- Guidelines for mainstreaming climate change into the education curriculum.
- REDD+ Strategy launched in 2022.
- Climate Change Act (public participation and access to climate change information) regulations 2023.
- Green Hydrogen Strategy launched in 2023.

Technology and Innovation

- 15 counties have Climate Information Services (CIS) plans (or 63% of the national target), and 3 counties (Kwale, Narok, and Siaya) developed Integrated Climate Risk Management Plans.
- 27 counties adopted gender-responsive climate change technologies.
- 14 counties are under Kenya Off-Grid Solar Access Project.

Capacity Development and Knowledge Management

- The National Climate Change Centre became operational.
- Training for national and county government officials on climate change mainstreaming and climate change reporting.
- 47 counties established Climate Change Units.
- 44 counties mainstreamed climate change in their planning processes.
- 40 counties had coordination with local communities on indigenous knowledge on climate change.
- Capacity built for 282 county staff on climate change under the NAP Readiness Programme.
- Capacity building and training of over 200 youth through the GIZ NDC Assist Programme.
- MECC&F conducted an in-depth gender analysis on the agriculture, energy, and water sectors of the NCCAP to facilitate gender considerations.
- Data on displacements and drought-induced mobility was tracked in 5 counties to inform decision-making and response.

Climate Finance and Resource Mobilisation

- 45 counties developed county climate change funds with budgetary allocations to CCCF.
- Climate Finance Unit established at the National Treasury, which as the National Designated Authority (NDA) to the GCF received GCF readiness funds of USD 3 million for capacity building.
- The Government of Kenya received USD 3 million from the GCF for adaptation planning and implementation.
- Financing Locally Led Climate Action (FLLoCA) programme launched in 2021 to finance priority interventions over the next five years.
- KCB Bank and NEMA accredited as National Implementing Entities of the GCF.
- Local bank officers received training to develop green credit lines aimed at financing renewable energy and energy efficiency.
- The National Treasury developed the Green Bond Framework and the Green Bond Listing Rules; a Green Bond was issued in 2020 to finance green student accommodation.

Transparency and MRV+

- 45 counties prepared Participatory Climate Risk Assessments.
- Third national GHG inventory completed.
- Dairy GHG Inventory using IPCC Tier 2 methods undertaken in the livestock sub-sector.
- SLEEK programme operationalised and used by KFS and Directorate of Resource Surveys and Remote Sensing to compute land cover changes through satellite images.
- CCD prepared two reports on progress on the implementation of NCCAP (for 2018/19 and for 2019/20), and one report on the implementation of the NAP in the agriculture sector.

3.2.4 Challenges and Lessons Learnt from Implementation of the NCCAP 2018–2022

Challenges in the implementation of the NCCAP 2018–2022 and lesson learnt were identified in the 2019–20 progress report,[128] and through stakeholder consultation. The main challenges are summarised below.

Challenges

- The locust invasion and COVID-19 pandemic led to diversion of government resources to deal with these emergent challenges, including budgets for climate change actions. Support from development partners for climate change action also reduced drastically.
- Achieving national development priorities in a changing climate is challenging. Despite successful implementation of many climate change actions, many local communities remain or are more vulnerable to impacts of climate change, and expected GHG emission reductions lag behind in some sectors.
- NCCAP implementation and reporting processes are not fully streamlined. A lack of clarity among stakeholders on roles and responsibilities for particular activities and targets hinders effective implementation and reporting. Technical capacity to address climate change is still weak, especially at the county level, but improving.
- Inadequate financial resources limit NCCAP implementation and reporting. Many institutions did not allocate or mobilise adequate resources for climate change activities. There is a lack of awareness about financial sources and the modalities for accessing finance for climate change action.
- The prolonged drought experienced in the country (2018–2023) adversely affected implementation of key resilience enhancing interventions including tree growing.

Lessons Learnt

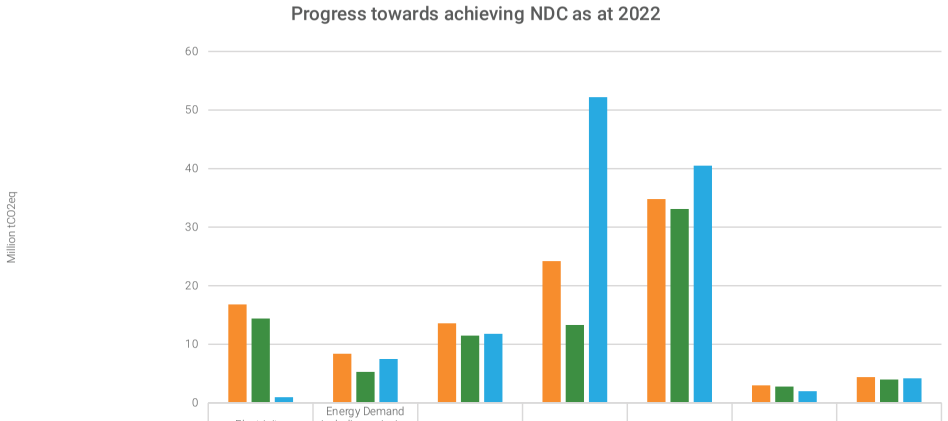
- The frequency and severity of climatic shocks and stresses are expected to increase, and action is needed to better understand and account for emerging climate hazards and risks. Greater effort is needed to better understand what adaptation actions are actually helping Kenyans cope with the impacts of climate change and what adaptation and mitigation actions provide the best value for money, achieve expected results, and create co-benefits that help the government achieve national development goals.
- Climate change continually presents new challenges for Kenyans and these may not be adequately addressed in the actions set out in this NCCAP. This points to the need for flexible and responsive adaptation and mitigation planning and budgeting to address emerging and unexpected climate vulnerabilities and risks.
- More focused attention and resources are required to better understand and address the impacts of climate change actions on women, children, the youth, and vulnerable groups, including persons with disabilities and migrants. The NCCAP 2023–2027 needs to better consider gender issues and encourage climate change actions that can be taken up by or positively impact vulnerable groups.
- Increased effort is needed to track the impact of climate change actions and the flow of financial resources for these actions. Such information is critical to understand which actions have the greatest impact at the least cost (value for money) and to understand the amounts and flows of both domestic and international finance for climate change at the national and county levels, and the finances generated by civil society and the private sector. Both government institutions and non-state actors need to be supported to mobilise additional financial resources for implementation.
- Adequate budget is required to coordinate and report on climate change action, and to understand how the implementation of the NCCAP contributes to national development goals. The CCD requires adequate and sustained budget – that is not generated from development partners on an ad hoc basis – for coordination, capacity development, tracking of actions, and reporting on the results of climate change action.
- Awareness creation and sensitisation on the NCCAP 2023–2027 is required to improve the buy-in and ownership of the priority climate change actions by stakeholders including the private sector and civil society.
- Institutions with functional climate change units or focal points are coordinating implementation and reporting better as they can access relevant information and support as necessary. This should be replicated across the board while integrating the lessons learnt.

3.2.5 Progress on the NDC Targets

The implementation of the NCCAP has helped the country move towards achieving its 2030 NDC commitments. In regard to the adaptation commitments, good progress has been made to mainstream climate change into the MTP and County Integrated Development Plans (CIDPs). The reports on progress of the implementation of the NCCAP 2018–2022 show that Kenya has implemented adaptation actions. These actions include:

1. Many counties have adopted climate risk-based approaches to identify adaptation priorities at the local level.
2. Climate information services and early warning systems have improved and the data generated informs decision-making.
3. Programmes have encouraged the uptake of innovative livelihood strategies that enhance climate resilience.
4. The government is increasingly investing in the blue economy.
5. Institutional strengthening on climate change has taken place across sectors and levels of government.
6. CCD has strengthened tools for coordinating and reporting on adaptation action.

With regard to mitigation, progress was made toward the emission reduction goal of abating GHG emissions by 32% by 2030 relative to the BAU scenario of 143 $MtCO_2eq$. Figure 10 below provides a summary of Kenya's progress towards achieving NDC emissions reduction targets by 2022. It is important to note that the reference emission scenario and NDC mitigation potential projections were modelled using the IPCC ad hoc working group report of 2010 Third Assessment Report which determined that the Global Warming Potential (GWP) potential of methane was 21 times that of CO_2. This is a different GWP than was used to calculate the emissions reduction status in 2022, which used the updated figure in the Fifth Assessment Report that determined that the GWP potential of methane was 28 times that of CO_2. The change in GWP mainly affected emissions projections for the energy sector (energy demand), agriculture, and waste.



	Electricity Generation	Energy Demand includingemission from charcoal production***	Transport	Forestry	Agriculture***	Waste***	IPPU
Reference emission (MtCO2eq)*	16.8	8.4	13.6	24.2	34.8	3	4.4
NDC target emission (MtCO2eq)*	14.4	5.3	11.5	13.4	33.1	2.8	4
Emission status by sector (MtCO2eq)**	1.0	6.8	11.8	52.3	49.6	2.7	4.2

Figure 9: Summary of the Level of Achievement in Emissions Reduction by 2022 in Six Mitigation Sectors

Source: MTAR 2023–2027.

Chapter 04

Enabling Legal, Policy and Institutional Framework

4.1 Global

Climate change is a global problem that demands global solutions, and Kenya is an active player in international efforts. The international response to climate change is founded on the ***United Nations Framework Convention on Climate Change (UNFCCC)*** that came into force in 1994. Kenya signed the UNFCCC on 12th June 1992, and ratified the Convention on 30th August 1994. The country is a key player in the global climate change governance system, and participates in meetings of the Conference of the Parties (COP) to the UNFCCC, articulating the national interest and the country's position during international negotiations. Kenya hosted COP 12 in 2006.

The ***Kyoto Protocol,*** a treaty linked to the UNFCCC, was adopted by the COP in 1997, and entered into force in 2005. Kenya ratified the Kyoto Protocol on 25th February 2005. The Kyoto Protocol commits both developed countries and developing countries in transition to market economics to reduce their overall GHG emissions. The Protocol established market mechanisms: emissions trading scheme (ETS), Clean Development Mechanism (CDM), and Joint Implementation (JI), to enable developed country parties and economies in transition to meet their emission reduction targets. The CDM, under which carbon abatement projects set up in developing countries that reduced GHG emissions and contributed to sustainable development, earned credits that could be sold to countries or companies with a commitment to reduce GHG emissions. The first commitment period started in 2008 and ended in 2012,[76] while the second commitment period commenced from 2013–2020 after the adoption of the Doha Amendment in December 2012. The Doha Amendment came into force in December 2020 but remains in abeyance. The need to commit all countries to have GHG emission reduction targets resulted in calls for a new (Paris) Agreement.

The ***Paris Agreement*** entered into force internationally on 4th November 2016. Kenya ratified the Paris Agreement on 26th December 2016 and it came into force for the country on 27th January 2017. As set out in Article 2(6), and read with Article 94(5) of the Constitution of Kenya, the Paris Agreement now forms part of the law of Kenya. The Paris Agreement aims at strengthening the global response to the threat of climate change by keeping rise in global average temperature during this century to well below 2°C above pre-industrial levels while pursuing efforts to limit the temperature increase to 1.5ºC. Additionally, the Agreement aims at strengthening the ability of countries to deal with the impacts of climate change. The country's updated (2020) NDC reflects the most recent plan to contribute to the global goals set out in the Paris Agreement.

The inaugural Global Stocktake, which assessed collective progress towards the achievement of the Paris Agreement goals, was concluded during COP 28. This stocktake lays the foundation for countries, including Kenya, to update their NDCs in 2025.

Kenya is signatory to the ***Convention on Biological Diversity*** (CBD) (1992) and the ***United Nations Convention to Combat Desertification*** (UNCCD) (1994). Kenya became Party to CBD on 24th October 1994, and ratified UNCCD on 25th June 1997. These two conventions, plus the UNFCCC, are known as the Rio Conventions and are intrinsically linked to ensure that land, climate, and biodiversity benefit from a joint approach to restore our balance with nature.

The Sendai Framework for Disaster Risk Reduction 2015–2030 is a voluntary agreement that recognises that member states have the primary role to reduce disaster risks, but that responsibility should be shared with other stakeholders, including local governments and the private sector. It aims to substantially reduce disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries. Kenya adopted the *Sendai Framework* in 2015 and has hosted the 8th Regional Platform for Disaster Risk Reduction in 2021.

Kenya is a signatory to the ***Vienna Convention for the Protection of the Ozone Layer*** and its Montreal Protocol on Substances that Deplete the Ozone Layer, a global agreement with universal ratification to protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances. The Protocol came into force on 1st January 1989. Kenya ratified the Montreal Protocol on 9th November 1988. The Kigali Amendment to the Montreal Protocol seeks to phase down the production and usage of hydrofluorocarbons. At the end of 2014, over 98% of controlled ozone-depleting substances had been eliminated. A very significant co-benefit is GHG emission reductions of 135,000 $MtCO_2e$ from 1989 to 2013. Kenya ratified the Kigali Amendment to the Montreal Protocol on 22nd September 2023.

The ***Stockholm Convention on Persistent Organic Pollutants*** is an international environment treaty that came into force in May 2004. The Convention aims at eliminating or restricting the production and use of persistent organic pollutants. Kenya ratified the Stockholm Convention on 24th September 2004. Climate change has potential impacts on the releases, transport, distribution, and toxicity of persistent organic pollutants, which could lead to higher health risks for human populations and risks to the environment.

The ***Minamata Convention on Mercury*** aims at protecting human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. The Convention was adopted and opened for signature in October 2013; 94 countries had ratified the agreement by June 2018. Kenya ratified the Minamata Convention on 22nd September 2023 becoming the 147th Party to commit to making mercury a history. Both the *UNFCCC* and *Minamata Convention* place a significant onus on emissions from coal combustion.

The ***United Nations Convention on the Law of the Sea (UNCLOS) of 10th December, 1982*** seeks to establish a comprehensive set of rules governing the oceans. Kenya ratified the UNCLOS on 2nd March 1989. The interface between climate change and this international law includes changes to the existing boundaries of maritime zones because of sea level rise, and requirements to regulate emissions from aircraft and marine vessels.

The International Civil Aviation Organization (ICAO) Assembly at its 40th session in 2019 adopted *Resolution A40-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*. It reiterated the two global aspirational goals, established in 2020, for the international aviation sector to ensure carbon neutral growth from 2020 onwards, and a 2% annual increase in fuel efficiency up to 2050. In 2015, Kenya set a target to achieve an annual average fuel efficiency improvement of 2%, which is equivalent to 2.86 $MtCO_2e$ until 2030, and an aspirational fuel efficiency improvement rate of 2% per annum from 2031 to 2050. Kenya ratified the *Convention on International Civil Aviation* (CORSIA) on 1st May, 1964. Kenya has supported the Global Market Base Measure scheme to reduce aviation emissions and is voluntarily participating in the CORSIA pilot phase starting from 2021 to 2023. The pilot phase includes aircraft technology improvements, operational improvements, sustainable aviation fuels, and market-based measures. Kenya submitted the baseline data for 2019 and 2020 as per the ICAO Annex 16 Vol. 4 requirement and participated in successful capacity building under ACT-CORSIA.[129]

Kenya has been a member of the **International Maritime Organization (IMO)** since 1973. IMO adopted an initial strategy in 2018 to reduce total annual GHG emissions from ships by at least 50% by 2050, compared to 2008. The *Protocol to the International Convention for the Prevention of Pollution from Ships, 1997*, known as *MARPOL Annex VI*, regulates air emissions from ships. Compliance with IMO regulations has mitigated GHG emissions from international shipping. Jomo Kenyatta University of Agriculture and Technology hosts the regional Maritime Technology Cooperation Centre for the Africa region that aims at helping to mitigate the harmful effects of climate change. The Kenya Ports Authority has initiated a *Green Port Strategy.*

The Climate and Clean Air Coalition to Reduce Short-lived Climate Pollutants, founded in February 2012, is a voluntary partnership of over 160 governments, intergovernmental organisations, businesses, scientific institutions, and civil society organisations that are committed to improving air quality, and protecting the climate through actions to reduce short-lived climate pollutants. These pollutants include emissions of black carbon (soot), methane, tropospheric ozone, and some hydrofluorocarbons. Kenya became a partner of the coalition in 2012.

The Global Compact for Safe, Orderly and Regular Migration, adopted by Kenya in 2018, offers an opportunity to anchor environmental and climatic dimensions in the international migration governance agenda. It offers a space to acknowledge the importance of climate change and environmental drivers, the multi-causality of migration, and the impacts of migration on the environment. The global compact recognises that disaster preparedness measures need to better anticipate forced migration movements linked to disasters, and calls for states to develop adaptation and resilience strategies to sudden-onset and slow-onset disasters, the adverse effects of climate change, and environmental degradation taking into account the potential implications for migration, while recognising that adaptation in the country of origin is a priority. Kenya's 2023–2026 national implementation plan for the Global Compact for Safe, Orderly and Regular Migration addresses the commitments related to addressing human mobility in the context of disasters, climate change, and environmental degradation under thematic area 2.

Kenya is committed to the ***2030 Agenda for Sustainable Development*** that was adopted by world leaders, including the President of the Republic of Kenya, in September 2015 at the United Nations (UN) Sustainable Development Summit. On 1st January 2016, the **17 Sustainable Development Goals** (SDGs) officially came into force. While the SDGs are not legally binding, governments are expected to take ownership, and establish national frameworks for their achievement. The *2030 Agenda* includes dedicated goals for climate change (SDG 13), protecting, restoring, and promoting sustainable use of terrestrial ecosystems (SDG 15), and mainstreaming climate change impacts and climate actions across all the SDGs. The Agenda introduces the overriding objective of "leaving no one behind" that has strong implications for the definition, and selection of climate actions. This objective prioritises the poorest and most marginalised people, so that they progress at a higher rate than those that are better off. An SDG Coordination Directorate was created under the State Department of Economic Planning at the National Treasury and Economic Planning to provide leadership in mainstreaming the SDGs in planning, policies, and budgeting at national and county levels. It also coordinates tracking and reporting on SDGs. This has ensured that the five-year MTPs and CIDPs mainstream the SDGs, climate change adaptation, and disaster risk management.[130]

4.2 Regional

At the regional level, the ***African Union's Agenda 2063*** commits to climate change action that prioritises adaptation and calls on member countries to implement the Programme on Climate Action in Africa, including a climate resilient agricultural development programme. Agenda 2063 commits to building climate resilient economies and communities, and notes that participation in global efforts for climate change mitigation will support and broaden the policy space for sustainable development. The ***African Union Climate Change and Resilient Development Strategy and Action Plan (2022–2032)*** was adopted in February 2022 and provides a framework for regional collaboration and joint collective action on climate change at the continental level. It provides a framework for African countries to pursue their climate change and development agendas, working toward the realisation of Africa's Agenda 2063.

The African Union's Peace and Security Council released a communique in 2021 on the theme of climate change, peace, and security. The communique highlighted how climate impacts aggravate conflict and called for a "continental framework to proactively respond to the security threats posed by climate change". This set out an Africa-wide agenda for climate security that was advanced by Kenya in her role as Presidency of the UN Security Council.[131]

Kenya signed the ***Kampala Ministerial Declaration on Migration, Environment and Climate Change*** in July 2022, which is the first regional policy framework that comprehensively addresses the impacts of climate change on human mobility. The Declaration outlines 12 commitments by its signatory states to address the effects of climate change on human mobility in the East and Horn of Africa region as well as capitalise on the opportunities to further sustainable development. It aims to build and strengthen climate resilience and adaptive interventions of all communities living in fragile ecosystems, flood prone water basins, low-lying areas, and mountain slopes including enacting urgent regional and national legislation, policies, strategies, and financing for action. This Declaration also recognises the need for creating and increasing investment in the green economy, such as circular economy, renewable energy and energy efficiency, climate smart agriculture, digital economy and nature-based solutions. Kenya and Uganda championed the continental expansion of this declaration prior to the first Africa Climate Summit in September 2023 and signed the continental expansion addendum during the Summit.

The **East African Community (EAC)** Secretariat developed a *Climate Change Policy and Strategy (2010)* to guide Partner States and other stakeholders on the preparation and implementation of collective measures to address climate change in the region. The policy prescribes statements and actions to guide adaptation and mitigation, reduce the vulnerability of the region, enhance adaptive capacity, and build socioeconomic resilience of vulnerable populations and ecosystems. The EAC climate change master plan (2011–2031) provides the basis to operationalise a comprehensive framework for adaptation and mitigation, which guided the preparation of the 2018 regional climate vulnerability impacts assessment. In 2023, the EAC Climate Change Bill was awaiting approval by the East African Legislative Assembly.

The **Eastern Africa Alliance on Carbon Markets and Climate Finance** was formed in 2019 to assist Kenya and six other East African countries to participate, shape, and enhance their readiness in regard to the market mechanisms under Article 6 of the Paris Agreement. The coalition supports countries to manage the transition from CDM projects, build capacity to participate in the UNFCCC negotiations, exchange experiences, and to build investor confidence in emerging instruments. A profile of the carbon market in Kenya was published in 2023.[132]

The African Forest Landscape Restoration Initiative *(AFR100)* seeks to bring 100 million hectares of land in Africa into restoration by 2030. The commitments announced under AFR100 also support the *Bonn Challenge* adopted in 2011, whose overall

objective is to restore 150 million hectares by 2020, the New York Declaration on Forests that stretches the goal to 350 million hectares by 2030, and the *African Resilient Landscapes Initiative* that promotes integrated landscape management to promote adaptation to, and mitigation of climate change. In 2016, Kenya committed to restore 5.1 million hectares of forest land.

The ***Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods*** was adopted by the Heads of State and Government of the African Union, having met at the Twenty-third Ordinary Session of the AU Assembly in Malabo, Equatorial Guinea, from 26–27 June 2014. It emphasises commitment to an earlier decision (through the Maputo Declaration, 2003) to allocate at least 10% of public expenditure to agriculture, and to ensure its efficiency and effectiveness. The Declaration also commits to reduce vulnerabilities of the livelihoods of the population through building resilience of systems. In this regard, the Heads of State and Government resolved to: (a) ensure that, by the year 2025, at least 30% of the farm, pastoral, and fisher households are resilient to climate and weather-related risks; (b) enhance investments for resilience building initiatives, including social security for rural workers and other vulnerable social groups, as well as for vulnerable ecosystems; and (c) mainstream resilience and risk management in the policies, strategies and investment plans.

The ***Africa Climate Summit***, held in September 2023, called for urgent action to reduce carbon emissions and proposed a new financing mechanism to unlock climate funding. This inaugural Africa Climate Summit aimed at addressing climate change in the African context; and provided a platform to inform, frame, and influence commitments, pledges, and outcomes for climate change adaptation and mitigation in Africa. The Summit resulted in the Nairobi Declaration that identified 23 critical commitments and 20 calls to action that are important for collective action at the continental and global levels. [133]

4.3 National Laws, Policies, Strategies, and Plans

Kenya has a strong history of climate change governance beginning with the enactment of the new constitution and development of the National Climate Change Response Strategy (NCCRS) in 2010. The policy and legal framework for adaptation includes the Climate Change Act (No. 11 of 2016), NAP (2015–2030), and three National Climate Change Action Plans (2013–2017, 2018–2022 and 2023–2027). Kenya submitted her first NDC in 2016 and an updated version in 2020. The NDC responds to both domestic needs and international obligations under the UNFCCC and Paris Agreement; and its adaptation and mitigation priorities are aligned with the NAP and this NCCAP. As stated in the NCCAPs, NAP and NDC, adaptation is the priority for Kenya. Table 7 below presents a summary of the key legal and policy documents related to climate.

Table 7: Key National Policies, Legislations, Strategies, and Plans Related to Climate Change

Document	Brief Description
The Constitution of Kenya, 2010	The mother law in Kenya. Article 42 establishes Kenyans' right to a clean and healthy environment including the right to have the environment protected for the benefit of present and future generations. A healthy environment calls for the sustainable use of ecosystems and consequently continued access to ecosystem goods and the services they provide which are critical for adaptation.
	The Constitution, in Article 10, requires that its implementation, the making and implementation of any law or public policy should take into account values and principles of national governance, including sustainable development, social inclusion, and public participation.
National Climate Change Response Strategy, 2010	Formally recognised the need for coordinated efforts in addressing climate change issues in Kenya. It recommended the development of a climate change policy and legislation on which adaptation and mitigation activities were to be anchored. Consequently, a stand-alone climate change act and related governance structures and plans (e.g., NCCAP and NAP) were developed and supported coordinated action.
National Policy for the Sustainable Development of Northern Kenya and other Arid Lands, 2012	Over 80% of Kenya is comprised of ASALs that are characterised by high dependence on pastoralism, mobility, and high levels of poverty. Popularly known as the ASAL policy, it was adopted to facilitate and fast-track sustainable development in ASALs by increasing investments in the region and ensuring that the use of resources is fully reconciled with the reality of people's lives. It aimed at strengthening the resilience of ASAL communities to drought and other climate-related impacts through development and climate proofing of infrastructure, sustainable use of natural resources, livelihood diversification, and improved linkages to markets, among others.
National Climate Change Action Plan: 2013–2017 2018–2022, and 2023–2027	A five-year iterative tool for mainstreaming climate actions across all sectors of the economy and the two levels of government. Mechanisms for mainstreaming climate change in priority sectors include the policies and strategies, coordination structures, planning cycles (guidelines and templates), investments, and financing. It is used for implementing both the NDC and NAP and the majority of the actions are adaptation. Updating and/or revision of the NCCAP is an inclusive process involving both levels of governments, private sector, research and academia, communities, CSOs, media, and other actors.

Document	Brief Description
National Adaptation Plan 2015–2030	Aims at consolidating the country's vision on adaptation by supporting macro-level adaptation actions that are aligned with the economic sectors and addressing county-level vulnerabilities to enhance long-term resilience and adaptive capacity. It is implemented through the five-year NCCAPs. The NAP highlights climate vulnerabilities and priority areas for building climate resilience. It presents adaptation actions that cover the time frame 2015–2030 and builds on the foundation laid by the NCCRS and NCCAPs 2013–2017 and 2018–2022. Furthermore, it is the basis for the adaptation component of Kenya's NDC.
Second National Communication to the UNFCCC, 2015	Assesses Kenya's national circumstances and responses to climate change. The report contains the 2015 greenhouse gas inventory for Kenya and examines potential measures to mitigate the increase of GHG emissions. The chapter on assessment of vulnerability and adaptation sets out climate scenarios and assesses impacts and vulnerabilities in key sectors. It proposes priority mitigation and adaptation actions that are aligned with what is captured in Kenya's NAP and NCCAPs.
Environmental Management and Coordination Act, 1999	Emphasises maximum participation by stakeholders in the development and implementation of policies, plans, and processes for the management of the environment and provides for the relevant institutional framework for the coordination of environmental management including the NCCAPs. The Act provides for environmental protection through environmental impact assessment; environmental audit and monitoring; and environmental restoration orders, conservation orders, and easements.

Document	Brief Description
Climate Change Act, 2016, Amendment 2023	The Climate Change Act is the first comprehensive legal framework for climate change governance in Kenya with the objective of enhancing low carbon climate resilient development through among others promoting the uptake of technologies that support low carbon and climate resilient development; facilitating capacity development for public participation in climate change responses through awareness creation, consultation, representation and access to information; and providing incentives and obligations for private sector contributions towards low carbon climate resilient development. Additionally, the Act provides for and supports mainstreaming of climate change actions into development planning, decision-making, and implementation. It sets out principles for climate change planning and implementation of measures, and recognises the complementary role of national and county governments. The latter is critical considering the local nature of much climate action.
	Amendments to the Climate Change Act were assented into law in 2023 in order to provide for the regulation of carbon markets and to provide policy direction that prescribes carbon reduction credits that aim to reduce emissions from current sources through projects; removal or sequestration credits that take carbon dioxide out of the atmosphere and either use or store it via afforestation, reforestation, nature-based solutions, or technology-based removal; technologies and projects on the whitelist; and emission credits that should not be taken into account. The amendments also set down rules for the trade in carbon markets and the mechanisms for participation in an initiative authorising trade in carbon credits, and a mandatory requirement for all carbon projects to specify the anticipated environmental, economic, and social benefits of the project. Further, the carbon markets regulations are under development to operationalise these amendments to the Act.
The National Drought Management Authority Act, 2016	Creates the National Drought Management Authority (NDMA) as a permanent institution with a specific mandate of managing drought in a more pro-active and sustainable manner. It recognises drought as the most important climate-related hazard for Kenya and the need to sustainably invest in building resilience to drought in a coordinated manner. The Act also establishes the National Drought Emergency Fund to finance timely responses to drought and to support capacity strengthening in drought management.
National Urban Development Policy, 2016; and Urban Areas and Cities Act, 2011, Amendment, 2019	The urban development policy and legislation provide a framework for the establishment and governance of urban areas (i.e., cities, municipalities, towns, and market centres). The policy and legislation guide planning and development in urban areas, and the implementation of key actions in these areas, which contributes to the balance between urbanisation and sustainable development. These bodies play a key role in integrating climate resilience considerations and low carbon actions in urban centres.

Document	Brief Description
Climate Risk Management Framework, 2017	The framework bridges climate change adaptation, disaster risk management, and sustainable development at national and county levels. The framework ensures that the three distinct entities are pursued as mutually supportive rather than stand-alone goals and that an integrated approach to climate risk management becomes a key component of policy and strategy for resilience building.
Kenya Climate-Smart Agriculture Strategy, 2017–2026	Developed to improve productivity and build the resilience of agricultural systems while minimising GHG emissions. Recognises the high vulnerability of agriculture sector and identifies priority interventions for building resilience of the sector through the implementation of Climate Smart Agriculture (CSA) practices in the crop, livestock, and fisheries sectors in support of food and nutrition security and poverty reduction.
Kenya Climate-Smart Agriculture Implementation Framework Programme, 2018–2027	Provides guidelines for the implementation of the CSA strategy at national and county levels in support of food security and economic development. The national government is largely expected to lead on policy development and support capacity building, while county governments lead on implementation since agriculture is a devolved function.
National Climate Change Framework Policy, 2018	Formulated to ensure the integration of climate change considerations into planning, budgeting, implementation, and decision-making at the national and county levels, and across all sectors. The goal is to promote low carbon climate resilient development through pursuing a number of objectives including providing an effective and efficient institutional framework for mainstreaming climate change; reducing vulnerability and catalysing the transition to climate-resilient development; incentivising private sector involvement; and providing a framework for resource mobilisation in support of climate change action.
National Climate Finance Policy, 2018	Establishes the legal, institutional, and reporting frameworks to access and manage climate finance, consistent with the institutional structures and framework set out in the Climate Change Act, 2016. Interventions with respect to this policy include establishing a national Climate Change Fund, identifying climate financing sources, and creating a national system for tracking climate finance. Its operationalisation is meant to address the issue of inadequate finance for adaptation and mitigation interventions.
National Biodiversity Strategy and Action Plan, 2019-2030	Guides strategies aimed at addressing declining biodiversity and related challenges. It aims to reduce the loss of biodiversity, promote the value of biodiversity, and improve community livelihoods. Includes adaptation interventions such as conservation of agricultural biodiversity through increased support to local communities in the production and sustainable utilisation of indigenous and/or traditional species for food and other uses.

Document	Brief Description
Nationally Determined Contribution, 2020	The updated NDC communicated the country's mitigation and adaptation priorities and needs to the international community, including the emission reduction goal of abating GHG emissions by 32% by 2030 relative to the BAU scenario of 143 MtCO2eq.The NDC prioritises adaptation and sets out adaptation actions and approaches that are aligned with Kenya's NAP and NCCAP. The goal is a low carbon climate resilient society that is to be achieved through mainstreaming climate change actions in Medium Term Plans (MTPs) and Country Integrated Development Plans (CIDPs).
Guidance on Climate-related Risk Management, 2021	This guidance, issued by the Central Bank of Kenya in October 2021, aims to guide institutions licensed under the Banking Act on climate-related risk management. The guidance sets out basic requirements for financial institutions in regard to the identification, management, and reporting of climate-related risks, including physical risk, transition risk and liability risk..

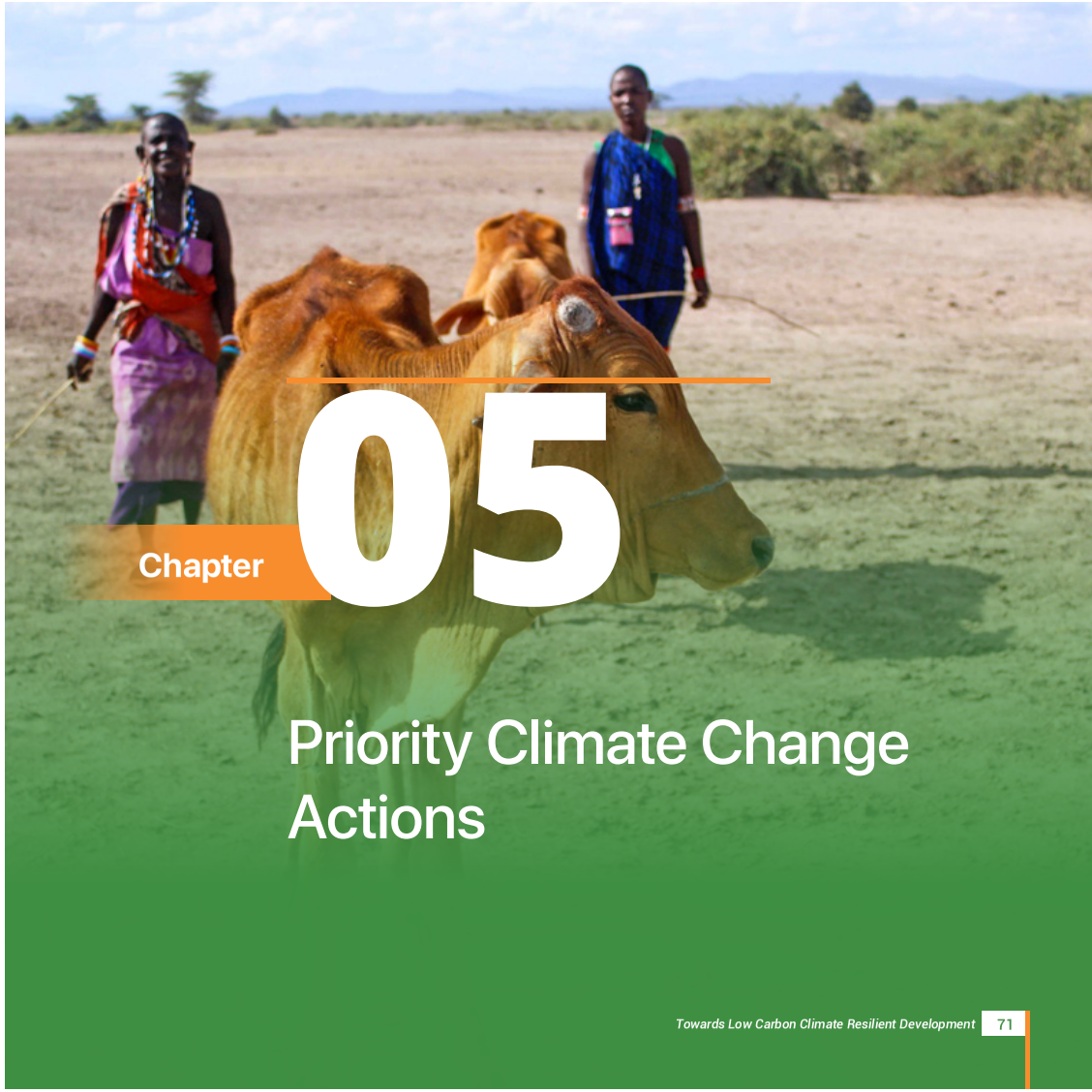
Source: Government of Kenya. (2023, in publication). *Kenya's Adaptation Communication to the United Nations Framework Convention on Climate Change*. Ministry of Environment, Climate Change and Forestry, Climate Change Directorate.

4.4 County-level Policies and Strategies

The Climate Change Act, 2016 requires county governments to integrate climate change actions into their plans and policies. In furtherance of this agenda, 45 counties have prepared climate change-specific policies and legislations and set up ward climate change committees, with the remaining two counties at an advanced stage. Additionally, some have developed strategies and regulations to operationalise the legislation. The County Climate Change Fund (CCCF) mechanism that aims to enhance access and channel climate finance to the community level has been established in 45 counties in 2023, up from 5 in 2018. These counties have also fulfilled the commitment to allocate a minimum 1.5% of their development budget to the CCCF.

Many counties have climate change governance structures down to the ward level which is the lowest planning unit. With the support of the climate change planning committees, local communities through participatory processes identify and prioritise interventions to be financed using their CCCF, most of which are focused on adaptation.

The integration of climate information into planning and implementation has been supported through county-specific Climate Information Services (CIS) plans prepared by KMD in collaboration with partners. Many counties have CIS plans that are based on local needs and are contributing to improved access and use of climate information at institutional and household levels. The National Drought Management Authority (NDMA) also supports the 23 ASAL counties with Drought Early Warnings that are issued monthly for drought preparedness and early action.



Chapter 05

Priority Climate Change Actions

The NCCAP 2023–2027 takes cognisance of the impacts of climate change on Kenya's socio-economic sectors. It identifies strategic areas where climate change action over the next five years will be linked to the BETA recognising that climate change could limit its achievement. The negative effects of climate change in Kenya were evident in early 2023 when floods resulting from the MAM rains destroyed thousands of hectares of crops and killed livestock. Other negative impacts included an increase in vector-borne and water-borne diseases, such as malaria and cholera; damage to infrastructure including homes, schools, hospitals, and public buildings and places; and high electricity prices due to reliance on thermal generators when reservoir levels are too low to sustain adequate electricity generation from hydro sources.

Adaptation actions are prioritised in the NCCAP 2023–2027 because of the devastating impacts of droughts, floods, and extreme weather events in Kenya, and the negative effects of climate change on vulnerable groups, including children, youth, women, older members of society, persons with disabilities, members of minority and marginalised communities, displaced persons, and migrants. Emphasis is on actions that help to scale up preparedness and response efforts to help people adapt, reduce vulnerability to future risks, and minimise and address losses and damages. The adaptation actions will be undertaken, where possible, in a way that limits GHG emissions, so as to ensure that the country achieves its NDC under the Paris Agreement of reducing GHG emissions by 32% by 2030, relative to the BAU scenario of 143 $MtCO_2e$.

Mitigation actions identified in the NCCAP 2023-2027, with priority actions set out below, in the relevant sectors. Forestry will be the main source of abatement in this implementation period that is expected to result to 37.3MtCO2eq in GHG emissions reductions. Overall, the prioritised mitigation actions would result to total GHG emissions reduction of 79MtCO2eq by 2027, when fully implemented.

The priority climate change actions in the NCCAP 2023–2027 contribute to achieving sustainable development benefits. They reflect inputs received from the national and county governments, vulnerable groups, the private sector, civil society, and sector experts. The actions are mainstreamed in the MTP IV in all sectors and in CIDPs to ensure they are taken up across the country and in all relevant sectors. They will benefit vulnerable groups directly and indirectly through, for example, increased agricultural productivity and improved access to water. They also provide benefits for women through access to clean cooking, and forest restoration and agroforestry actions that assure increased access to affordable cooking energy and water.

5.1

Climate Change Priority 1

Disaster Risk Management

The impacts of climate-related disasters are felt at the household level through food insecurity, damage to property, and increased prices of food and fuel; and at the national level, where scarce government resources are re-allocated to address the costs of floods and droughts at the expense of social programmes such as education and health.

Kenya was the 25th most affected country globally by extreme weather events in 2019 according to the Global Climate Risk Index 2021 report.[134] The country has frequently experienced disasters from three types of hazards between 1990 and 2020: droughts, floods, and landslides. These disasters caused death, displacement of communities, and economic losses. The situation in 2023 illustrates how the country can experience the impacts of drought, while responding to floods and disease outbreaks. The recent drought – contributed to by five consecutive poor or failed rainy seasons from 2020 to 2022 – hindered household access to water, food, and income during the 2023 January to March dry season, with people trekking up to 30 kilometres to access water because 90% of semi-permanent open water sources had dried up in the ASALs. The 2023 MAM rains went to the other extreme, bringing flash floods that resulted in 36 deaths, 7,568 livestock deaths, 6,070 ha of land destroyed, and an increase in cholera cases from 4,831 in February 2023 to 11,694 cases by the end of June 2023.[135]

The priority climate change actions in the NCCAP 2023–2027 promote a proactive and people-centred approach to addressing climate-related disasters. These actions include improved social protection plans, improved climate information services and early warning systems, enhanced disaster risk management and coordination at the national level and in counties, and enhanced flood control measures.

The expected outcomes of the climate change actions are:

Adaptation – reduced vulnerability to climate change among households that benefit from social protection systems and CCCFs; and improved ability to cope with climate hazards (droughts and floods) through early warning systems, water harvesting and storage, and flood control.

Strategic Objective **01**

Reduce risks to communities and infrastructure resulting from climate-related disasters and enhance institutional preparedness and response.

Issue/ Problem

Responses to climate-related disasters are often reactive rather than proactive and impeded by inadequate early warning systems, inadequate disaster management coordination, limited institutional resilience to prepare and respond to climate disasters, and poor planning. This is exacerbated by limited investments and inadequate budgetary allocations.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Housing and Settlement

National level indicators

- Number of early warning systems that are established.
- Number of deaths, displaced persons, and directly affected persons attributed to disasters.
- Number of vulnerable members of society supported through cash transfers to reduce shocks and impacts resulting from the effects of climate change.
- Proportion of county governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Increase the number of households and entities benefiting from devolved adaptive services	• Beneficiaries of social protection mechanisms, and other safeguards under the Hunger Safety Net Programme increased from 101,800 to 132,000 (of which at least 30% should be women) in 8 ASAL counties for regular beneficiaries. • An additional 200,000 households (of which at least 30% should be women-led) through drought-shock responsive scalability targeting those who may slide to the very poorest households as a result of loss of limited livelihood assets. • A national assessment to determine the scope of disasters and required social protection interventions. • Beneficiaries under the National Safety Net Programme increased from 1,082,000 in 2022 to 1,972,000 (of which at least 30% should be women) by 2027.	Adaptation
Strengthen the ability of people to better cope with disasters	• Establish Disaster Risk Management (DRM) Institutions and Centres of Excellence. • Establish and promote DRM peer learning Centres of Excellence through creation of models in communities and learning institutions. • Establish community-level resource centres for documentation and dissemination of DRM information. • Develop dedicated capacities to enhance access to health services during emergency response, including prepositioning of requisite medical and non-medical supplies. • Develop contingency and resilient development plans for displacement of populations and organise simulation exercises. • Develop community and planned relocation guidelines and assessment tools while building capacities for the relocation of communities as an adaptation strategy. • Develop and implement a legal and policy framework for Emergency Medical Care during disasters. • Develop early warning and anticipatory action capacities for climate-related hazards tapping into relevant technologies and innovations.	Adaptation .

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Improve the coordination and delivery of disaster risk management	The coordination of disaster management is centralised and improved by the following actions: • Enact the Disaster Risk Management Bill into law and operationalise. • Establish the National Disaster Risk Management Authority. • Establish and maintain a database of all DRM activities within the country including preparedness, response, impacts, and recovery measures. • Establish and maintain collaboration and linkages between the National DRM Authority Headquarters with global, regional, and sub-regional DRM bodies. • Strengthen and monitor gender-responsive humanitarian hubs, displacement centres, transition centres, and evacuation centres for utilisation during emergencies and disasters. • Mainstream DRM into development plans, policies, strategies, and sectors plans at all levels of government. • Integrate mobility and displacement into climate action strategies. • Develop and strengthen coordination frameworks and mechanisms for mainstreaming disaster risk management at national and county levels as well as community managed DRM. • Undertake high-level advocacy and capacity building for County Executive Committees, and County Assembly Disaster Committees to increase political goodwill and enhance allocation of county government resources to emergency responses.	Adaptation .

Action	Expected results by 30th June 2028	Adaptation/Mitigation

Improve the ability of people to cope with disasters caused by climate hazards	• Apply and integrate gender and human rights-based approaches in the design and implementation of policies relating to the climate change–migration nexus.
	• Establish and operationalise an Integrated Multi-hazard Early Warning, Information and Knowledge Management System at the national and county levels.
	• Operationalise the Kenya Anticipatory Action Strategy.
	• Establish DRM Emergency Operation Centres and linkages with the National DRM Authority, National Disaster Operations Centre (NDOC), and other key state and non-state agencies.
	• Enhance water harvesting and storage in 23 ASAL counties. *(See expected results under Climate Action 3: Water, Fisheries, and the Blue Economy).*
	• Enhance flood control measures through development and maintenance of flood control infrastructure:
	  • Construction of 70 km of additional dykes.
	  • Maintenance of 100 km of existing dykes.
	  • Construction of 20 check dams.
		Adaptation
		.

Improve management of climate change-driven mobility and displacement	• Establish or strengthen national weather and climate institutions and systems to generate accurate, timely gender disaggregated data and information on climate change impacts on human mobility; and increase collaboration between/among IGAD Member States and with the IGAD Climate Prediction and Applications Centre. • Fast-track and allocate resources for registration of pending community lands in all counties. • Secure access to watering points and livestock movement, and wildlife migratory corridors. • Sustainable land, pasture, and water management practices implemented for farmers and pastoralists in ASAL counties to promote food security, and reduce climate-driven conflicts *(See Climate Priority 2: Food and Nutrition Security).*	Adaptation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
	• Develop and implement locally-led strategies in ASAL counties for managing mobility and displacement, including receiving displaced people and livestock into host communities, and strengthening alternative resilient livelihood options. • Forecasting and analysis undertaken to identify potential climate mobility hotspots and anticipatory actions for risk and conflict mitigation.	
Improve processes to manage climate-related security risks	• Expand, consolidate, and share knowledge on climate-related security risks. • Enhance climate security into early warning systems through the use of decision support tools, such as the Climate Security Observatory, to strengthen climate resilience of local communities. • Strengthen interstate and intrastate collaboration on trans-boundary climate security. • Facilitate inter-ethnic engagement and dependence through collaboration for natural resource management.	Adaptation
	• Early consultations with local populations on appropriate anticipatory actions for risk mitigation, including contingency planning for emergency evacuations and humanitarian assistance and livestock offtake.	
Enhance protection and role of children and youth in DRM	• Establish 47 gender and socially inclusive Youth County Disaster Response Teams with a representative in the County DRM Coordination unit. • Develop a platform for climate-related knowledge and disaster risk information tailored for children and the youth.	Adaptation
Enabling (finance)	• Enhance allocations to the Drought Contingency Fund to address urgent climate disaster preparedness and response.	Enabling

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enabling (policy)	• Expand the scope and mandate of the Drought Contingency Fund to cover all climate-related disasters. • Ensure coherence between the National Development Plan and the Peace-building and Conflict Management Policy on climate security, in recognition of the wider impact of climate change on food, livelihoods, and water security, incorporating indigenous knowledge and existing arrangements. • Develop and implement policies that prevent forced movements but support safe, orderly, and regular migration that further contributes to sustainable development such as the commitments articulated in the Kampala Ministerial Declaration on Migration, Environment and Climate Change. • Strengthen national and sub-national capacities to integrate human mobility in development planning processes. • Develop and implement the early action protocols required to implement forecast-based financing.	Enabling

5.2

Climate Change Priority 2

Food and Nutrition Security

The agriculture sector – including crops and livestock (fisheries is included under Priority 3: Water, Fisheries and the Blue Economy) – is a major economic sector in Kenya, being a main source of income and livelihoods in rural areas and providing important revenues through agricultural exports. In 2022, the sector contributed about 20% of Kenya's GDP and 27% indirectly through linkages with other sectors; and employed over 40% of the total population and 70% of the rural populace. [136]

Climate change has the potential to prevent the achievement of national goals by negatively impacting agricultural production and nutrition security. Poor weather conditions, along with transport and input costs, were a major factor constraining agricultural production in 2022.[137] The agriculture sector is highly susceptible to the vagaries of weather including temperature increases, changes in precipitation, and extreme weather events. The sector is vulnerable to climate impacts because of a high reliance on small-scale, rain-fed agriculture, and pastoralism.

The NCCAP 2023–2027 sets out a range of actions that build on the successes of implementation of the two previous action plans. The main actions will enhance the uptake of Climate Smart Agriculture (CSA) techniques and technologies, support sustainable land management of crop land and grazing land, increase irrigation, and diversify livelihoods. Gender-aware agricultural services will be critical for success, as women account for approximately 75% of the agricultural labour force in small-scale agriculture, compared to 51% of men.[138] Climate information services, farmer field schools, and outreach programmes are important for reaching vulnerable groups, including women, youth and children, the elderly, persons with disability, and pastoralist communities.

The expected outcomes of the climate change actions are:

Adaptation – Maintained production and enhanced climate resilience of the agricultural sector through livelihood, crop and livestock diversification, increased water harvesting and storage, increased irrigation, sustainable land management, rehabilitation of rangelands, improved livestock management, and uptake of agricultural insurance.

Mitigation – The priority mitigation actions for the agriculture sector would result in GHG emissions of 54 $MtCO_2eq$ (a 6.6 $MtCO_2eq$ emission reduction) compared to the 60.6 $MtCO_2eq$ which would have resulted in a Business as Usual (do-nothing) scenario, calculated using the AR5 revised GWP values for methane.

Strategic Objective **02**

Increase food and nutrition security by enhancing productivity and resilience of the agricultural sector taking a low carbon development pathway.

Issue/ Problem

Climate change is negatively impacting agricultural productivity and the resilience of value chain actors, including households. An increase in the severity and frequency of climate change-related disasters, such as droughts, floods, pests (e.g., desert locusts or fall armyworm) and diseases pose threats to food security and negatively impacts small-scale farmers, pastoralists, and fisher communities.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy

National level indicators

- GDP growth of the agricultural sector.
- Productivity levels of maize, sorghum and other critical crops.
- Productivity levels of livestock (dairy and meat animals).
- Livestock deaths from drought or number of livestock slaughtered due to drought.
- Agricultural land under irrigation (acreage).
- GHG emissions in the agriculture sector.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enhance the uptake of CSA technologies in crop and livestock production systems	• Agro-weather and climate information services cascaded to sub-counties in 47 counties, while tapping essential local traditional and indigenous knowledge, and co-producing climate information with communities. • Number of beneficiaries accessing index-based crop insurance increased from 1,600,000 to 3,500,000 of which at least 30% and 10% should be women and youth, respectively. • The number of farmers accessing socially-inclusive appropriate input subsidies increased from 2,300,000 per year to 2,500,000 per year in 2027. • 100,000 additional farmers access specialised markets for climate-smart produce/products (e.g. organically produced) of which at least 30% and 10% should be women and youth, respectively. • 2 million farmers (of which at least 30% and 10% should be women and youth, respectively) adopt climate-smart post-harvest technologies (e.g., green energy powered cold storage facilities, solar crop dryers). • Acreage under the rain-fed rice system is increased from 44,255 ha to 140,677 ha for enhanced resilience and productivity. • Production of rice under intermittent irrigation system increased from 25,000 ha to 140,677 ha. • Increase efficiency on water resource management in rice production from 50% to 90%. Enabling • Promote the uptake of gender-responsive climate-oriented agricultural input subsidies and agricultural insurance. • Increase the adoption of crop insurance partnerships. • Capacity building of stakeholders on climate risk management in agro-food systems in 47 counties. • Promote the uptake of climate information in the crop sub sector for decision-making at all levels.	Adaptation/Mitigation .

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Increase crop productivity through improved irrigation	• Acreage under irrigation increased from 202,000 ha to 486,000 ha. • Production efficiency from irrigated fields increased from 50% to 90%.	Adaptation
Diversify livelihoods to adjust to a changing climate	• 2,500,000 farmers (of which at least 30% and 10% should be women and youth, respectively) adopt new adaptive crop varieties.	Adaptation
Increase adoption of Sustainable Land Management (SLM)	Acreage of land under SLM and restoration of degraded land increased: • Area under integrated soil nutrient management increased by 2,500,000 ha.[1] • Farm area under conservation agriculture increased from 53,200 ha to 100,000 ha by incorporating minimum/no tillage. • Soil and water conservation measures used on 1,000,000 ha of farmland by 2,500,000 farmers (of which at least 30% and 10% should be women and youth, respectively). • The agricultural land area under farm trees increased by 200,000 ha.	Adaptation/Mitigation
Increase on-farm water harvesting and storage, wastewater recycling, and area under irrigation.	• Increase households harvesting water for agricultural production from 300,000 to 1,000,000 (of which at least 30% and 10% should be women- and youth-headed, respectively). • Increase annual water harvesting and storage in counties (ASALs and those with water deficit) from 16 million cubic metres (MCM) to 20 MCM, through small dams, water pans, and river dredging. *(Link to Climate Action 3: Water, Fisheries, and the Blue Economy).* Enabling: • Improve capacity of institutions supporting water harvesting for agricultural use.	Adaptation

[1] Integrated soil nutrient management refers to maintenance of soil fertility and plant nutrient to an optimum level for sustaining the desired crop productivity.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Improve productivity in the livestock sector through the implementation of CSA interventions	• National livestock vaccination coverage increased from 13 million Tropical Livestock Units (TLUs) to 26 million TLUs per year by 2027 for 45 counties to enhance climate resilience and productivity gains in ruminant livestock (cattle, sheep, camels and goats). • 500,000 dairy farming households, out of 1.8 million households, supported to adopt climate smart technologies, innovations, and management practices (TIMPS) on quality feeds, precision feeding, breeding management and enhanced animal health for efficient dairy management. At least 30% and 10% of households should be women- and youth-headed, respectively. • 1,000 farmer-facing Small and Medium Enterprises (Cooperatives and Community-based Organisations), with at least 30% women- and 10% youth-headed, supported to install milk coolers and meat chilling facilities. • Post-harvest losses of animal source foods reduced from 15% to 7.5% through effective climate smart standards, food safety and a Hazard Analysis and Critical Control Point Management System. • 400,000 pastoral households, with at least 30% women- and 10% youth-headed, adopt Livestock Identification and Traceability Systems that support the offtake of 1,000,000 TLUs in 23 counties, to enhance access domestic and export livestock and livestock products markets in a changing climate.	Adaptation
	Manure management improved through the adoption of biogas technology (capture and use) by 80,000 households (of which at least 30% and 10% should be women and youth headed respectively), and at least 200 abattoirs.	Adaptation

[2]Farmer-facing SMEs are those established to provide inputs and equipment including for irrigation, processing and post-harvest aggregation.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Improved productivity and resilience of farmers and pastoralists	• Area under rehabilitated rangelands, with good soil health, increased to 5,000,000 ha through range planning, improvement, and re-seeding of 2,400,000 ha in 23 ASAL counties. • Sustainable grazing management and silvo-pastoralism implemented in 1,200,000 ha of rangeland for pasture-based finishing and feed lotting, to improve productivity of 400,000 TLUs in 23 ASAL counties over 5 years. • 500 new feed banks (at least one per ward in 500 wards) supported through establishment and conservation of climate-resilient forage (fodder and pasture) varieties and densified livestock feeds. • Number of pastoral households using index-based livestock insurance and other financial services increased from 21,000 to 800,000 pastoral households, with at least 30% being women-headed. • Index-based livestock insurance coverage increased from 110,000 to 2,400,000 TLUs over 5 years through partnerships with the private sector. • An additional 500 community-based breeding programmes for multiplication and in-situ conservation of adaptable indigenous animal genetic resources for sheep, goats, camels, and cattle established. • One new national gene bank established for ex-situ conservation strategic national animal genetic resources. • Bachuma and Lamu Livestock Export Zone completed to support marketing to niche and export markets.	Adaptation
	• Water sources and points established along livestock migratory routes in 23 ASAL counties.	
Enhance contribution of youth to food and nutrition security	• 10 youth-led agri-hubs (at least 30% female) established to promote adoption of CSA practices. • 100,000 youth farmers (at least 30% female) across the country practising CSA.	Adaptation/mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enabling (policy)	• Development/review/finalisation/operationalisation of climate resilient-related policies, strategies, and regulations in the agriculture sector (Kenya Climate Smart Agriculture Strategy, National Agricultural Mechanisation Policy, Kenya Climate Smart Agriculture Implementation Framework, Kenya Climate Smart Agriculture – multi stakeholder platform, Strategic Plan 2022–2026, CSA-Monitoring and Evaluation online tool). • All counties have CSA strategies or plans, a result of cascading the KCSAS 2017–2026 and the KCSAIF 2018–2027.	Enabling
Enabling Action (Technology and knowledge management)	• Counties developing and implementing Climate Information Service (CIS) plans increased from 9 to 47. • Mainstream CSA into agricultural extension delivery and reporting. • Support the development of agriculture advisory services, and innovation and multi-stakeholder dissemination platforms. • Support the development of CSA curricular in all agriculture faculties of learning in the education and training sector • Develop, promote, and transfer technologies to enhance milk and meat production and value addition. • Develop, promote, and transfer technologies to enhance value addition and product diversification for tea, cereals, fruits, tubers, roots, and nuts.	Enabling
Enabling (climate finance)	• Support county agriculture sector stakeholders at all levels to access climate finance for the implementation of CSA through capacity building on prioritisation of actions and development of bankable proposals.	Enabling

5.3 Climate Change Priority 3

Water, Fisheries and the Blue Economy

Water scarcity is a challenge in Kenya, with per capita water resources of less than 500 m^3 annually. A country is defined as highly water stressed if the per capita water resources are below 1,000 m^3 per year.[139] About 40% of the Kenyan population did not have water coverage in 2020/21, which is a particular problem in rural areas where 86% of people fetch water from springs, wells, boreholes, and streams.[140] The water situation in Kenya is made worse by climate change and compounded by deforestation, low storage capacity, a growing demand for water, and sharing of over half the rivers, lakes, and aquifers with neighbouring countries.

Climate change is negatively affecting the availability of water in Kenya, which has impacts on agricultural systems, manufacturing, and electricity production, as well as at the household level. In addition, water scarcity increases the likelihood of conflict and is related to an increase in water-borne diseases. Water scarcity particularly affects populations in the ASALs, and women and girls who often travel long distances for water and have less water for hygiene.

Water is also linked to the blue economy, which refers to the "sustainable use and economic development of both aquatic and marine spaces, including oceans, coasts, lakes, rivers and underground water."[141] Blue economy-based livelihoods have been impacted by climate change, including extreme weather events that negatively impact maritime and shipping activities, and sea level rise and storm surges that flood coastal settlements, damage coastal infrastructure, such as ports, and displace communities. In the coastal regions, Kenya's fisheries sector that is mainly comprised of artisanal and small-scale fishers is expected to be negatively impacted by fish stocks shifting to cooler waters that are further offshore.

Coastal ecosystems, such as mangroves, absorb carbon dioxide and can contribute to mitigation efforts; and ports and marine infrastructure can use renewable energy.

The NCCAP 2023–2027 actions aim to increase water availability through increased and improved water storage, improved water governance and management, and improved water harvesting. Efforts will be made to mainstream climate action in the blue economy programming, including support to assist fisher and coastal communities to cope with the impacts of climate change, and support for aquaculture and fish farming.

The expected outcomes of the climate change actions are:

Adaptation – increased quantity and quality of water in a changing climate through water harvest and storage, and improved water efficiency; and increased fisheries production in a gender-responsive, climate smart manner.

Strategic Objective **03**

Enhance the resilience of the Blue Economy, Fisheries, and Water sector by ensuring adequate access to, and efficient use of, water for agriculture, manufacturing, domestic use, wildlife, and other uses.

Issue/ Problem

Access to and quality of water is expected to decline because of climate change (such as drought and reduction of glaciers). Coastal areas impacted by sea level rise, storm surges, increasing ocean temperatures and ocean acidification.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy

National level indicators

- Water storage per capita.
- Water coverage.
- Per capita water availability.
- Coverage of protected areas in relation to marine area.
- GDP growth through blue economy and fisheries development.
- National per capita fish consumption.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Increase annual per capita water availability through the development of water infrastructure *(mega dams, small dams, water pans, untapped aquifers)*	• Fast-track implementation of multipurpose dams at an advanced stage to completion by 2027: Thwake (72%), Mwache (6%), Soin Koru (5%) and Siyoi Muruny (65%), and Ruiru II (7.5%). • 3,000 water pans constructed to supply 296,720,000 m^3 of water in 23 ASAL counties. • 300 climate-proofed underground reservoirs constructed in ASALs each with a storage capacity of 1 million MCM constructed to store water for three seasons to mitigate water resources conflicts during droughts. • Water resources monitoring is enhanced through rehabilitation and upgrading of 350 hydrometeorological stations. • 256 sub-basin/catchment plans are implemented. • Five national water quality monitoring stations are established. • Groundwater resource mapping and assessment undertaken in five counties. • Piloting of artificial aquifer recharge in identified two aquifers to increase the supply of groundwater. • Complete exploration of Turkana aquifers to realise the potential to irrigate an additional 265,000 ha. • Flood early warning systems developed for areas prone to floods. • A total of 100 km dykes and 20 dykes constructed in flood prone areas. • 20 check dams and 15 flood control infrastructure constructed in flood prone areas. • 1,150 water harvesting projects supported for irrigation in 23 ASAL counties providing 517.5 MCM of water. • 6,450 water pans (100,000 to 300,000 m3) constructed along Laghas in ASAL counties. Enabling • Catchment areas conservation, protection, and rehabilitation is enhanced across all the basin areas – national and transboundary.	Adaptation .

Action	Expected results by 30th June 2028	Adaptation/Mitigation

Improve access to good quality water, increased sewerage coverage and on-site sanitation	• Number of people and entities accessing good quality water for domestic (potable), agricultural, and industrial use increased from 58% to 65% through:
	  • Large-scale installation of water meters.
	  • Regular inspection of water quality.
	• Sewerage cover increased with a focus on promoting onsite sanitation technologies:
	  • National population with access to sanitation increased from 66% to 70% (sewer urban 4,539,176 and rural 1,527,875)
	  • Four climate-proofed holding stations constructed for sewer management in Nairobi, Kisumu, Garissa, and Uasin Gishu counties.
		Adaptation

Promote water efficiency *(monitor, reduce, re-use, recycle and modelling)*	• Share of Non-Revenue Water in all the counties reduced to less than 25% from 45%. • 25 innovations developed on water efficiency. ***Enabling*** • Governance and accountability for water service providers enhanced in all counties. • Technology is utilized to manage water use through the use of smart metres. • 50 research studies undertaken on water efficiency. • Sensitization of water consumers in all counties undertaken to enhance water use efficiency and water resource management.	Adaptation
Increase gender- and youth responsive affordable water harvesting-based livelihood resilience programmes	Drilling and equipping 465 boreholes and installation of 510 greenhouses through initiatives that deliberately promote gender-responsive actions to improve participation of women and youth.	Adaptation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Increase crop productivity through improved irrigation	• 228 community-managed irrigation projects developed for an additional 69,000 ha. • Existing irrigation schemes expanded to an additional 80,937 ha. • 22 large-scale irrigation projects developed to realise an additional 161,065 ha. • Support farmer-led irrigation development initiatives for an additional 16,187 ha in partnership with select financial institutions for de-risking. ***Enabling*** • Promote use of efficient irrigation technologies and practices among 20 Irrigation Water Users Association (IWUAs) in irrigation schemes. • Capacity building on diversification of irrigated enterprises, water use rights, and governance schemes among 20 IWUAs.	Adaptation
Increase on farm water harvesting and storage, wastewater recycling, and area under irrigation	Annual water harvesting and storage in ASALs increased by 25% from 16 MCM to 20 MCM through small dams, trapezoidal bunds, semi-circular bunds, *zai* pits and water pans, and river drenching; and 700 m^3 through large multipurpose dams. *(Link to Climate Action 2: Food and Nutrition Security)*	
Increase adoption of Sustainable Land Management (SLM)	• Undertake, disseminate, and implement 35 land degradation assessments. • Establish a land degradation assessment centre. • Implement land reclamation programmes to reclaim 2,732 ha of degraded land in 10 counties *(Link to Climate Action 2: Food and Nutrition Security)*	Adaptation

Improve the ability of people to cope with disasters	• Flood control measures enhance through development and maintenance of flood control infrastructure:
	  • Construction of 70kms of additional dykes.
	  • Maintenance of 100kms of existing dykes.
	  • Construction of 20 check dams.
	(Link to Climate Action 1: Disaster Risk Management)
		Adaptation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enhance sustainable blue economy and fisheries development	• Number of climate-smart cages for fish farming increased from 6,000 to 8,000. • Number of fish ponds increased from 11,300 to 25,000. • Climate smart fish production from aquaculture increased from 27,000 MT to 50,000 MT. • Increased climate-smart marine fisheries production from 38,000 MT to 50,000 MT. • Increased fish landed from Lake Turkana from 17,000 MT to 30,000 MT in a climate-smart manner. • Number of fishers benefitting from social safety net interventions (insurance products, cash transfers and subsidies) increased from 9,496 to 20,600 of which at least 30% and 10% are women and youth, respectively. • Number of farmers using low-carbon aquaponics systems increased from 10 to 100 of which at least 30% and 10% are women and youth, respectively. • Climate smart fish landing sites and fish markets (10 each) developed to reduce fish post-harvest losses. • 445 fishery cooperatives – that involve indigenous peoples and local communities – formed and operationalised to promote processing, marketing, and financial linkages. • Development of Liwatoni Ultra-Modern Fishing Hub. • Coastal fisheries improved by increasing deep/offshore fishing fleet from 9 to 68. • Development of two fish processing plants (Lamu processing plant and Kalokol processing plant). • 1,214 ha of mangrove forests and seagrass restored and rehabilitated. • 60 ha of coral reef restoration; reduce pressure on reef fishery.	Adaptation .
Enhance contribution of youth to sustainable blue economy development	***Enabling*** • 2,000 youth have improved capacity on fisheries and blue economy development. • Youth trained on value addition in fisheries and blue economy.	

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enabling (capacity)	• County Irrigation Development Units established. • Irrigation Research, Innovation and Training Institute established. • Irrigation Licensing and Quality Assurance Unit operationalised. • Seaweed farming is expanded (beyond Kwale county) to other coastal counties through capacity building for 1,000 seaweed farmers. • Capacity of WRUAs, CFAs, and BMUs to engage in mangrove restoration enhanced in five coastal counties.	• Enabling
Enabling (technology)	• Support to develop, promote, and transfer technologies to enhance value addition and product diversification for fish, fish feed, and seaweed. • Adaptive research to strengthen understanding of the adaptability of fish breeds that are tolerant in changing climatic conditions undertaken – Kabonyo Aquaculture and Research Centre of Excellence.	Enabling

Enabling (Policy)	• Land Reclamation Policy and Bill approved and enacted.
	• National Irrigation Masterplan and Investment Plan developed and implemented.
	• National Land Reclamation Masterplan and Investment Plan developed and implemented.
	• Irrigation and Drainage Management Information and Licensing System developed
	• Operationalisation of Water Act (No. 43 of 2016) is finalised –
	  • Proposed amendments on Public Private Partnerships in water harvesting and storage infrastructure (dams) approved and implemented.
	  • Amendment of the Act and enactment of regulations to fully operationalise the Water Tribunal.
	• Rules and regulations of hydrologists regulation board developed and implemented.
	• Water resources, water services, and water harvesting and storage regulations (2021) implemented.
		Enabling

Action	Expected results by 30th June 2028	Adaptation/Mitigation
	• National Water Master Plan 2030 reviewed and updated to aid national/county water harvesting and storage infrastructure investments. • National Lakes Management Strategy developed and implemented in a climate-smart manner. • Kenya Fisheries Policy implemented in a climate-smart manner. • National Blue Economy Strategy launched and implemented in a climate-smart manner. • Aquaculture Policy finalised and implemented. • National aquaculture guidelines on climate-smart standards for cage fish farming developed. • Marine and inland spatial plans prepared.	

5.4 Climate Change Priority 4
Forests, Wildlife and Tourism

The NCCAP 2023–2027 will contribute to the restoration, preservation, and sustainable management of forests and other ecosystems that play an essential role in Kenya's economy. These actions will contribute to achieving and maintaining the goal in the Constitution of Kenya that the country work to achieve and maintain a tree cover of at least 10% of total land area.[142] In addition, the actions will contribute to the President's National Tree Growing and Restoration Campaign that aims to plant 15 billion trees by 2032. This initiative includes the Green Army that will engage the youth in tree growing and environmental conservation.

Kenya's forest area covered 8.83% of total land area in 2022, comprising natural forests, plantation forests, open woodlands, and a small amount of mangrove forests along the coast.[143] Forests are important national assets in terms of economic, environmental, social, and cultural values. The forest sector is estimated to contribute about 3.6% of the country's GDP.[144] Five forests in the main water towers regulate 75% of the country's renewable water supplies, and more than 80% of the energy generated in Kenya comes from wood. Forests offer water catchment and biodiversity conservation functions, provide homes for wildlife, and provide a variety of goods that support the subsistence livelihoods of many communities, including forest resource users.[146]

Actions to build the resilience of wildlife and wildlife habitat to climate impacts have significant co-benefits, including enhanced anti-poaching of wildlife and combating illegal trade in wildlife.

Deforestation and forest degradation release large amounts of greenhouse gases, driven mainly by clearing for agriculture that is linked to rural poverty, rapid population growth, unsustainable utilisation of forest products (including timber harvesting, charcoal production, and grazing in forests), and past governance and institutional failures in the forest sector.[147] The negative impacts that result from deforestation (such as soil erosion and increased flooding) are exacerbated by climate change. Climate change will continue to degrade, damage, and transform forest areas, and changes in forest distribution and composition could adversely affect wildlife, biodiversity, ecosystem services, and water towers. Other negative impacts include reduced access to forest products including food and fuelwood/charcoal.

Forests provide significant carbon benefits by mitigating the harmful effects of GHG emissions by acting as "sinks" through carbon sequestration, and the sector offers large potential to sequester carbon and reduce emissions.

The NCCAP 2023–2027 actions in the forestry, wildlife and tourism sector include actions to increase and maintain forest and tree cover, including REDD+ projects, afforestation and forest restoration, wildlife habitat restoration programmes, improved monitoring and enforcement in forest and wildlife habitat areas, and improved research and development to improve monitoring of projects, knowledge of carbon sequestration, and understanding of the impacts of climate change on forests and wildlife.

The expected outcomes of the climate change actions are:

Adaptation – forests, rangelands, and grasslands managed in a manner that accounts for climate hazards and risks, maintenance of ecosystems and conservation areas for wildlife and linking of protected areas.

Mitigation – GHG emission reductions of 37.3 $MtCO_2eq$ by 2027, against a BAU (based on FRL[3] analysis) of 52.3 $MtCO_2eq$, through forest restoration, afforestation and reforestation, and reducing deforestation.

Strategic Objective 04

Strengthen the ability of forest, tree, wildlife and tourism resources to respond to impacts of climate change, provide climate mitigation solutions, and improve resilience of social systems across various landscapes.

Issue/ Problem

Unplanned development, such as agricultural expansion, settlements, infrastructure development, and overreliance on biomass for cooking leads to deforestation, forest degradation, and environmental degradation, with negative impacts on forest communities, wildlife, and the tourism industry, and increased GHG emissions.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy

National level indicators

- Forest cover as a % of total land area.
- Tree cover as a % of total land area.
- Wildlife deaths as a result of drought
- Proportion of degraded land as a % of total land area.
- GHG emissions in the LULUCF sector.

[3]Forest Reference Level (FRL) is a benchmark for emissions from deforestation and forest degradation and removals from sustainable management of forests and enhancement of forest carbon stocks.

Action	Expected results by 30th June 2028	Adaptation/Mitigation

Reduce emissions from deforestation and forest degradation	• An additional 1% of existing forest cover afforested or reforested, including via agroforestry.
	• Planting of trees in counties per year through initiatives such as:
	  • Annual National Tree Planting Day
	  • Tree planting drives in institutions including faith-based institutions
	  • Involving the youth and youth-led enterprises in tree planting.
	• Expansion and protection of mangrove forest cover including implementation of the National Mangrove Ecosystem Management Plan (2017–2027).
	• Reduce deforestation by rehabilitation and protecting of an additional 100,000 hectares of natural forests (including mangroves) by 2028 via:
	  • Community participation in forest management
	  • Limiting access to forests
	  • Preventing disturbances through improved enforcement and monitoring
	  • Developing alternative technologies to reduce demand for biomass (e.g., clean cooking, efficient charcoal production, briquetting)
	  • Carbon stock enhancement (tree planting) in existing forests.
	• Restoration of 35,000 ha of degraded public forests.
	• Expansion of the existing 300 Kenya Forestry Service (KFS) tree nurseries to produce 300 million seedlings annually; establishment of 290 new tree nurseries.
	• Drilling and equipping of 100 boreholes in tree nurseries in ASALs.
	• Establishment of 5,000 ha of public forest plantations.
	Enabling:
	• Improved enforcement and monitoring to prevent disturbances in public forests.
	• Financial innovations, including payments through REDD+ or carbon markets.
		Mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Reduce emissions from land degradation outside forests	• The agricultural land area under farm trees increased by 200,000 ha. *See SLM action under Priority Area 2: Food and Nutrition Security.*	Mitigation
	• Restoration of up to 1,000,000 hectares of forest on degraded landscapes (ASALs, rangelands).	

Incentivise tree growing value chain enterprises	• 1,000 ha of bamboo commercial forest established.
	• 300,000 ha of commercial forest plantation established.
	• 1,000,000 ha agroforestry established on farmlands.
	• 75,000 ha of private commercial forest plantations established.
	• The production of 1 billion MT high quality tree seeds and 1 billion seedlings including by the private sector (women, youth, CFAs, and nurseries).
	• The processing efficiency of forest materials is improved, including recovery rates from 15% to 30%.
	• Promoting use of sustainable timber in the furniture and construction industry including the use of mass timber technologies –
	  • Scale-up the Forest Stewardship Council (FSC) certification on KFS pilot sites to the entire 150k ha of plantation forests and Tree Grower Associations and Outgrower models.
	Enabling
	• Develop a framework for forest long-term lease of public industrial plantations for greater productivity –
	• At least 20% of public industrial plantations under long-term lease agreements with the private sector.
	  • Incentives developed and provided for commercial forestry enterprises across the value chain.
	• Public Private Partnership (PPP) strategy for commercial forestry.
	• Link tree growing initiatives to carbon market incentives.
	• Amendment and revision of Forest Conservation and Management Act to clarify and entrench incentives.
		Adaptation/Mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enhanced forest-based climate change research and technological development (Enabling)	• Access to high quality tree germplasm (both indigenous and fast-growing exotic species) for the changing agroecological zones and end market needs is improved. • Breeding of drought-tolerant tree species. • 100 forest research and allied natural resources technologies developed. • Development of planting materials for difficult to propagate indigenous tree species. • 18 seed processing units constructed. • 450 ha of seed sources maintained and 36 ha of new seed sources established.	Enabler
	• REDD+ implementation is tracked and reported. • The REDD+ Safeguards Information System is operationalised. • The National Forest Monitoring System and Forest Reference Level are implemented to improve forest monitoring and measurement. • A national programme on Monitoring, Control and Surveillance of pests, diseases, and invasive species in forestry linked to the forest information management system is implemented.	Enabler
Enhance forest health for climate change resilience research (Enabling)	A climate risk vulnerability assessment is undertaken to guide the suitable selection of species for different sites.	Enabler

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enhance the resilience of wildlife, their habitats, and their ecosystems	• Increase tree cover in 30,000 ha of protected areas to enhance resilience of the wildlife habitat. • Restore 1,000 ha of degraded wildlife habitats through reseeding of pasture in ASAL-protected areas and soil and water conservation measures. • Construction/rehabilitation/maintenance of fences in national parks and reserves, and in strategic corridors and dispersal areas in community areas to link protected areas and minimise human–wildlife conflict resulting from climate change. • Establishment and operationalisation of the Human–Wildlife Conflict Insurance Scheme and payment of climate-induced human–wildlife conflict claims • Climate-proofing infrastructure: 100 km new access roads, rehabilitate 200 km and maintain 7,200 km of the access roads in national parks and reserves; construct 49 airstrips in various parks; and maintain 150 km of runways and upgrade 5 runways to bitumen standards all in a manner that accounts for projected climate impacts. • Management and control of alien invasive species is undertaken in protected areas to restore wildlife habitats. • Wildfires are controlled and managed by establishing and maintaining fire breaks. • Critical wildlife habitats including migratory corridors and dispersal areas are mapped and secured to enhance connectivity and species resilience. • Rehabilitation and construction of water pans, boreholes, and earth dams for provision of water for wildlife. • Forage, feed supplements, and water provided for wildlife for feed supplementation during droughts. Enabling: • Operationalise the National Wildlife Climate Change Adaptation Strategy 2022–2032.	Adaptation/Mitigation .

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enhance contribution of youth to forestry and wildlife	• 5,000 youth-owned tree seedling nurseries established. • Five streams of non-timber forest products developed and implemented by youth groups with gender and social inclusion. • 1,000 ha degraded mangrove forest sites restored through youth-led programmes.	Adaptation
Wildlife training and research (Enabling)	• Enhance wildlife research to guide adaptation for the sector	
Enhance climate resilience of tourism destinations and their ecosystems	• Programme developed and implemented that raises awareness with tourism facilities about sustainable tourism, including the use of clean and green energy in operations of tourism facilities (resorts, hotels) and for tourist transport. • Programme developed and implemented that promotes Kenya as a climate-friendly tourism destination, sensitisation and implementation of the ecotourism standards. Enabling • Provision of information to enable tour operators to assess the impacts of climate risks on their business and facilities. • Develop and implement climate-smart ecotourism guidelines.	Adaptation

5.5

Climate Change Priority 5

Health, Sanitation and Human Settlements

The NCCAP 2023–2027 sets out an integrated approach to climate actions that address sustainable health, human settlements, and sanitation services.

Climate change impacts pose health risks and contribute to the spread of diseases in Kenya. Heat stress can reduce the productivity of outdoor workers, including agricultural workers, and can increase heat-related deaths among the elderly. Heat stress, drought, and floods can alter disease transmission patterns. The compromise of water and sanitation systems as a result of flooding can increase water-borne illnesses such as cholera, dysentery, and typhoid. A warming climate is increasing the prevalence of vector-borne diseases like malaria and dengue fever. Mosquitoes that transmit malaria in Sub-Saharan Africa have moved to higher elevations by about 6.5 metres per year.[148] Vulnerable populations, including pregnant women, children, the elderly, and those with pre-existing health conditions, are particularly at risk.

Climate change increases risks for human health by impacting human settlements. Affected populations include the urban poor who tend to live along riverbanks; on hillsides and slopes prone to landslides; in unstable structures vulnerable to collapse in heavy rains, and along waterfronts in coastal areas. This is especially true in informal settlements and other low-income areas, where high population density and lack of infrastructure aggravates these problems. Improving the resilience of the built environment in human settlements is needed, including flood control, green building technologies, and climate-resilient waste disposal systems and facilities.

Currently, the waste sector contributes minimal GHG emissions in Kenya in comparison to other sectors such as agriculture, forestry, and energy.[149] However, there is need to enhance disaggregated data collection to provide a more accurate picture.

The NCCAP 2023–2027 actions focus on improved management of climate-sensitive diseases, training for healthcare workers, implementing the climate change and health strategy, ensuring that cities and communities are climate-resilient, and reducing GHG emissions in the waste sector.

The expected outcomes of the climate change actions are:

Adaptation – reduced vulnerability to health risks that are exacerbated by climate change, with an emphasis on malaria and other vector-borne diseases; flood control in rural and urban settlements and climate-proofed landfill sites that account for expected changes in precipitation and extreme weather events.

Mitigation – GHG emission reductions of 2.5 $MtCO_2eq$ by 2027 through mitigation actions including segregating 90% of solid waste at source, which will reduce the tonnage of solid waste at dumpsites and emissions of methane.

Strategic Objective **05**

Mainstream climate change adaptation into the health sector, and increase the resilience of human settlements, including through improved solid waste management in urban areas.

Issue/ Problem

Kenya's improvements in the control of malaria, water-borne diseases, respiratory diseases, infant mortality, and malnutrition are at risk from setbacks relating to climate change. Inappropriate waste management could contribute to increased GHG emissions and enhance negative health impacts.

BETA Pillars Impacted by Action in this Climate Priority

- Housing and Settlement
- Healthcare

National level indicators

- Malaria incidence per 1,000 population.
- GHG emissions from management of medical waste.
- Percentage of urban solid waste regularly collected and well managed.
- Proportion of urban population living in slums, informal settlements, or inadequate housing.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enhance management of climate-sensitive diseases	• Health programmes, protocols, and guidance to identify and manage new climate change-related diseases and risks are developed and implemented. • Incidents of malaria and other vector-borne health conditions are reduced. • Community-level interventions to address climate-sensitive diseases are scaled up.	Adaptation
Reduce GHG emissions from medical waste management	• Clinical waste microwave equipment (non-burn technology) for medical waste management installed in the 47 counties using a pooled system for multiple health facilities.	Mitigation
Enhance climate-smart urban planning and affordable and social housing development	• Climate-smart affordable housing designed in all constituencies; and social housing in Kibera Zone B and other areas. • Integration of green building technologies into affordable and social housing. • Integrated Strategic Urban Development Planning is replicated in all slum upgrading developments across Kenya. • Climate-resilient urban spatial plans developed in all counties.	Adaptation/Mitigation
Enhance contribution of youth to health, sanitation and human settlements	• 500 youth-led waste recycling, reusing, and upscaling initiatives developed with a focus on eliminating illegal dumping sites, ensuring gender and social inclusion. • 10 youth-led waste recycling centres established in 10 counties.	Adaptation/Mitigation
Improve management of solid waste	• Adopt waste hierarchy. • Waste management infrastructure improved to promote source segregation and collection to promote circularity. • Implement extended producer responsibility for all producers. • Material recovery sites established in all counties. • Establishment of composting facilities in all counties. • Undertake feasibility studies to identify potential sites for setting up composting plants. • Determine financial requirements of setting up composting facilities in all counties in the country. • Develop and implement guidelines for closure and decommissioning of existing dumpsites.	Enabling

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enabling (Research)	• A National Climate-Health Research Network that promotes multidisciplinary collaboration between researchers, policymakers, and stakeholders is developed and implemented.	
Policy (enabling) .	• Kenya Climate Change and Health Strategy 2023-2027 is developed and implemented.developed and implemented. • CoP 26 health commitments are implemented: • Develop a Health National Adaptation Plan 2023-2027 • A baseline assessment of GHG emissions of the health system and healthcare facilities (including supply chains). • Develop an action plan setting out a roadmap to a sustainable low carbon health system (including supply chains). • Implement the WHO Air Pollution Roadmap. • Develop and implement a 5-year Household Air Pollution Strategy. • Guidelines for climate change-resilient WASH infrastructure for health facilities, schools ,and communities developed and implemented. • Standards for biodegradable sanitary pads are developed and implemented. • Standards for disposal of sanitary pads for schools are developed and implemented. • Standards for disposal of diapers are developed and implemented. • Review and align current national waste management strategy to the waste management hierarchy and circular model. • County waste management laws and strategies aligned to the waste management hierarchy. • Mainstream county waste management oversight in the county environment committee. • Policy and regulatory framework developed to enhance adoption of climate smart green building technologies.	Enabling .

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enabling (Capacity building)	• A training curriculum for healthcare workers is developed to integrate climate change and health in all health courses in all middle level colleges and universities. • The capacity of healthcare workers to develop proposals for funding from the GCF and other partners is enhanced. • Community health volunteers are trained on clean cooking and health linkages.	Enabling

5.6 Climate Change Priority 6
Manufacturing

The manufacturing sector is a critical pillar of growth as Kenya strives to become a newly industrialising middle-income economy as articulated in Kenya Vision 2030. Manufacturing and construction industries contributed 26% of the national GDP in 2022.[150] The NCCAP 2023–2027 aims to catalyse the manufacturing sector by building resilience to the impacts of climate change on its activities, reducing GHG emissions, and creating new economic and market opportunities.

Manufacturing is capital intensive, with many long-life fixed assets, long supply chains, and significant water and energy requirements, which are negatively impacted by floods, droughts, and extreme weather events. Climate change will increase resource scarcity (such as water and raw materials) that are inputs to the manufacturing process. Reduced crop production will have impacts on the agro-manufacturing sector. An example is the 2017 drought that affected tea production and resulted in diminished turnover in processed tea.

While being impacted by climate change, manufacturing produces GHG emissions. Industrial manufacturing processes in Kenya with significant GHG emissions include cement production, iron and steel production, and chemical manufacturing. The use of green building design for manufacturing facilities can help to reduce GHG emissions and ensure that facilities are resilient to climate hazards.

The climate actions in the NCCAP 2023–2027 will help to accelerate integration of climate change in private sector initiatives and increase investments in climate adaptation and mitigation. The actions focus on improving energy and resource efficiency, including energy efficiency in the industrial sector and reducing emissions from industrial processes.

The expected outcomes of the climate change actions are:

Adaptation – climate-resilient manufacturing processes through improved industrial symbiosis and green building design that accounts for expected climate impacts.

Mitigation – GHG emissions are expected to reduce in this sector by 1.8 $MtCO_2eq$ with implementation of priority actions.

Strategic Objective **06**

Promote energy and resource efficiency in the manufacturing sector.

Issue/ Problem

Scarcity of resources, including water, energy, and other inputs in industrial processes, which arises due to climate change; inefficient energy use in the manufacturing sector increases GHG emissions.

BETA Pillars Impacted by Action in this Climate Priority

- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy

National level indicators

- Number of manufacturing facilities adopting energy efficiency processes.
- GHG emissions in the manufacturing sector.

Action	Expected results by 30th June 2028	Adaptation/Mitigation

Enhance energy efficiency	Energy efficiency implementation rates improved from 50% to 75% in the manufacturing sector.
	• Implementation of Minimum Energy Performance Standards (MEPS):
	  • Six devices put under MEPS.
	  • Study on adoption and impact of MEPS conducted.
	  • Adoption of MEPS increased by an additional 20%.
	• Energy auditing and process optimisation is promoted among designated facilities:
	  • Increase from 2,000 audits in 2022 to at least 3,000 audits.
	  • 50 production process optimization audits.
	  • Support 100 companies to map out their carbon footprint.
	• Energy Service Companies established to increase implementation rates of audit recommendations among designated facilities from 50% to 75%.
		Mitigation

Promote resource use efficiency and circular economy in industrial processes	• Implementation of Extended Producer Responsibility Regulations and formation of seven Producer Responsibility Organizations. • Implementation of cleaner production mechanisms in industries. • Promote industrial symbiosis in three Special Economic Zones and 20 County Aggregation and Industrial Parks.	Mitigation
Promote green building design and construction	• At least 30% of building projects to be certified to green building standards that promote emission reductions and construction that accounts for expected climate impacts. • Implement a green construction material industrial park at the East African Portland Cement Company.	Mitigation / Adaptation
Technology (Enabling)	• Support to develop, promote, and transfer technologies for energy efficient processes, biogas production, and circular economy processes.	

5.7 Climate Change Priority 7
Energy and Transport

Clean, sustainable, and affordable energy and transportation systems are essential for Kenya's sustainable development and are infrastructure enablers for the BETA.

Climate risk drivers including temperature increase, higher frequency and intensity of extreme weather events – such as heavy rains resulting in floods and landslides – damages energy and transport infrastructure. These climate hazards increase the risk of delays, disruptions, damage, and failure across land-based, air, and marine transportation systems and impacts the design, construction, location, and operation of power infrastructure. The impact of drought on hydro-generated electricity is well understood in Kenya. Low water levels in the country's hydroelectric dams lead to the increased use of diesel-powered generators and an increase in the cost of electricity.

The government has taken steps to address the impacts of climate change for energy and transport infrastructure, including modifying hydropower operations by increasing dam capacity and adding turbines increasing power generation from other renewable sources,[151] and assessing large transportation projects for climate impacts and adjusting design to address those impacts. The Kenya National Highways Authority participated in a vulnerability assessment of the Horn of Africa Gateway project, a large road infrastructure project, that found projected increased rainfall is expected to increase the risk of flooding, erosion, washouts, and siltation, and to aggravate connectivity problems.[152] Climate-proofing, or pro-active adaptation, is a key recommendation of Kenya's NAP as a means of addressing infrastructure-related climate change impacts.

Emissions in the energy sector and transport sector are expected to increase due to an increase in energy demand. Kenya's electricity generation is largely renewable at 89.5%, with about 10.5% generated from fossil fuels (down from 35% in 2010).[153] In 2022, the installed electricity generation capacity was 3,300 megawatts, with geothermal accounting for 40.5% of the generation mix, hydro 27.4%, wind 16.8%, solar 2.5%, and imports 3%. Geothermal is increasingly used for base load electricity generation, helping Kenya to increase and maintain reliance on renewable energy as the country increases electricity generation to meet the target of 100% generation from renewable sources, and a 100% access to electricity by 2030. This includes decentralised solutions to meet the needs of a growing population and industrialising economy.

With regard to energy demand, the transition to clean cooking is a priority action that presents an opportunity for technological leapfrogging with energy and GHG emissions savings, and health and cost-saving benefits. The transition to clean cooking – through the uptake of LPG, ethanol, biogas, electric cooking, and other alternative fuels in urban areas, and improved biomass cookstoves in rural areas – has substantial co-benefits, including improving the health of women and children, and reducing pressure on forests. Women and children are disproportionately affected by the challenge of using raw biomass for cooking, suffering from toxic smoke, time-poverty, and the consequences of deforestation. The use of clean cooking technologies should therefore be integrated into community development initiatives.

Kenya is working to reduce emissions in the transport sector, including through expansion of the rail line, implementation of electric mobility, mainstreaming climate change in the Integrated National Transport Policy, and implementing Kenya's Action Plan for the Reduction of CO_2 Emissions in Aviation.[154]

Priority NCCAP 2023–2027 actions in the energy sector include increasing renewable energy for electricity generation in a climate-resilient manner; improving energy efficiency and conservation; climate-proofing energy infrastructure; and transitioning to clean cooking. The focus of climate action in the transport sector is the establishment of efficient, sustainable, world class transport systems and logistics services that withstand the projected impacts of climate change. Actions including developing affordable, safe, and efficient public transport systems; improving non-motorised transport facilities; transitioning to electric mobility; encouraging low-carbon technologies in the aviation and maritime sectors; and climate-proofing transportation infrastructure.

The expected outcomes of the climate change actions are:

Adaptation – climate-proofed energy and transport infrastructure.

Mitigation

Electricity supply **-** GHG emission reductions of 24.92 $MtCO_2eq$ through the development of geothermal and other renewable energy for electricity supply.

Energy demand **-** GHG emission reductions of an estimated 3.3 $MtCO_2eq$ through tinterventions such as the transition to modern clean cooking technologies

Transport **-** GHG emission reductions of 3.1 $MtCO_2eq$ through promotion of electric mobility, implementation of the BRT system in Nairobi, and improved fuel efficiency in trucks through improved standards.

Climate Change Priority 7a: **Energy**

Strategic Objective 07a

Ensure an electricity supply mix that is based mainly on renewable energy, an electricity system that is resilient to climate change and promotes energy efficiency, and encourage the transition to clean cooking to reduce demand for fuelwood.

Issue/ Problem

A renewable and affordable electricity supply is needed that meets the needs of a growing population. The electricity supply needs to be based mainly on renewable energy, and be resilient to climate change. Continued efforts are needed to improve energy efficiency and to encourage the transition to clean cooking to reduce demand for fuelwood and reduce indoor air pollution.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy
- Housing and Settlement
- Healthcare
- Digital Superhighway and Creative Economy

National level indicators

- Share of renewable energy in the total electricity generation mix.
- Percentage of households using clean cooking fuels.
- Percentage of households using biomass for energy.

Action	Expected results by 30th June 2028	Adaptation/Mitigation

Promote clean, affordable, and quality alternative renewable energy sources	• Energy centres increased from 16 to 47 for increased dissemination of renewable energy technologies.
	• Alternative energy technologies, 195 energy efficient charcoal kilns developed, biogas digesters, small hydro-plants, biofuel plants, wind masts, and data loggers, ethanol production plants, and clean cooking solutions.
	• 589 MW new renewables developed, including:
	  • Geothermal (208 MW), which is prioritised as baseload generation that is climate resilient.
	  • Solar - 174 MW.
	  • Wind - 161 MW.
	• Two biofuel plants developed for value chain addition by the private sector.
		Mitigation

Enhance electricity network expansion and improvement, as well as electricity access in both on-grid and off-grid areas	Connection to electricity enhanced: • 2.3 million additional customers and 30,000 public facilities. • 90,000 transformers installed and maximized. • 150 mini grids and 50,473 standalone systems installed. • 75,000 lanterns installed under the Public Lighting Project. • Losses in electricity transmission and distribution reduced from 23% to 16.5%.	Mitigation
Promote clean cooking fuels and technologies	• About 75% of households have adopted modern cooking energy services (LPG, e-cooking, biogas, and bioethanol). • 23% (3,450,000) of households cooking with improved cooking (biomass) solutions. • About 25% of households using improved biomass technologies. • Subsidised mwananchi gas project implemented in Nairobi and its environs for urban and peri-urban households. • Global eCooking Coalition implemented to have electricity as a primary cooking fuel for additional 10% of the population of Kenya by 2030.	Mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation

.	• 5,000 public secondary schools transition to LPG:
	  • Installation of the infrastructure – 2 ton storage bullet and piping from bullet to gas burners and the gas burners.
	  • Training and capacity building on use and risk management.
	• Production of non-forest biomass fuel briquettes such as agricultural waste, sawdust, and human waste through youth-led programmes increased.
		.

Promote geothermal energy for alternative use (Direct use)	• The Menengai grain dryer is commercialised. • Menengai geothermal brine heat used in cement manufacturing. • Steam and brine supplied to industries in the KenGen Green Energy Park.	Mitigation

Climate-proof energy infrastructure	• 50% of new poles either concrete or eco-poles.
	• 2,500 hectares of water catchment areas conserved and rehabilitated by protecting the areas feeding hydro-generation reservoirs.
	• Existing hydropower plants optimised, and water management and conservation improved.
	• Raising of Masinga Dam to enhance storage capacity:
	  • Conduct environmental social impact assessment
	  • Resettlement action plan
	  • Detailed feasibility study and designs
	  • Enhance dam capacity.
		Adaptation

Enabling actions (Technology)	• Climate change resilient technologies, such as modern coolers and scrubbers promoted. • Research undertaken on new and emerging energy technologies that would reduce GHG emissions in the energy sector, e.g. Small Modular Reactor Nuclear Technology, Power-to-X and Green Hydrogen, sulphur hexafluoride (SF_6)-free Gas Insulated Switchgear, among others. • Baseline study on use of SF_6 in the power sector.	Enabling

Action	Expected results by 30th June 2028	Adaptation/Mitigation
	• Support to develop, promote, and transfer technologies for clean cooking. • Modern Biogas Laboratory. • Modern Clean Cooking and Stove Testing Laboratory.	
Enabling Actions (Capacity development)	• Geothermal Development Capacity Building – Training of 60 participants per year (coordinated by KenGen and Geothermal Development Corporation). • Training 1,000 participants, including women and youth, annually on renewable energy technologies (coordinated by Rural Electrification and Renewable Energy Corporation [REREC]). • Training of 100 participants, including women and youth, per year by Kenya Power's Institute of Energy Studies and Research on renewable energy technologies. • Establish one Public Information Centre on Nuclear Energy, Science and Technology to drive awareness on nuclear electricity generation. • Capacity building for construction and operation of a nuclear power plant (nuclear scientists and engineers). • Train 500 industry representatives annually on climate change, circular economy, carbon footprint, and emerging climate change themes (coordinated by the Kenya Association of Manufacturers [KAM]) • Stakeholder engagements and sensitisation on the climate change and energy sector nexus.	
Enabling (policy)	• The 2020 Kenya National Energy Efficiency and Conservation Strategy is implemented. • Bioenergy Strategy 2020. • Kenya Clean Cooking Compact. • Develop regulations on Captive Power. • Develop regulations on Net Metering.	

Action	Expected results by 30th June 2028	Adaptation/Mitigation
	• Develop market rules for power trading in Kenya to promote renewable energy uptake (energy auctions, power wheeling). • Policy and regulatory framework for emerging technologies like green hydrogen, battery energy storage systems, pumped storage hydropower, carbon capture and storage. • Review the Energy (Appliances, Standards and Labelling) Regulations, 2012. • Review of National Electrification Strategy. • Develop a policy to guide the management of vegetation, wayleaves acquisition, and corridors for energy infrastructure.	.

Climate Change Priority 7b: **Transport**

Strategic Objective **07b**

Establish efficient, sustainable, world-class transport systems and logistics services that withstand projected impacts of climate change.

Issue/ Problem

Operational inefficiency, technology limitations, heavy traffic congestion, and high fossil fuel consumption lead to high levels of carbon emissions; need for resilience, and adaptive transport infrastructure to reduce vulnerability to extreme weather conditions.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy
- Housing and Settlement

National level indicators

- Percentage of freight moved by rail instead of by road.
- km of expansion of non-motorised transport (NMT) infrastructure.
- km of expansion of Bus Rapid Transportation (BRT) infrastructure.
- Number of electric vehicles deployed/registered.
- km of roads that are climate-proofed.

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Reduce traffic idling	• Intelligent Transport Systems including Traffic Management Centre designed and implemented for 81 junctions.	Mitigation
Efficient public transport operations	• 70 km of the Bus Rapid Transit (BRT) for Nairobi metropolitan area (BRT design, infrastructure, equipping and operation). • Matatu operations/public transport operations upgraded through fleet upgrading to more efficient vehicles. • Intermodal connectivity for rail, road, air, and NMT improved (e.g., BRT and rail connection to the Jomo Kenyatta International Airport [JKIA], BRT connection to the commuter rail, commuter rail line to JKIA). • Commuter rail in cities (including in Nairobi and Mombasa) expanded by 52 km. • Increase the number of passengers using commuter rail from 3.1 million per year to 6 million per year.	Mitigation
Develop and improve Non-Motorised Transport (NMT) facilities	• 500 km of NMT (walkways, cycle lanes) designed, constructed, and maintained.	Mitigation

Transition to electric mobility	• Electric vehicles deployed:
	  • 1,000 electric buses
	  • 50 Government of Kenya passenger cars
	• Electric vehicle charging infrastructure deployed
	• Local manufacture and use of electric vehicles including 2- and 3-wheelers enhanced
	• Fuel efficiency in trucks increased through adoption of improved standards.
	Enabling:
	• Standards for electric/hybrid vehicles in Kenya developed and implemented.
		Mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Climate-proof transportation systems	Climate-proofing of roads, including through: • 5,000 km of roads climate-proofed • Improved pavement design, drainage structures, and use of sustainable materials • Green road corridors (landscaping and tree planting and growing).	Adaptation

Improve the rail sector's contribution to reducing emissions	• Extension of the Standard Gauge Railway (SGR) from Naivasha–Kisumu–Malaba:
	  • Naivasha–Kisumu 2B (262 km)
	  • Kisumu–Malaba 2C (107 km).
	• 30% freight shifted from road to rail.
	• Increase long distance passengers from 2.5 million per year to 2.8 million per year.
	• Development of integrated climate-resilient rail cities (Eldoret and Nairobi).
	• Modernisation, upgrading, and rehabilitation of meter gauge railway syste ail stations in Nairobi.
	• Modernisation of railway fleet: locomotives, wagons, Diesel Multiple Units.
	• Development of cooling logistics for movement of fresh produce through railway and sea.
	• Greening rail corridors.
		Mitigation
		.

Explore alternative propulsion technologies	• Promote adoption of energy efficient technologies and uptake of low carbon fuels for vessels operating in Kenya waters, such as green hydrogen, nitrogen and ammonia.	Mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation

Green and climate-proof airport infrastructure to facilitate efficient aviation operations	• Modern terminal buildings with natural light, smart lighting, more parking spaces for aircrafts, solar panels, and fixed electric ground power units constructed at JKIA.
	• JKIA runway upgraded to reduce occupancy time.
	• Solar power plants installed at JKIA and other major airports to reduce grid energy demand.
	• Rainwater harvesting implemented at international airports through development of infrastructure:
	  • 15 million litres of rainwater harvested at JKIA per year
	  • 8 million litres of rainwater harvested at Moi International Airport per year.
		Mitigation

Improve the air sector's contribution to reducing GHG emissions	Air traffic management enhanced through: • Modernisation of aircraft fleet through purchase of three Bombardier Q400 series • Acquire aircrafts with more fuel-efficient Engines: 8 ERJ145 and ERJ135 aircrafts to replace the ageing 18 Dash-8 • Implementation of Carbon Offsetting and Reduction Scheme for International Aviation and report to ICAO • Development of Sustainable Aviation Fuels with lower life cycle CO_2 emissions and capacity building • Implementation of measures to ensure efficient pre-departure planning and arrival planning (departure management and arrival management).	Mitigation
Improve maritime sustainability and decarbonisation	• Increasing the number of water buses as a means of transport. • Domestication and implementation of Annex 6 of the International Convention for the Prevention of Pollution from Ships. • Installation of shore power at the Port of Mombasa, including determination whether to use solar or wind power (Berth 1).	Mitigation

Action	Expected results by 30th June 2028	Adaptation/Mitigation
Enabling (Policy)	• E-Mobility Policy and requisite frameworks developed and implemented. • Appropriate incentives provided to increase uptake of electric vehicles. • Integrated National Transport Policy finalised and implemented. • Regulations to implement the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) developed and implemented. • Regulations on the prevention of air pollution from shipping under MARPOL 73/78 developed and implemented. • Planning and building control regulations updated to encourage compact development, mixed-use, and reduced provision of parking near BRT stations.	Enabling

5.8

Climate Change Priority 8

Children and the Youth

Children and youth under the age of 35 years made up 75% of the population of Kenya in 2019 and they are particularly susceptible to the adverse impacts of climate change. The effects of extreme weather events, including flooding, droughts, rising temperatures, and climate-induced conflicts, pose substantial threats to their health, well-being, and future prospects. As a result, the rights of children are directly endangered by climate change.[4] This section focuses on the impact of climate change on sectors that are sensitive to children, the need for increased resilience in these sectors, and the potential for children and the youth to contribute as agents of change in climate action.

The youth have a key role to play in addressing climate change

Kenya is currently faced with the opportunity and challenge of a so called 'youth bulge', which occurs when more than 20% of a country's population is composed of young people, which can be a valuable asset for both present and future generations.[155] Challenges facing the youth include low level of awareness of climate change and its impacts, insufficient public participation and sensitisation; climate change issues not fully integrated into Kenya's formal education system; inadequate capacity for policy makers at national and sub-national levels on climate change mainstreaming; and lack of adequate data and information to guide policy making among others.[156]

The youth require appropriate platforms and means to support and initiate adaptation actions in order to secure a safer future. These efforts span different areas, including lobbying and influencing political attitudes, advocacy, capacity building, mobilising, and establishing or working in social enterprises. The younger generation is adaptable to newer forms of political expression, mobilisation, and engagement, such as through social media and other online modes. With the need for increased political commitments towards climate adaptation, youth involvement in newer forms of political mobilisation and engagement is essential to drive action.

Children are uniquely vulnerable to climate change but often overlooked

Many children lack access to basic services like safe water, sanitation, and hygiene (WASH). Droughts and floods worsen these conditions, causing diseases and school disruptions. Rural households have limited access to basic drinking water services[5] (56.4% compared to 90.4% in urban areas) and basic sanitation [6](37.7% compared to 47.3% in urban areas), with 8.5% practicing open defecation. The recent drought left millions without sufficient water,[157] doubling travel times to water sources in many areas and thus increasing risks such as gender-based violence for women and children. Floods also damage water systems and sanitation facilities, leading to disease outbreaks such as cholera and other diarrheal diseases.

[4]The Government of Kenya ratified the UN Convention of the Child in 1990, which sets out the civil, political, economic, social, health, and cultural rights of children.

[5]Defined as drinking water from an improved source, provided either water is on the premises or round-trip collection time is 30 minutes or less. Includes safely managed drinking water, which is not shown separately.

[6]Defined as use of improved facilities that are not shared with other households. Includes safely managed sanitation service, which is not shown separately.

Climate change affects education. Currently there are significant variations in net enrolment rates between counties. Some counties have primary school net enrolment rates below 30%, particularly in the ASALs, while others reach 90% or higher.[158] Droughts force children to travel long distances for water or pasture, hampering school attendance. Lack of midday meals and school damage from floods contribute to dropouts. Education must be resilient to the impacts of climate change and include climate-focused curricula.

Malnutrition and stunting rates for children under 5 remain high (8.1% and 17.6%, respectively). Climate change directly impacts agriculture, worsening these numbers. Even brief periods of malnutrition have lifelong effects. Health services lack flood-proof infrastructure and proper WASH facilities.

Climate change contributes to making the land uninhabitable and causes resource-based conflicts, leading to population migration. Migrant children, especially those unaccompanied or separated, face large risks of exploitation, abuse, neglect, and violence.[159]

Child-centred and inclusive climate change action

Children and youth have critical skills, experiences, and ideas needed for safer and more sustainable societies everywhere. Therefore, empowering children and youth is crucial. They should be educated, prepared, and equipped with the necessary resilience and skills to face disasters and the wider impacts of climate change. Their meaningful participation in decision-making processes and actions related to disasters and climate change should be facilitated at all times, allowing their voices to be heard and considered.

For children to survive and thrive it is key to:

- Prioritise child-critical services such as education, health, nutrition, and child protection to make them more inclusive, resilient, and prepared for climate change impacts.
- Increase investment and resources in disaster risk reduction and climate change adaptation measures that are focused on children and youth.
- Promote partnerships between the public and private sectors to enhance resilience.
- Integrate child-specific interventions into national and local disaster risk reduction and climate policies to address the risks that climate change poses to children's survival, well-being, and development.
- Strengthen the capacities of governments and stakeholders in child-centred disaster risk reduction and climate change adaptation.
- Foster partnerships, collect age- and gender-disaggregated data, and share technical expertise to shape effective actions for and with children and youth.

These actions will foster a child-centred and inclusive approach to climate change, ensuring the protection and well-being of children and their communities in the face of climate and environment challenges

The enabling actions set out in the table below aim to facilitate the participation of children and youth in implementing the NCCAP 2023–2027.

Strategic Objective **08**

Children and youth rights are safeguarded from the impacts of climate change including through active and continuous involvement in climate action and related policy and decision-making.

Issue/ Problem

Children and youth in Kenya, comprising about 75% of the population, face severe risks from climate change. Child critical services are put under pressure by climate-related hazards. They lack access to safe water and sanitation, with rural areas particularly affected. Climate-related events disrupt education and malnutrition rates are high. Climate change also makes certain areas uninhabitable, leading to population migration and increased vulnerability for migrant children.

Finance for climate change adaptation is increasing through many different means. However, there are little or no existing adaptation finance schemes that are focused on financing, replicating, or scaling up youth-led or youth-focused adaptation action. Innovative financing options from multilateral funds, development agencies, and local governments are needed to enhance and scale up youth-led adaptation efforts in the civil society and entrepreneurship sector, so these can form a part of national climate change efforts. Considering the institutional challenges faced by youth, large-scale climate change financing organisations should create specific financing initiatives that focus on and encourage adaptation and mitigation efforts led by young people. One of the common narratives of vulnerability to climate change and disasters is one of the passivity and victimhood of children and youth in the process of climate change adaptation and mitigation.

BETA Pillars Impacted by Action in this Climate Priority

- Agricultural Transformation and Inclusive Growth
- Transforming the Micro, Small and Medium Enterprise (MSMEs) Economy
- Housing and Settlement
- Affordable Healthcare to All
- Digital Superhighway/ Creative Economy

National level indicators

- Number/proportion of national and local DRM and climate policies and plans that integrate child and youth interventions.
- Number of children and youth that have access to climate and environment education.
- Number of youth-led funded climate innovation actions programmes.

Action	Expected results by 30th June 2028	Adaptation / Mitigation / Enabling
Develop a children and youth climate change engagement strategy	• A national strategy developed to engage children and youth across the country on climate change actions.	Enabling (policy and planning)
Enhance children and youth engagement in national and county climate change policy processes	• 470 youth groups and children-focused local entities are regularly and systematically involved in policy development on climate action. • National and county level climate policies and strategies are child-sensitive.	Enabling (policy and planning)
Establish and operationalise county youth climate change innovation hubs	• Five youth climate change innovation hubs established. • Scaled up youth climate innovations and solutions such as eco-friendly technologies, nature-based solutions, knowledge-based and technology-based solutions.	Enabling (Technology / capacity and knowledge)
Build capacity of children and youth on climate change technologies and innovations	• 4,700 youth adopt climate change technologies for climate action.	Enabling (Technology)
Build capacity of children and youth on climate change and risk management education and practice	• Increased focus on mainstreaming climate change in teaching and dissemination through skills-based curriculum. • 2.3 million additional customers and 30,000 public facilities. • 90,000 transformers installed and maximized. • 150 mini grids and 50,473 standalone systems installed. • 75,000 lanterns installed under the Public Lighting Project. • Losses in electricity transmission and distribution reduced from 23% to 16.5%.	Enabling (Capacity and Knowledge)
Build the capacity of children and youth on climate action	• At least 100,000 children and youth taking climate action through schools, arts and competitions, among others.	Enabling (Capacity and Knowledge)
Develop a youth platform for accessing climate finance information and initiatives	• Operationalisation of Climate Change Knowledge Portal that includes a platform with information on climate finance and opportunities and initiatives for youth.	Enabling (Capacity and knowledge)

Action	Expected results by 30th June 2028	Adaptation / Mitigation / Enabling
Empower youth in climate change advocacy and financing	• Engage youth to create spaces to make their voices heard at global, national, and local level climate change platforms (may include participating in UNFCCC meetings, assisting with updating the NAP and NDCs, inputting to local action plans, etc.) • Engage with institutions and organisations to develop strategies to integrate climate action into their activities.	Enabling (Policy and planning)
Build capacity of youth on development of bankable climate change project proposals	• 100,000 youth increase capacity to develop proposals and access climate change funding through various funding mechanisms.	Enabling (Finance)
Increase in climate finance for building resilience of child critical services	• Children are specifically mentioned and considered in all GCF, GEF, and other UNFCCC-linked climate financing proposals and implementation.	Enabling (Finance)

Chapter 06

Delivering the 2023-2027 NCCAP

A range of crosscutting enabling actions are required to implement the adaptation and mitigation actions set out in the eight priority climate change areas discussed in Chapter 5. These enabling actions equip government and stakeholders with the finance, knowledge, skills, and technologies needed to deliver and report on adaptation and mitigation actions. Most of the actions, which are briefly described below, continue from the NCCAP 2018–2022. This section also sets out the delivery and coordination mechanisms that will guide the implementation of the NCCAP 2023–2027.

6.1 Enablers

6.1.1 Enabling Legal, Policy and Institutional Framework

Kenya has a comprehensive policy framework for climate change action, as discussed in section 4.3. Progress has been made in the development of regulations, with the Climate Change (Public Participation and Access to Climate Information) Regulations 2023 published in the Kenya Gazette (Legal Notice No. 38 of 2023). Work is still needed to prepare various regulations to provide further interpretations of certain provisions of the Act, such as duties of public or private entities, and reporting requirements.

Progress is underway at the county level, with the support of the Financing Locally-Led Climate Action (FLLoCA) programme (2021–2026), which includes climate vulnerability and risk assessments and the operationalisation of the County Climate Change Funds to address adaptation and mitigation priorities.

Table 8: Priority Enabling Actions – Enabling Policy and Regulatory Framework

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicator)
P1	Prioritise and develop the needed regulations to effectively implement the Climate Change Act, 2016. *(Action continues from NCCAP 2013–2017 and NCCAP 2018–2022)*	CCD MECC&F	**By 30th June 2027** – Four regulations developed and operationalised.
P2	Support alignment of county legislation to the Climate Change Act, 2016. Assist county governments to develop County Climate Change Fund (CCCF) regulations, allocate the minimum percentage of the development budget to the CCCF, prepare and implement county climate change action plans, and operationalise ward climate change committees. *(Action continues from NCCAP 2018–2022)*	Country governments Council of Governors (CoG) CCD National Treasury and Planning	**By 30th June 2024** – All county governments have operationalised Ward Climate Change Committees. **By 30th December 2025** – All county governments have climate change action plans (up from 23 in 2021). **By 30th June 2027** – All county governments have developed Climate Change Fund regulations and made budgetary allocations to their CCCFs.

6.1.2 Technology and Innovation

The overall objective is to support the various sectors to promote appropriate technologies and innovations in support of adaptation and mitigation actions. Technology development and transfer is defined by the IPCC as a broad set of processes covering the flows of know-how, experience, and equipment for mitigating and adapting to climate change amongst stakeholders such as governments, private sector entities, financial institutions, civil society, and academia.[160]

Table 9: Priority Enabling Actions – Technology and Innovation

	Enabling actions	Coordinating institutions and relevant partners	Expected results (Process indicators)
T1	Provide Climate Information Services (CIS) – including information to help farmers manage risk and to inform early warning systems, to inform decision-making for organisations, businesses, and households. *(Action continues from NCCAP 2018–2022)*	KMD CCD CoG County governments Private sector	**By 30th December 2025** – 24 county CIS plans developed. **By 30th June 2027** – All counties have prepared county CIS plans.
T2	Promote gender-responsive climate technologies and innovation in the private sector through the provision of financing, capacity building, and start-up/scale-up services. Encourage youth innovation through outreach programmes with schools, universities, and youth organisations. *(Action continues from NCCAP 2018–2022)*	CCD NETFUND Private sector	**By 30th December 2025** – at least 10 clients, half being women and youth, are supported to commercialise their clean technology businesses. **By 30th June 2027** –25 women and youth clients are supported to commercialise their clean technology businesses.
T3	Identify policy and fiscal incentives to promote the uptake of climate-friendly technology (such as tax incentives, reduced-energy tariffs, low-interest loans, public private partnerships). *Action continues from NCCAP 2013–2017 and NCCAP 2018–2022*	National Treasury and Economic Planning CCD CoG Other state departments and agencies Private sector	**By 30th December 2025** – Two policies and fiscal incentives launched. **By 30th June 2027** – Three additional policies and fiscal incentives launched.

6.1.3 Capacity Development and Knowledge Management

Capacity development is aimed at enhancing the ability of institutions and communities to effectively carry out climate change actions, while knowledge management is concerned with curating and sharing of climate change knowledge. Activities under this enabler are expected to enhance capacity in climate change and facilitate implementation of the Climate Change Act, National Climate Change Policy 2018, and Kenya's NDC and NAP.

Table 10: Priority Enabling Actions - Capacity Development and Knowledge Management

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicator)
C1	Establish community information centres in counties, building on the models established in Kisumu county (bioenergy) and Samburu county (community education), to improve access to information on climate change. The centres will be managed by engendered local management committees, and will provide focused services for women, youth and minority and marginalised groups. *(Action continues from NCCAP 2018–2022)* Enhance the National Climate Change Resource Centre (NCCRC) as a one stop shop for climate change information relevant to Kenya.	CCD CoG Country governments	**By 30th December 2025** – Community information centres established in five additional counties (total of seven). **By 30th June 2023** – Community information centres established in five additional counties (total of 12). **By 30th June 2028** – The NCCRC upgraded to a one stop shop for climate change information, nationally.
C2	Strengthen the capacity of national government institutions to implement the NCCAP, which will deliver on the goals of the Climate Change Act, NDC, and NAP, including: - Training of staff of Ministries, Departments and Agencies (MDAs) climate change units - Support to National Climate Change Council and to CCD in its secretariat role - Training on the climate change–gender nexus - Support to CCD for its coordination role - Capacity building of media on climate change awareness raising and reporting. *(Action continues from NCCAP 2013–2017 and NCCAP 2018–2022)*	CCD National Treasury and Economic Planning State departments	**By 30th December 2025** – 250 officials are trained on climate change mainstreaming. **By 30th June 2027** – All state departments providing annual reports on climate change.

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicator)
C3	Build the capacity of county governments, including: - Strengthening of engendered Climate Change Coordination Units - Setting up functional Climate Change Units, gazettement of engendered County Environment Committees and other supportive structures - Coordination of climate change programmes across counties - Monitoring and reporting on climate change programmes. *(Action continues from NCCAP 2018–2022)*	CCD, MECC&F National Treasury and Economic Planning CoG County governments	**By 30th December 2025** – All counties have established Climate Change Coordination Units. **By 30th June 2027** – All county governments providing annual reports on climate change with gender-disaggregated information.
C4	Build the capacity of stakeholders, including: - Vulnerable groups, including women, children, youth, persons with disabilities, and marginalised and minority groups, to participate in, attract funding for, and report on climate change actions - Private sector and civil society to implement and report on climate actions. *(Action continues from NCCAP 2018–2022)*	CCD County Governments	**By 30th December 2025 –** Ten awareness sessions held. **By 30th June 2027 –** Twenty awareness sessions held.
C5	Develop and operationalise a public awareness and engagement strategy that highlights outreach to politicians and media, and engagement of vulnerable groups, including women, older members of society, children, youth, persons with disabilities, and members of minority and marginalised groups. *(Action continues from NCCAP 2018–2022)*	CCD	**By 30th December 2025** – Public awareness and engagement strategy operationalised at national and county level.

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicator)
C6	Integrate climate change in the education system, emphasising integration in existing curriculum for junior secondary grades 7, 8 and 9. Enhance the capacities of teachers, trainers, and facilitators to teach and assess climate change understanding at all levels of education and training. Develop appropriate supporting supplementary teaching and learning climate change materials for all levels of education and training. *(Action continues from NCCAP 2013–2017 and NCCAP 2018–2022)*	Ministry of Education Kenya Institute of Curriculum Development CCD	**By 30th December 2025** – Climate change mainstreaming guidelines approved. **By 30th June 2027** – Climate change curriculum introduced for junior secondary grades.

6.1.4 Climate Finance and Resource Mobilisation

The actions help the Government of Kenya effectively mobilise, manage, and track climate finance actions. A priority is the operationalisation of the Climate Change Fund that will be overseen by the National Climate Change Council and will allocate funding for priority mitigation and adaptation actions. The action includes the establishment of the regulations, and management and oversight functions.

Tracking and reporting of finance for climate change action, and the adaptation and mitigation results of this finance, is critical to improve analysis. This includes understanding what actions provide best value for money and determining how much climate finance reaches those most in need (such as women, youth, children, and marginalised groups) and the climate impact of that finance.

Kenya needs to be well positioned to act on emerging carbon market opportunities. This action will support engaging in the development of new market mechanisms under the UNFCCC, developing clarity on the treatment of emission reductions in Kenya created through climate finance and investment, improving Kenyan capacity to engage in the carbon market, strengthening the viability of domestic carbon asset production, and increasing access to international carbon markets.

Table 11: Priority Enabling Actions – Climate Finance and Resource Mobilisation

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicator)
F1	Operationalise the Climate Change Fund, including establishment of the management and oversight of the fund; annual budgeting and reporting; development of policies, guidelines and procedures; and capitalising the fund through development partner and GCF contributions. *(Continued from NCCAP 2013–2017 and NCCAP 2018–2022)*	National Treasury and Economic Planning Office of the Attorney General CCD	**By 30th December 2025** – Fund is operationalised, including establishment of secretariat and management board as set out in the Climate Fund regulations. **By 30th June 2027** – Climate finance being disbursed through identified funding windows; and national fund is linked with CCCFs.
F2	- Enhance capacity to mobilise and manage climate finance, including the management of, access to and tracking of international climate finance; and development of funding proposals. - (Continued from NCCAP 2018–2022) - Position Kenya to access financing from the Loss and Damage Fund. - Develop a climate investment plan to mobilise resources for the NCCAP.	National Treasury and Economic Planning CCD National Environment Management Authority (NEMA) State departments County governments	**By 30th December 2024** – Climate investment plan developed. **By 30th June 2027** – Resources mobilised (and tracked) for climate priorities.
F3	Build the capacity of county governments to mobilise and track climate finance using gender-disaggregated data, including allocations through CCCFs. *(Continued from NCCAP 2018–2022)*	National Treasury and Economic Planning County governments	**By 30th December 2025** – Counties are tracking and reporting on the finance flows through their CCCFs.
F4	Report on domestic and international climate finance flows through an improved tracking system (including building capacity of government officials to track climate finance), that is supported through improved coordination with development partners. *(Continued from NCCAP 2013–2017 and NCCAP 2018–2022)*	National Treasury and Economic Planning CCD State departments County governments	**By 30th December 2025** – Climate finance tracking system established at the national level. **By 30th June 2027** – Climate finance tracking system generates information to report on domestic and international climate finance flows.
F5	Build the capacity of private sector and civil society and youth to develop bankable projects and build the in-house capacity of financial institutions to assess climate risk and to develop climate-related schemes. *(Continued from NCCAP 2018–2022)*	National Treasury and Economic Planning CCD Private sector	**By 30th December 2025** – Three financial institutions have developed climate-related lending schemes and report to CCD on lending schemes.
F6	Participate in the design and implementation of market-based mechanisms; promote investor confidence and participation in the carbon market and market-based mechanisms; enhance Kenyan capacity to engage in carbon market activities; strengthen the viability of domestic carbon asset production; and increase access to international carbon markets. *(Continued from NCCAP 2013–2017 and NCCAP 2018–2022)*	National Treasury and Economic Planning CCD NEMA CoG KenGen Geothermal Development Corporation (GDC) KFS State Department of Forestry Private sector	**By 30th December 2025** – Unit established to promote projects responsible for generating carbon credits. **By 30th June 2027** – Three projects approved and generating carbon credits for the compliance market.

6.1.5 Measurement, Reporting and Verification Plus (MRV+) / Enhanced Transparency Framework

The Paris Agreement under the UNFCCC includes an Enhanced Transparency Framework that sets out reporting requirements. Reporting on mitigation is mandatory and enables tracking of progress on implementing and achieving the mitigation component of the updated NDC. Countries choose what to report on adaptation and through which communication channels. Kenya's reporting to the UNFCCC takes place through the mechanisms listed below.

National Communications – to be submitted every four years and can include information on adaptation and mitigation (and has to include information on GHG emissions). Kenya submitted its Second National Communication in 2015.

Biennial Transparency Reports – enable countries to report on progress on all substantive elements of the Paris Agreement, although it is not mandatory to report on adaptation. The Biennial Transparency Reports can include information on:

- Progress of NDC implementation (including adaptation)
- Climate change impacts and adaptation
- Support needed and received: finance, technology, and capacity building.

All countries are expected to submit these reports every two years, with the first reports to be submitted by December 2024.

Adaptation Communications – these reports can include information on adaptation priorities, implementation and support needs, adaptation plans, and adaptation actions. These reports are voluntary and have no set timelines.

Kenya can submit combined reports when submission dates overlap, such as Kenya's first Adaptation Communication that was submitted to the UNFCCC in December 2020 using the 2020 updated NDC as the "vehicle document". A draft standalone Adaptation Communication was prepared in 2023.

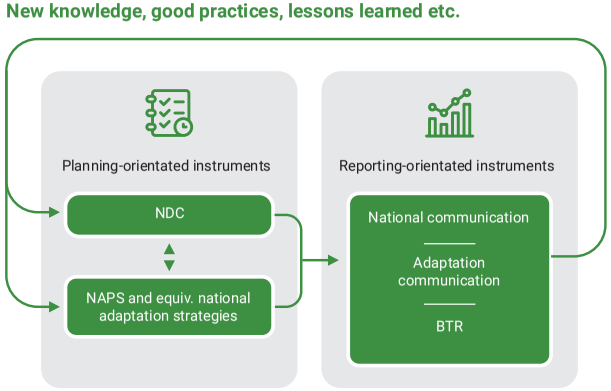


Figure 10: UNFCCC Instruments that are Informed by Kenya's MRV+ System

Adapted from: Dale, Christiansen, & Neufeldt. (2020). *Reporting adaptation through the biennial transparency report: A practical explanation of the guidance*. UNEP DTU Partnership, and Initiative for Climate Action Transparency (ICAT), Page 16.

Kenya's international reporting under the UNFCCC and domestic reporting on climate change to Parliament is underpinned by the Measurement, Reporting and Verification Plus (MRV+) system, which is defined in the NCCAP 2013–2017 as "an integrated framework for measuring, monitoring, evaluating, verifying and reporting results of mitigation actions, adaptation actions and the synergies between them."[161] Domestic reporting needs to demonstrate that climate change action and spending on climate change leads to real results. For mitigation this means demonstrating that GHG emissions are lower than the projected baseline and Kenya is delivering on its NDC. For adaptation this means demonstrating that people are better able to cope with climate change.

The MRV+ system includes MRV of emissions and removals of greenhouse gases for mitigation actions. Kenya prepared its third GHG Inventory in 2020, which includes the measurement of GHG emissions as of 2015 in the agriculture; energy (including transport); land use, land use change and forestry (LULUCF); industrial processes; and waste sectors. It also includes an analysis of the mitigation potential of priority actions in the six sectors. Kenya prepared a Long-Term Low Emission Development Strategy in 2023 that models emissions out to 2050 and the potential impact of undertaking mitigation actions.

Adaptation actions are tracked through a Monitoring and Evaluation (M&E) system. CCD used this system to prepare two reports on progress of implementation of the NCCAP, and one review of the progress made in the implementation of the NAP in the agriculture sector.[162] Currently, there are no agreed adaptation indicators at the international level. Kenya made progress under NCCAP 2013–2017, NCCAP 2018–2022, and the NAP to identify relevant and appropriate indicators to track progress on adaptation and building resilience.

Kenya's MRV+ system will continue to be developed in a phased approach, with initial actions being the establishment of the National Climate Change Registry and the collection of baseline data to enable tracking of actions and indicators in the NCCAP 2023–2027.

Table 12: Priority Enabling Actions: MRV+

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicators)
M1	Establish the National Climate Change Registry.	CCD	**By 30th December 2024** – Climate registry for adaptation actions established, with information publicly available.
M2	Establish the Monitoring, Evaluation and Learning (MEL) component of the MRV+ system to report on adaptation actions and benefits, including identification and measurement of adaptation indicators (including collection of baseline information and development of gender-disaggregated data and gender indicators). *(Continued from NCCAP 2012–2017 and NCCAP 2018–2022)*	CCD Kenya National Bureau of Statistics (KNBS) County governments State Departments National Gender and Equality Commission	**By 30th December 2024** – Baseline data for NCCAP 2023–2027 indicators collected. **By 30th June 2027** – Adaptation MEL system fully functional.

	Enabling actions	Coordinating institution and relevant partners	Expected results (Process indicators)
M3	Establish a functional system to develop Kenya's GHG inventory and an MRV system for tracking mitigation for NDC reporting. *(Continued from NCCAP 2013–2017 and NCCAP 2018–2022)*	CCD NEMA KFS KNBS State departments	**By 30th June 2027** – CCD has established systems to collate, track, analyse and report on GHG data, including climate registry for mitigation actions.
M4	Operationalise the Climate Business Platform to support the private sector in meeting their climate change reporting requirements. *(Continued from NCCAP 2018–2022)*	CCD Private sector	**By 30th December 2024** – Framework for large emitter reporting established. **By 30th June 2028** – Private sector large emitters are reporting to CCD on a voluntary basis.

6.2 Delivery and Coordination Mechanisms

6.2.1 Institutional Roles and Responsibilities

The Climate Change Act, 2016 sets out institutional structures and responsibilities that guide the oversight, coordination, and implementation of the NCCAP 2023–2027. The responsibilities of the main institutions engaged in the oversight, implementation, and monitoring of the NCCAP 2023–2027 are described below and illustrated in Figure 12.

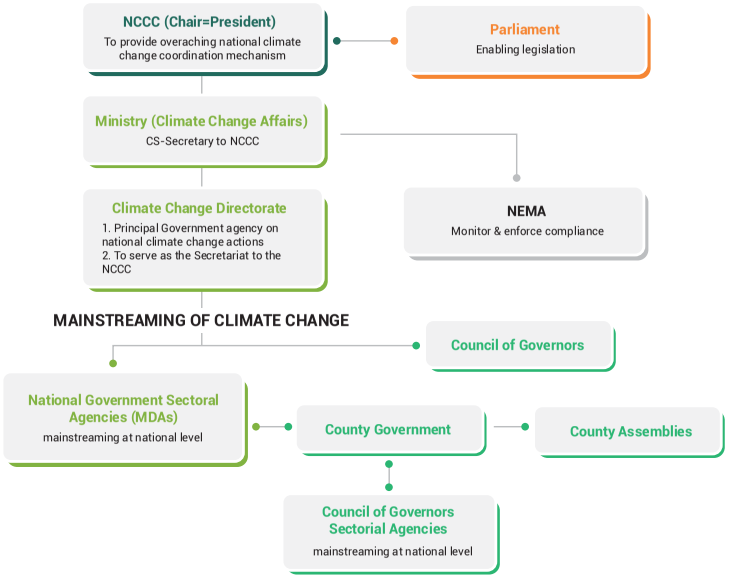


Figure 11: Climate Change Institutional Arrangements

Source: Government of Kenya. (2016). *Kenya National Adaptation Plan 2015–2030.* Page 10.

The **National Climate Change Council, chaired by His Excellency the President of the Republic of Kenya and co-chaired by the Deputy President,** is responsible for overall coordination and advisory functions, including guiding the implementation of the NCCAP 2023–2028. In addition to the executive, the council has representatives from key government ministries, private sector, CSOs, the marginalised, chair of the Council of Governors, and academia, so as to ensure a whole of society approach to addressing climate change issues. The Council shall, among others, "ensure the mainstreaming of climate change functions by the national and county governments", and "approve and oversee the implementation of the National Climate Change Action Plan (NCCAP)".

The **Cabinet Secretary responsible for climate change affairs is the Secretary to the Council**. The Cabinet Secretary formulates and periodically reviews climate change policy, strategy, and the NCCAP, and submits to the Council for approval.

The **Climate Change Directorate, established in the Ministry responsible for climate change affairs** is responsible for coordination of the implementation of the NCCAP 2023–2027, including coordination of climate change actions and related measurement, monitoring, and reporting. The CCD is the Secretariat for the Council and coordinates the technical implementation of climate change functions across the country.

In regard to implementation of climate change actions and implementation of the NCCAP 2023–2027, the Climate Change Act sets out roles and responsibilities for government entities:

- **County governments** are responsible for integrating and mainstreaming climate change into CIDPs, designating a County Executive Committee member to coordinate climate change affairs, and reporting on the implementation of climate change on an annual basis. County governments are expected to establish Climate Change Units.
- **State Departments** and national public entities are to establish Climate Change Units responsible for integrating the NCCAP into strategies and implementation plans; and reporting to the Council on an annual basis on performance and implementation.
- The **National Treasury and Economic Planning** is mandated to work with the Cabinet Secretary responsible for climate change affairs to develop incentives for the promotion of climate change initiatives.
- The **National Environment Management Authority** is responsible, on behalf of the Council, for monitoring and enforcing compliance of climate change interventions and for integrating climate risk and vulnerability assessment into all forms of assessment.
- The **Kenya Institute of Curriculum Development** is to integrate climate change into the national education curricula at all levels; and advise tertiary institutions on the integration of climate change into their curricula.

Various stakeholders have roles in implementing the NCCAP 2023–2027, including:

- **Public**: The public play a role in the planning, implementation, and monitoring of climate change interventions, with an emphasis on enhancing adaptive capacity and improving ability to withstand climate shocks
- **Private sector.** Action on climate change and implementation of the NCCAP can be supported through adaptation by making sure businesses can adjust as well as possible to any consequences of climate change by managing risk and exploiting opportunities; and by reducing GHG emissions from business operations. KEPSA created the Climate Business Information Network-Kenya (CBIN-K) that provides a platform for private sector engagement in climate change activities in Kenya.
- **Public Benefit Organisations:** These include NGOs, CSOs, and faith-based organisations, amongst others. In Kenya, civil society is known to be a powerful agent of change through public awareness creation, policy research and analysis, and advocacy on key socio-economic issues including climate change.
- **Vulnerable groups within society,** including women, older members of society, persons with disabilities, children, youth, and members of minority or marginalised communities are engaged through an inclusive approach to climate change action. Due to inequities and disparities, these groups face disproportionate climate impacts. Climate change actions will be delivered in a way that accounts for the unique needs of these groups.
    - **Women:** Gender equality is a critical component of the NCCAP and women will be engaged through planning, implementation, and monitoring of climate change interventions. Women will be involved in reviews of implementation of actions, and the development and implementation of the gender and intergenerational plan.
    - **Youth:** Engagement of youth, who comprise the majority of the population in many counties, will be encouraged through schools, post-secondary institutions, and youth-focused organisations. Youth are agents of change and have influence on the broader community through their parents, relatives, and families. They will be engaged through climate change actions, and the development and implementation of the gender and intergenerational plan.
    - **Pastoralists, hunter gatherers and fisher communities:** These groups are a critical constituency. Article 56 of the Constitution of Kenya, read together with Article 260, recognises these groups as marginalised communities for whom efforts must be put in place to ensure they participate and are represented in governance and other spheres of life. The livelihoods of these communities are at risk because of climate change, and adaptation actions engage these communities in implementation and monitoring.

- **Academia and research institutions:** Researchers help to provide the evidence and science for knowledge-based decision-making by national and county governments, private sector, development partners, and civil society. They conduct research on different aspects of climate change and help to develop appropriate technologies.
- **Media:** The media provides vital information at times of emergency — from warning of imminent floods to explaining how to deal with disease outbreaks. The media helps to disseminate information about climate change. Accurate, timely and relevant information is a critical component of resilience and appropriate climate change action.

6.2.2 Coordination of NCCAP Delivery at National and County Levels

Role of the Ministry of Environment, Climate Change and Forestry through the Climate Change Directorate

Coordination of climate change activities and oversight of the implementation of the NCCAP 2023–2027 is currently the responsibility of the Climate Change Directorate (CCD), State Department of Environment and Climate Change, in the Ministry of Environment, Climate Change and Forestry. CCD is the National Focal Point for the UNFCCC.

CCD works with climate change units in different ministries, departments, and agencies to mainstream climate change in the various sectors of the economy; and with county governments to ensure that climate change is mainstreamed at the sub-national level. Section 9(8) of the Climate Change Act (No. 11 of 2016), provides guidance on the role of the CCD, described below.

- **Provide analytical support on climate change** – for the various ministries, agencies and county governments.
- **Provide technical assistance** – based on needs identified by county governments.
- **Establish and maintain a national registry** – for both mitigation and adaptation actions.
- **Serve as the national knowledge and information management centre** – for collating, verifying, refining, and disseminating knowledge and information on climate change.
- **Coordinate adherence to the country's international obligations** – including reporting on NDCs; developing national communications, biennial transparency reports, adaptation communications, and Kenya's GHG inventory; and representing Kenya in international negotiations.
- **Coordinate implementation of the gender and intergenerational plan** – at the national and county government levels.
- **Coordinate actions related to climate finance**.

Additionally, the CCD is to work in collaboration with other agencies at the national and county government levels to:

- Identify **low carbon development strategies** and coordinate related MRV
- Develop strategies and coordinate actions for **building resilience to climate change** and enhancing adaptive capacity
- Optimise Kenya's opportunities to **mobilise climate finance**.

Role of the County Governments

At the sub-national level, the 47 county governments are responsible for operationalising climate change planning and budgeting within their jurisdictions. All counties have designated a County Executive Committee member responsible for climate change and have created a Climate Change Unit (CCU) to coordinate climate change action. The CCUs are expected to lead the mainstreaming of climate change actions in their respective CIDPs, and the implementation of and reporting on these actions. In addition, counties are expected to report annually, at the end of every financial year, to the County Assembly on progress achieved on the implementation of climate change actions. A copy of the report will be sent to the CCD, which is responsible for compiling reports and submitting a summary report to the Cabinet Secretary and the National Climate Change Council.

Many counties also have County and Ward Climate Change Planning Committees supporting the planning and implementation of climate actions. These committees help communities to work in a participatory manner to analyse their resilience to present and future climate risks and use the findings to prioritise CCCF investments. The committees draw their membership from county government departments, national government institutional offices in the counties (e.g. KMD, NEMA), civil society, the private sector, and local communities.

6.2.3 Monitoring and Evaluation (M&E) of NCCAP 2023–2027

The CCD is responsible for M&E of the NCCAP 2023–2027. The implementation of the NCCAP will be reviewed every two years as required by Section 13(7) of the Climate Change Act, 2016. The review will utilise reports from county governments and state departments, as well as inputs from relevant stakeholders. Important stakeholders in the review process include the private sector, academia, women, youth, and minority and marginalised groups including pastoralists, hunter gatherers, and fisher communities.

Monitoring and evaluation of the NCCAP 2023–2027 will focus on demonstrating that investment in adaptation and mitigation actions leads to real climate results and development benefits that are linked to the BETA. The M&E system will track implementation and results of the NCCAP 2023–2027, and efforts will be initiated to track the climate finance raised to deliver on the action plan. This will provide the evidence base for planning and implementing future actions, seeking support, and domestic and international reporting.

The MRV+ system will provide critical data and information for monitoring and reporting on implementation of the NCCAP. SDG data and reporting is expected to contribute to tracking of the national-level indicators. Reporting frameworks have been prepared to guide obtaining and compiling inputs from the county governments, state departments, and other stakeholders.

6.2.4 Financial Requirements

CCD will require approximately KES 500 million annually to carry out its duties and functions to ensure effective coordination and delivery of the NCCAP 2023–2027. This funding will enable CCD officials to participate in international discussions and negotiations on climate change; build capacity of national government ministries and departments, county governments, and other stakeholders; develop regulations and guidelines; mobilise and track climate finance to deliver the NCCAP 2023–2027; and monitor and report on climate actions.

The budget-based implementation costs for the NCCAP 2023–2027 are set out for each sector in the Implementation Matrices, in Chapter 7, based on projections provided by respective state departments. The indicative budget for implementing the priority adaptation and mitigation actionss under the NCCAP 2023-2027 is Kshs 4.2Billion. It is important to note that these estimates are guided by budgetary projections, rather than investment prioritisation and need for adaptation and mitigation actions.

Therefore, as the NCCAP 2023–2027 implementation gets underway, the CCD will prioritise the preparation of a NCCAP 2023–2027 Investment Plan. This Plan shall be developed guided by the national needs for financing adaptation and mitigation actions rather than budgetary availability which continues to be a challenge.

Chapter 07

Implementation Matrix

7.1 Implementation Matrix for Climate Change Priority 1

Disaster Risk Management

Priority Actions	Expected Outputs/ Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Indicative Budget (KES Millions)					
						Total	23/24	24/25	25/26	26/27	27/28
Strategic Objective: Reduce risks to communities and infrastructure resulting from climate-related disasters and enhance institutional preparedness and response. **National Indicators** • Number of deaths, displaced persons, and directly affected persons attributed to disasters. • Number of vulnerable members of society supported through cash transfers to reduce shocks and impacts resulting from the effects of climate change. • Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies. • The economic cost of climate change impacts.											
Increase the number of households and entities benefiting from devolved adaptive services	Beneficiaries of social protection mechanisms, and other safeguards under the Hunger Safety Net Programme increased from 101,800 to 132,000 in 8 ASAL counties for regular beneficiaries, with at least 30% women; and an additional 200,000 households through drought-shock responsive scalability targeting those who may slide to the very poorest households as a result of loss of limited livelihood assets. A national assessment undertaken to determine the scope of disasters and required social protection interventions.	No. of beneficiaries of social protection mechanisms (food and cash transfers) No. of households receiving benefit from the Hunger Net Safety Programme Scope of disasters and required social protection interventions	NDMA	Vulnerable groups	GoK	215.28	25.97	47.33	47.33	47.33	47.33
	Beneficiaries under the National Safety Net Programme (NSNP) increased from 1,082,000 to 1,972,000 in 2027. Strengthen the use of the Enhanced Single Registry.	No. of cash transfer NSNP beneficiaries Single registry	Social Protection (State Department for Social Protection and Senior Citizen Affairs)		GoK Development partners (DPs)	4,300	300	1,000	1,000	1,000	1,000
Improve the ability of people to cope with disasters	Apply and integrate gender and human rights-based approaches in the design and implementation of policies relating to the climate change–migration nexus. Establish and operationalise an Integrated multi-hazard Early Warning,	No. of recipients of CIS Number of early warning systems No. of operational Integrated multi-hazard Early Warning, Information and Knowledge Management System	KMD NDMA National Disaster Management Unit (NDMU) MALD Kenya Agriculture and Livestock	All Kenyans	GOK/ DPs	10,000	2,000	4,000	2,000	1,000	1,000

Priority Actions	Expected Outputs/ Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Indicative Budget (KES Millions)					
						Total	23/24	24/25	25/26	26/27	27/28
	Information and Knowledge Management System at the national and county levels. Operationalise the Kenya Anticipatory Action Strategy. Develop early warning and anticipatory action capacities for climate-related hazards tapping into relevant technologies and innovations. Establish Disaster Risk Management Emergency Operation Centres and linkage with National DRM Authority, NDOC, and other key state and non-state agencies.	No. of MoUs on data sharing No. of institutions trained on anticipatory action No. of Emergency Operation Centres established Payments through National Drought Emergency Fund No. of users of Operational Geographic Information System (GIS) multi-hazard system platform and multi-hazard mobile app Weekly/monthly/seasonal Multi-hazard advisories from national to county to ward level No. of recipients of forest wildfire alerts, flood alerts, pest and disease alerts, drought alerts No. of recipients of CIS Legal frameworks developed Policy frameworks developed	Research Organization (KALRO) Ministry of Health (MoH) Ministry of Water and Sanitation (MoWS) Kenya Red Cross (KRC) The National Treasury and Economic Planning (TNT & EP)							
			MoH, Attorney General (AG) NDMA								
	Enhance water harvesting and storage is enhanced in 23 ASAL counties. (See expected results under Climate Action 3: Water and the Blue Economy). Enhance flood control measures through development and maintenance of flood control infrastructure: • Construction of 70 km of additional dykes • Maintenance of 100 km of existing dykes • Construction of 20 check dams.	No. of pans and dams No. of km constructed No. of check dams constructed No. of infrastructure maintained No. of WRUAs participating in training sessions	MoWSI National Water Harvesting Storage Authority County governments	Households Farmers and pastoralists Irrigation schemes	GoK	3,017	353	528	672	732	732

Priority Actions	Expected Outputs/ Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Indicative Budget (KES Millions)					
						Total	23/24	24/25	25/26	26/27	27/28
	Establish Disaster Risk Management (DRM) Institutions and Centres of Excellence. Establish and promote DRM peer learning Centres of Excellence through creation of models in communities and learning institutions. Establish community-level resource centres for documentation and dissemination of DRM information.	No. of DRM institutions and centres of excellence established No. of DRM peer learning centres established No. of community level resource centres established	NDMA								
Improve management of climate change-driven mobility and displacement	Establish or strengthen national weather and climate institutions and systems to generate accurate, timely data and information on climate change impacts on human mobility; and increase collaboration between/among member states and with the IGAD Centre of Excellence for Climate Prediction and Applications. Fast-track and allocate resources for registration of pending community lands in all counties. Implement sustainable land, pasture and water management practices for farmers and pastoralists in ASAL counties to promote food security, and reduce climate-driven conflicts (See Climate Priority 2: Food and Nutrition Security). Develop and implement locally-led strategies in ASAL counties for managing mobility and displacement, including receiving displaced people and livestock into host communities, and strengthening alternative resilient livelihood options. Undertake forecasting and analysis to identify potential climate mobility hotspots and anticipatory actions for risk and conflict mitigation implemented through early										

Priority Actions	Expected Outputs/ Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Indicative Budget (KES Millions)					
						Total	23/24	24/25	25/26	26/27	27/28
	consultations with local populations on appropriate anticipatory actions for risk mitigation, including contingency planning for emergency evacuations and humanitarian assistance and livestock offtake.										
Improve processes to management climate-related security risks	Expand, consolidate, and share knowledge on climate-related security risks in Kenya. Enhance climate security into early warning systems through the use of decision support tools, such as the Climate Security Observatory to strengthen climate resilience of local communities. Strengthen interstate and intrastate collaboration on trans-boundary climate security. Facilitate inter-ethnic engagement and dependence through collaboration for natural resource management.										
Enhance protection and role of youth in disaster risk management	Establish 47 Youth County Disaster Response Teams (YCDRT) with a representation in the County DRM Coordination unit. Develop platform for weather-related indigenous knowledge and disaster risk information tailored for children and youth.	No. of Youth County Disaster Response Teams established No. of weather-related platforms established	Ministry of Youth Affairs, Sports and the Arts (MoYSA) NDMA KMD								
Enabling (Finance)	Extend Contingency Fund allocations to address urgent climate disaster preparedness and response.	Amounts of funding from Contingency Fund for climate-related disasters	TNT & EP State departments								
Enabling (Policy)	Integrate climate security into the National Peacebuilding and Conflict Management Policy and incorporate indigenous knowledge. Develop and implement the early action protocols required to implement forecast-based financing.	Integration reports	Ministry of Interior and National Administration (MINA) NDMA KMD TNT & EP AG								
						17,532	**2,679**	**5,575**	**3,719**	**2,779**	**2,779**

7.2 Implementation Matrix for Climate Change Priority 2

Food and Nutrition Security

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Strategic Objective 2: Increase food and nutrition security by enhancing productivity and resilience of the agricultural sector in as low-carbon manner as possible. **National Indicators:** • GDP growth of the agricultural sector. • Livestock deaths from drought/number of livestock slaughtered due to drought. • Agricultural land under irrigation (acreage). • GHG emissions in the agriculture sector.											
Enhance the uptake of climate-smart agriculture technologies in crop production systems. **Diversify livelihoods to adjust to a changing climate.**	Support capacity building of stakeholders on climate risk management in agro-food systems in 47 counties. Strengthen and cascade agro-weather and climate information services to sub-counties in 47 counties, while tapping on essential local traditional knowledge, and co-production of climate information with communities. Increase number of beneficiaries accessing index-based crop insurance from 1,600,000 to 3,500,000. 2,500,000 farmers adopt new adaptive crop varieties. Increase farmers accessing socially inclusive appropriate inputs subsidies per year from 2,300,000 to 2,500,000. 100,000 farmers access specialised markets for climate-smart produce/products (e.g. organically produced). Promote the uptake of climate information in the crop sub-sector for decision-making at all levels. Promote the uptake of climate-oriented agricultural input subsidies and agricultural insurance. Increase crop insurance partnership adoption.	No. of counties with functioning climate information systems No. of beneficiaries accessing CIS by sex and age No. of farmers accessing/purchasing insurance No. of farmers accessing agricultural input subsidies that help to build adaptive capacity No. of farmers per specialised market No. of beneficiaries using agro-climate information services at all levels by sex and age No. of farmers per subsidy type No. of insurance companies providing index based insurance No. of farmers accessing post-harvest technology Area under rainfed rice (ha) % of lined canals in irrigation schemes	MALD KALRO KFS CBOs/NGOs Private sector investors Horticulture Crops Development Authority Disaster Risk Management Unit ICT providers	Farmers Private producers Cooperatives	GOK DPs County governments	104.786	10.479	26.197	31.436	31.436	5.239

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	2 million farmers adopt climate-smart post-harvest technologies (e.g. green energy powered cold storages, solar crop dryers, etc.). Acreage under rain-fed rice system is increased from 44,255 ha to 140,677 ha for enhanced resilience and productivity. Production of rice under an intermittent irrigation system increased from 25,000 ha to 140,677 ha. Increase efficiency of water resource management in rice production from 50% to 90%. Reduce climate-induced agricultural (pre- and post-harvest) losses from 40% to 15%. Support 150 MSMEs promoting post-harvest technologies in the crop sub-sector. 9,000 tonnes of climate-resilient crops included in the gazette-listed Strategic Food Reserves, and contract farmers and commercial off-takers for the targeted food commodities (sorghum, beans, millet, etc.).	% of total rice area under efficient water resource management Average % of post-harvest losses reduction No. of MSMEs adopting post-harvest management technologies									
Increase adoption of Sustainable Land Management (SLM)	Increase acreage under SLM and restoration of degraded land: Increase area under integrated soil nutrient management by 2,500,000 ha	Area (ha) under integrated soil nutrient management				7.898	0.790	1.975	2.369	2.369	0.395

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Increase farm area under conservation agriculture from 53,200 ha to 100,000 ha incorporating minimum/no tillage Enhance adoption of soil and water conservation measures in 1,000,000 ha of farmland by 2,500,000 farmers Increase the agricultural land area under trees by 200,000 ha.	Area (ha) under conservation agriculture Area (ha) with enhanced soil and water conservation measure Area (ha) of farm land under trees									
Increase on-farm water harvesting and storage, wastewater recycling and area under irrigation.	Increase households harvesting water for agricultural production from 300,000 to 1,000,000. Increase annual water harvesting and storage in ASALs from 16 million cubic metres (MCM) to 20 MCM, through small dams, pans, and river drenching. Acreage under irrigation increased from 202,000 ha to 486,000 ha. Production efficiency from irrigated fields increased from 50% to 90%.	No. of households harvesting water MCM of water harvested in the ASALs Area (ha) under efficient irrigation Production efficiency of irrigated fields				7.1	0.71	1.775	2.13	2.13	0.355
Improve productivity in the livestock sector through the implementation of CSA interventions	National livestock vaccination coverage increased from 13 million Tropical Livestock Units (TLUs) to 26 million TLUs per year in five years for 45 counties to enhance productivity gains in ruminant livestock (cattle, camels, sheep, and goats). 500,000 dairy farming households (HH), out of 1.8 million HH, supported	Proportion/number of national TLUs vaccinated No. of counties supporting vaccination campaigns No. of dairy farming HHs, by gender, supported to adopt TIMPs	State Department for Livestock Development (SDLD)	Farmers Pastoralists Dairy Farmer Producer Organisations (FPOs)	GOK DPs	3200 7,079 10,000	640 1,500 2,130	640 1,500 2,150	640 2,500 2,200	640 1,079 2,200	640 500 1,320

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	to adopt technologies, innovations, and management practices (TIMPS1). 1,0002 farmer-facing SMEs (cooperatives and CBOs), with at least 30% women- and 10% & youth-headed, supported to install milk coolers and meat chilling facilities. 400,000 pastoral HH, with at least 30% women- and 10% youth-headed, adopt Livestock Identification and Traceability system (LITS). Adoption of LITS supports offtake 1,000,000 TLUs in 23 counties, to enhance access domestic and export livestock and livestock products markets.	No. of cooperatives/CBOs with installed milk coolers and milk chilling equipment % reduction in post-harvest losses of livestock products (milk and meat) No. of pastoral HHs adopting LITS No. of TLUs registered under the LITS No. of counties implementing LITS				320	100	80	60	50	30
	80,000 livestock households supported to adopt improved manure management systems (composting, anaerobic digesters technology, etc.).	No. of HHs that have adopted anaerobic digesters for improved manure management	SDLD	Farmers Abattoirs	GOK DPs	800	250	150	150	150	100
Improved productivity and resilience of farmers and pastoralists	Area under rehabilitated rangelands, with good soil health, increased to 5,000,000 ha through range planning, improvement, and re-seeding of 2,400,000 ha in 23 ASAL counties. Sustainable grazing management and silvo-pastoralism implemented in 1,200,000 ha of rangeland for pasture-based finishing and feed lotting. Productivity of 400,000 TLUs in 23 ASAL counties improved over five5 years. 500 new feed banks (at least one per ward in 500 wards) supported through establishment and conservation of climate-resilient forages (fodder and	Acreage (ha) of rangeland reseeded with adaptable pasture species for use by farmers and pastoralists No. of pastoralist counties that undertake rangeland reseeding Acreage (ha) of reseeded rangeland under sustainable community grazing plans No. of operational grazing area plans gazetted	SDLD State Department for the ASALs and Regional Development (SDARD) County governments Research	Pastoralists Farmers County governments FPOs Pastoralistcounties FPOs Pastoralists FPOs	GOK DPs GOK DPs GOK DPs	1,000 982 2,020	200 318 20	200 549 400	200 115 400	200 0 600	200 0 600

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	pasture) varieties and densified livestock feeds. Number of pastoral households using index-based livestock insurance (IBLI) and other financial services increased from 21,000 to 800,000 pastoralist households, with at least 30% being women-headed, using index-based livestock insurance (IBLI) through partnership with the private sector enhancing insurance coverage from 110,000 to 2,400,000 TLUs in five years. Number of community-based breeding programmes adaptable indigenous animal genetic resources for sheep, goats and cattle increased by 500. One new national gene bank established for ex-situ conservation strategic national animal genetic resources.	No. of operational feed banks with stocks of conserved forages and locally available feeds, densified feed materials and drought feed supplements No. of pastoralist households adopting IBLI No. of community-based breeding programmes supported No. of operational national gene bank	institutions Private sector SDLD SDARD CGs SDLD SDARD CGs SDLD SDLD Insurance providers Kenya Development Corporation (KDC) SDLD	Farmers pastoralists FPOs Pastoralists Livestock farmers Farmers Farmers Pastoralists	GOK DPs GOK DPs GOK DPs GOK DPs KALRO GOK DPs	1,950 9,728 1,649	0 182 575	500 3,182 287	500 3,182 287	200 3,182 250	750 0 250

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Bachuma and Lamu Livestock Export Zone completed to support marketing to niche and export markets.	No. of operational Livestock Export Zones	GoK	Pastoralists	GOK DPs	5,570	90	2,000	2,000	740	740
Enhance contribution of youth to food and nutrition security	Ten youth-led agri-hubs established to promote adoption of climate smart agriculture practices. 100,000 youth farmers across the country practicing climate-smart agriculture.	No. of youth-led hubs				6.538	0.654	1.635	1.961	1.961	0.327
Enabling (Policy)	Development/review/ finalisation/ operationalisation of climate resilient-related policies, strategies, and regulations (Kenya Climate Smart Agriculture Strategy , National Agricultural Mechanization Policy, Kenya Climate Smart Agriculture Implementation Framework, Kenya Climate Smart Agriculture – multi-stakeholder platform, Strategic Plan 2022–2026, CSA-M & E online tool)	No. of climate resilient-related policies/strategies developed, reviewed, finalised, and/or operationalised				14.33	1.433	3.583	4.299	4.299	0.717
						44,439	**6,019**	**11,673**	**12,276**	**9,333**	**5,137**

7.3 Implementation Matrix for Climate Change Priority 3

Water, fisheries and the Blue Economy

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Strategic Objective: Enhance the resilience of the Blue Economy, fisheries, and the water sector ensuring adequate access to, and efficient use of, water for agriculture, manufacturing, domestic use, wildlife, and other uses. **National level indicators:** • Water storage per capita. • Water coverage. • Per capita water availability. • Coverage of protected areas in relation to marine area. • GDP growth through blue economy and fisheries development. • National per capita fish consumption.											
Increase annual per capita water availability through the development of water infrastructure (mega dams, small dams, water pans, untapped aquifers)	Fastrack implementation of multipurpose dams at an advanced stage to completion by 2027: Thwake (72%), Mwache (6%), Soin Koru (5%), Siyoi Muruny (65%), and Ruiru II (7.5%) 3,000 water pans constructed to supply 296,720,000 m3 of water in 23 ASAL counties. 300 climate-proofed underground water reservoirs each with a storage capacity of 1 million MCM constructed in ASAL counties to store water for three seasons to mitigate water resources conflicts during droughts. Catchment areas conservation, protection, and rehabilitation is enhanced across all basin areas – national and transboundary. Water resources monitoring is enhanced through rehabilitation and upgrading of 350 hydrometeorological stations. 256 sub-basin/catchment plans are implemented.	No. of dams completed No. of water pans constructed No. of boreholes recharged No. of water harvesting structures constructed	State Department for Water and Sanitation State Department for Irrigation Water Works Development Agencies Water Resources Authority (WRA) Regional Centre on Groundwater Resources (RCGR) National Irrigation Authority (NIA) National Water Harvesting and Storage Authority	Household consumers Industrial consumers Marginalised groups Farmers Pastoralists Irrigation users	GOK DPs	1,087, 315	257,458	363,504	238,637	215,603	12,113

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Five national water quality monitoring stations are established. Groundwater resource mapping and assessment undertaken in five counties. Piloting of artificial aquifer recharge in identified two aquifers. Artificial groundwater recharge to increase the supply of ground water. Complete exploration of Turkana aquifers to realise the potential of an additional 265,700 ha put under irrigation. Flood early warning systems developed for areas prone to floods. 100 km dykes and 20 dykes constructed in flood prone areas. 20 check dams and 15 flood control infrastructure constructed. Water harvesting and storage enhanced in 23 ASAL counties: 1,150 water harvesting projects supported for irrigation in 23 ASAL counties providing 517.5 MCM of water 6,450 water pans (100,000 to 300,000 m3) constructed along Laghas.	No. of sub-catchment management plans implemented No. of water monitoring stations rehabilitated and upgraded No. of hydrometeorological stations established No. of groundwater resource maps undertaken								
Improve access to good quality water, increased sewerage coverage and onsite sanitation	Number of people and entities accessing good quality water for domestic, agricultural, and industrial use increased from 58% to 65% through: Large-scale installation of water meters. Regular inspection of water quality. Sewerage cover increased with a focus on promoting onsite sanitation technologies. National population with access to sanitation increased from 66% to	No. of water Projects initiated No. of sanitation	State Department of Water and Sanitation CGs	Household and industrial consumers Irrigation schemes Residents of ASALs	GOK DPs	535,099	160,907	162,387	106,127	98,7767	6,910.5

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	70% (sewer urban 4,539,176 and rural 1,527,875) Four climate-proofed holding stations constructed for sewer management in Nairobi, Kisumu, Garissa and Eldoret counties.	projects that assess climate impacts % of population with water and sanitation services									
Promote water efficiency (Monitor, reduce, re-use, recycle, and modelling)	Governance and accountability for water service providers enhanced in all counties. Share of Non-Revenue Water (NRW) in all the counties reduced to less than 25% from 45%. Technology is utilised to manage water use through the use of smart meters. 50 research studies undertaken on water efficiency. 25 innovations developed on water efficiency. Sensitisation of water consumers in all 47 counties undertaken to enhance water use efficiency and water resource management.	% share of non-revenue water Water Protection Unit in place No. of intergovernmental agreements signed No. of research studies and innovations undertaken	State Department for Water and Sanitation Water Sector Trust Fund CGs WRA RCGR Kenya Water Institute Water Service Providers	Households Corporate buildings/business	GOK DPs	62,389	13,475	18,155	11,955	10,880	7,924.75
Increase gender-responsive affordable water harvesting- based livelihood resilience programmes	Promote deliberate gender-responsive actions to improve participation of women and youth in applying appropriate technologies. Drill and equip 465 boreholes and install 510 greenhouses.	No. of women and youth groups	State Department for Irrigation State Department for Water and Sanitation NIA County governments	Women and youth	GoK DPs	1,454	90	100	200	532	532
Enabling (Policy, research, capacity building, financing)	Implementation of Irrigation Act 2019: County Irrigation Development Units established	No. of policies developed No. of bills enacted	State Department for Irrigation State Department for		GoK DPs	500	100	100	100	100	100

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Irrigation Research, Innovation and Training Institute established Irrigation Licensing and Quality Assurance Unit operationalised Land Reclamation Policy and Bill approved and enacted National Irrigation Masterplan and Investment Plan developed and implemented National Land Reclamation Masterplan and Investment Plan developed and implemented Irrigation and Drainage Management Information and Licensing System developed. Operationalisation of the Water Act (No. 43 of 2016) is finalised: Proposed amendments on Public Private Partnerships in water harvesting and storage infrastructure (dams) approved and implemented Amendment of the Act and enactment of regulations to fully operationalise the Water Tribunal. Water resources; water services; and water harvesting and storage regulations (2021) implemented. Rules and regulations of hydrologists regulation board developed and implemented. National Water Master Plan 2030 reviewed and updated to aid national/county water harvesting and storage infrastructure investments. National Lakes Management Strategy developed and implemented.	Research institutions established Information system established	Water and Sanitation								
Increase crop productivity through improved irrigation	Develop 228 community managed irrigation projects for additional 68,797 ha. Expansion of existing irrigation schemes to command additional 80,937 ha.	No. of projects established	State Department for Irrigation NIA	Households Farmers and farmer associations	GOK DPs	103,010	4,262.5	13,266	25,840	37,114	22,527.5

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Develop 22 large-scale irrigation projects to realise additional 161,065 ha. Support farmer-led irrigation development initiatives for an additional 16,187 ha in partnership with the financial institutions for de-risking. Promote use of efficient irrigation technologies and practices among 20 Irrigation Water Association (IWUAs) in Irrigation Schemes. Capacity Building on diversification of irrigated enterprises, water use rights and scheme governance among 20 Irrigation Water Association (IWUAs) in Irrigation Schemes.	No. of irrigation schemes added No. of large irrigation schemes added No. of farmers linked No. of IWUAs No. of technologies	NWHSA MALD	Irrigation schemes							
Increased on-farm water harvesting and storage, wastewater recycling and area under irrigation	Annual water harvesting and storage in ASALs increased by 25% from 16 MCM to 20 MCM, through small dams, trapezoidal bunds, semicircular bunds, zai pits and water pans, and river drenching; and 700 m3 through large multipurpose dams.	No. of water harvesting structures constructed		Households and land users Farmers and pastoralists Irrigation schemes							
Increase adoption of Sustainable Land Management (SLM)	Land degradation assessments undertaken, disseminated, and implemented: Undertake, disseminate, and implement 35 land degradation assessments (LADAs) Establish a land degradation assessment centre Implement land reclamation programmes to reclaim 2,732 ha of degraded land in 10 counties.	No. reports done No. of ha of land reclaimed, rehabilitated and restored	State Department for Irrigation State department for irrigation County Governments	Households and land users Farmers and pastoralists Irrigation schemes	GoK	8,377	10	1,204	1,846	2,195	3,122
Improve the ability of people to cope with disasters	Flood control measures enhanced through development and maintenance of flood control infrastructure: - Construction of 70 km of additional dykes	No. of km of dykes constructed	State Department for Irrigation National Water Harvesting	Households Farmers and pastoralists	GoK	3,017	353	528	672	732	732

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	- Maintenance of 100 km of existing dykes - Construction of 20 check dams.	No. of check dams constructed No. infrastructure maintained	Storage Authority County governments	Irrigation schemes							
Enhance sustainable blue economy and fisheries development	Number of climate-smart cages for fish farming increased from 6,000 to 8,000. Number of fish ponds increased from 11,300 to 25,000. Fish production from aquaculture increased from 27,000 MT to 50,000 MT. Increased marine fisheries production from 38,000 MT to 50,000 MT. Increased Lake Turkana fish landed from 17,000 MT to 30,000 MT. Number of fishers benefitting from social safety net interventions (insurance products, cash transfers and subsidies) increased from 9,496 to 20,600. Number of farmers using low-carbon aquaponics systems increased from 10 to 100. Ten fish landing sites and ten fish markets developed to reduce fish post-harvest losses. Establishment of cooperatives in fisheries and involve indigenous people and local communities: 445 cooperatives to be formed and operationalised to promote processing, marketing, and financial linkages. Adaptive research to strengthen understanding of the adaptability of fish breeds that are tolerant in changing climatic conditions	No. of climate-smart cages for fish farming increased No. of fish ponds increased Amount of fish in MT produced in aquaculture, inland, and marine fisheries No. of fishers benefiting from social safety net interventions No. of farmers using low carbon aquaponics aquaculture system Fish landing sites and fish markets developed/ rehabilitated	State Department for Blue Economy and Fisheries Kenya Fisheries Service Kenya Marine and Fisheries Research Institute Kenya Fish Marketing Authority Kenya Fishing Industries Corporation County governments SDMA Private sector investors CBOs NGOs	Fisher communities and fish farmers	GoK DPs PPP	75,548	14,817.5	25,559.5	15,211	10,855	9,105

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	of Source Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
.	undertaken – Kabonyo Aquaculture and Research Centre of Excellence. Development of Liwatoni ultra-modern fishing hub. Development of two fish processing plants (Lamu processing plant and Kalokol processing plant). Coastal fisheries improved by increasing deep/offshore fishing fleet from 9 to 68. Seaweed farming is expanded (beyond Kwale county) to other coastal counties through, capacity building for 1,000 seaweed farmers. Development of marine and inland spatial plans 1,214 ha of mangrove forests and seagrass restored and rehabilitated. 61 ha of coral reefs restoration; reduce pressure on reef fishery.	No. of cooperatives formed Kabonyo Aquaculture Research Centre of Excellence developed and operationalised Level of Liwatoni ultra-modern hub developed Fish processing plants developed in Lamu and Kalokol- in Turkana No. of acquired/ reflagged national fishing and merchant vessels/boats No. of seaweed farmers trained No. of seaweed drying racks constructed Marine and inland spatial plans developed Hectares of mangroves and seagrass cover									

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	of Source Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
		Area in ha of coral reefs									
Enhance contribution of youth to sustainable blue economy development	2,000 youth have capacity built on fisheries and the blue economy development. Youth trained on value addition in fisheries and the blue economy.	No. of youth trained No. of youth-led fisheries and blue economy activities									
Enabling (Policy)	Kenya Fisheries Policy implemented. National Blue Economy Strategy launched and implemented. Aquaculture Policy finalised and implemented. National aquaculture guidelines on climate-smart standards for cage fish farming developed.		SDBEF SDW&S SDI NIA			60	10	15	15	10	10
Enabling (Technology)	Support to develop, promote, and transfer technologies to enhance value addition and product diversification for fish, fish feed, and seaweed.	SDBEF				1,876,770	451,483	584,819	400,603	376,788	63,077

7.4 Implementation Matrix for Climate Change Priority 4
Forestry, Wildlife and Tourism

Priority Action	Expected Outputs/Outcome	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES Millions)				
							23/24	24/25	25/26	26/27	27/2
Strategic Objective 4: Strengthen the ability of forest, tree, and wildlife resources to respond to impacts of climate change, provide climate mitigation solutions, and improve resilience of social systems across various landscapes. **National Indicators:** • Forest cover as a % of total land area. • Tree cover as a % of total land area. • Proportion of degraded lands as a % of total land area. • Wildlife deaths as a result of drought. • GHG emissions in the LULUCF sector.											
Reduce emissions from deforestation and forest degradation	National tree growing and restoration campaigns (carbon stock enhancement) .	An additional 1% of existing forest cover afforested or reforested, including via agroforestry Planting of trees in counties per year through initiatives such as: Annual National Tree Planting Day Tree planting drives in institutions including faith-based institutions Involving the youth and youth-led enterprises in tree planting Expansion and protection of mangrove forest cover including implementation of the National Mangrove Ecosystem Management Plan (2017–2027) Reduce deforestation by rehabilitation and protection of additional 100,000 hectares of natural forests (including mangroves) by 2028 via: Community participation in forest management Limiting access to forests	Kenya Forest Service (KFS) Kenya Forestry Research Institute (KEFRI) CGs Community Forest Associations (CFAs) Kenya Plant Health Inspectorate Service (KEPHIS) Kenya Water Towers Agency (KWTA)	Conservation NGOs YouthSchools Tertiary Institutes Private Conservancies	GoK DPs .	8,121 .	1,273 .	1,590 .	2,170 .	1,928 .	1,16 .

Priority Action	Expected Outputs/Outcome	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES Millions)				
							23/24	24/25	25/26	26/27	27/
		Preventing disturbances through improved enforcement and monitoring Developing alternative technologies to reduce demand for biomass (e.g., clean cooking, efficient charcoal production, briquetting) Carbon stock enhancement (tree planting) in existing forests Expansion of the existing 300 Kenya Forestry Service (KFS) tree nurseries to produce 300 million seedlings annually; establishment of 290 new tree nurseries Drilling and equipping of 100 boreholes in tree nurseries in ASALs Establishment of 5,000 ha of public forest plantations									
	Reduce emissions from deforestation and forest degradation in all public forests.	Restoration of 35,000 ha of degraded public forests	KEFRI KFS CFA KEPHIS Farmers Youth	Conservation NGOs Forest communities	GoK DPs	1,925	385	385	385	385	385
Enhance forest health for climate change resilience	A climate risk vulnerability assessment is undertaken to guide the suitable selection of species for different sites.	No. of climate risk vulnerability reports	KEFRI KFS CFAs	Range- lands and wetlands inhabitants Conservation NGOs	GoK DPs	50	10	10	10	10	10
Reduce emissions from land degradation outside forest	Scaling up Sustainable Land Management (SLM) practices such as improved fallows, and building soil organic matter and carbon on private and community land.	Acreage (ha) of SLM practices	KEFRI KFS	Private conservancies Land owners	GoK DPs	110	30	40	20	10	10
Incentivise tree growing value chain enterprises	Enabling environment and incentives provided for commercial forestry enterprises across the value chain.	1,000 ha of bamboo commercial forest established 300,000 ha of commercial forest plantation established	PPP KEFRI KFS CGs CBOS NGOs	Private land owners Timber manufacturing industry	GoK DPs	2,570	260	515	1,015	520	260

Priority Action	Expected Outputs/Outcome	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES Millions)				
							23/24	24/25	25/26	26/27	27/28
		1,000,000 ha agroforestry established on farmlands 75,000 ha of private commercial forest plantations established The production of 1 billion MT high quality tree seeds and 1 billion seedlings including by the private sector (women, youth, CFAs, nurseries) The processing efficiency of forest materials is improved, including recovery rates from 15% to 30%									
	The production of high quality tree seeds and seedlings at scale including by the private sector (women, youth, CFAs, nurseries) is incentivised.	1 billion metric tonnes of seeds 1 billion seedlings	KEFRI KFS	Youth Private land owners	GoK DPs	2,000	200	400	800	400	200
Enhanced forest-based climate change research and technological development	Access to high quality tree germplasm (both indigenous and fast-growing exotic species) for the changing agro-ecological zones and end market needs is improved. Breeding drought tolerant tree species.	Tree species improved (indigenous trees and dry land tree species)	KEFRI	CFAs	GoK DPs	120	50	20	30	10	10
	REDD+ implementation is tracked and reported.	No. of REDD+ projects, carbon sequestered through REDD+ projects tracked and reported	KEFRI	Rangelan ds and wetlands inhabitants	GoK DPs	29	7	3	7	6	6
Forest research and development	Development of 100 forest research and allied natural resources technologies.	100 forest technologies developed	KEFRI	Conservation NGOs CFAs	GoK DPs	2,170	380	400	430	460	500
	Development of planting materials for difficult to propagate indigenous tree species.	75,000 planting material propagated	KEFRI KFS	Farmers CFAs	GoK DPs	73	13	14	15	15	16
	Construction of 18 seed processing units.	18 seed centres constructed	KEFRI	CFAs Youth	GoK DPs	670	150	170	150	100	100

Priority Action	Expected Outputs/Outcome	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES Millions)				
							23/24	24/25	25/26	26/27	27/28
				Women							
	Maintenance of 450 ha of seed sources and establishment of 36 ha of new seed sources.	36 ha new seed sources and maintenance of 450 ha of existing seed sources	KEFRI	County governments CFAs	GoK DPs	205	35	38	41	44	47
Enhance the resilience of wildlife habitats and their ecosystems	Degraded wildlife habitats restored through reseeding of pasture in ASAL protected areas and soil and water conservation measures.	Tree cover in protected areas increased by 30,000 ha	SDW KWS	National and private reserves Farmers Private conservancies	GoK DPs						
	Management and control of alien invasive species is undertaken in protected areas.	ha of wildlife habitat restored annually and invasive species managed	KWS	Conservation NGOs National and private reserves	GoK DPs						
	Wildfires are controlled and managed.	No. of fire control centres, fire stations, and watch towers constructed	SDW KWS	Conservation NGOs National and private reserves	GoK DPs						
	Critical wildlife habitats including migratory corridors and dispersal areas are mapped and secured to enhance connectivity and species resilience.	No. of corridors mapped and secured annually No. of Ecosystem Management Plans (EMP) gazetted No. of conservancies registered and gazetted	MOTWH (SDW) KWS	National and private reserves/ land owners Conservation NGOs	GoK DPs						
	Wildlife control fences and other barriers in national parks and reserves and in strategic corridors and dispersal areas in community areas constructed or rehabilitated.	km of wildfire control fences constructed and rehabilitated		National parks/ reserves Households	GoK DPs						
	Rehabilitation and construction of water pans, boreholes, and earth dams for provision of water for wildlife.	No. of water pans constructed and rehabilitated		National and private reserves	GoK DPs						
	Forage provided for wildlife for feed supplementation during droughts.			Conservation NGOs Farmers	GoK DPs						

Priority Action	Expected Outputs/Outcome	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES Millions)				
							23/24	24/25	25/26	26/27	27/28
Enhance contribution of youth to forestry and wildlife	Youth-owned tree seedling nurseries established.	5,000 tree nurseries established	KFS	Youth Households Farmers Pastoralists	GoK DPs						
	Streams of non-timber forest products developed and implemented by youth groups.	5 streams of non-timber products established	KFS KEFRI	Youth Schools Tertiary institutes	GoK DPs						
	Degraded mangrove forest sites restored through youth-led programmes.	1.000 ha of mangrove forest sites rehabilitated	KFS KEFRI KEMRI KWS Ministry of Tourism, Wildlife and Heritage (MOTWH)	Youth Conservation NGOs	GoK DPs						
Wildlife Training and Research	Development of Wildlife Research and Training Institute infrastructure at Naivasha.	No. of infrastructure projects undertaken	MOTWH Wildlife Research and Training Institute (WRTI)	NGO conservancies	GoK DPs	1,626	786	590	250	0	0
	Construction and equipping of four wildlife research centres in Tsavo, Naivasha, Nyeri, and Malindi.	No. of wildlife research centres constructed and equipped	MOTWH WRTI		GOK DPs	1,070	427	350	300	0	0
	Development of the National Integrated Wildlife Database.	No. of reports produced	WRTI		GoK DPs	85	85	0	0	0	0
Wildlife Conservation and Management	Enhancing anti-poaching of wildlife and combating illegal trade in wildlife.	Acquisition of modern anti-poaching security equipment, technologies, mobile service, and vehicles	MoTWH KWS	National/private reserves/conservancies Communities living adjacent to protected areas	GoK DPs	245	25	35	50	65	70
	Restoring 1,000 ha of wildlife habitats.	No. of wildlife habitats restored	KWS KFS	National and private reserves/conservancies	GoK DPs	200	25	35	40	45	55
	Construction/rehabilitation/ maintenance of fences in GoK parks and reserves.	No. of fences rehabilitated in protected areas	KWS	National and private reserves Conservation NGOs	GoK DPs	2,090	730	300	320	380	360
	Establishment and operationalisation of Human–Wildlife Conflict Insurance Scheme; payment	Fully functional human–wildlife conflict insurance scheme	MoTWH State Department for Wildlife KWS	Households Communities experiencing	GoK DPs						

Priority Action	Expected Outputs/Outcome	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES Millions)				
							23/24	24/25	25/26	26/27	27/28
	of human–wildlife conflict claims.			human– wildlife conflict							
	Construct 100 km, rehabilitate 200 km and maintain 7,200 km of access roads in national parks and reserves; construct 49 airstrips in various parks; and maintain 150 km of runways and upgrade 5 runways to bitumen standards.	No. of access roads constructed and rehabilitated	MoTWH KWS CGs	National and private reserves Conservation NGOs	GoK DPs	4,611	910	915	920	932	934
						27,970	5,774	5,810	6,953	5,311	4,122

7.5 Implementation Matrix for Climate Change Priority 5

Health, Sanitation and Human Settlements

Priority Action	Expected Outputs/Outcomes By 30th June 2028	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Strategic Objective 5: Mainstream climate change adaptation into the health sector, and increase the resilience of human settlements, including through improved solid waste management in urban areas. **National Indicators:** • Malaria incidence per 1,000 population. • GHG emissions produced through medical waste management. • % of urban solid waste regularly collected and well managed. • Proportion of urban population living in slums, informal settlements, or inadequate housing.											
Enhance management of climate-sensitive diseases	Health programmes, protocols, and guidance to identify and manage new climate change-related disease and risks are developed and implemented. Incidents of malaria and other vector-borne health conditions are reduced. Community-level interventions on climate-sensitive diseases and adaptation and mitigation through awareness and efficacious projects scaled-up.	Programmes, protocols, and guidance developed and implemented Malaria incidences per 1,000 population reduced to 225	MoH County governments KNBS Partners	Marginalised communities Underprivileged women and children	GoK Partners County governments	10 .	2 .	2 .	2 .	2 .	2 .
Reduce GHG emissions from medical waste management (Mitigation)	Clinical waste microwave equipment (non-burn technology) for medical waste management installed in the 47 counties.	Medical waste micro waves procured, installed and commissioned	MoH County governments Partners MoECCF (NEMA)	Vulnerable communities	GoK Partners County governments Other governments	65	13	13	13	13	13

Priority Action	Expected Outputs/Outcomes By 30th June 2028	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Enhance climate-smart urban planning and affordable and social housing development .	Climate-smart affordable housing designed in all constituencies; and social housing in Kibera Zone B and other areas. Integration of green building technologies into affordable and social housing. Integrated Strategic Urban Development Planning (ISUDP) is replicated in all slum upgrading developments across Kenya. Climate-resilient urban spatial plans developed in all counties.	No. of climate-smart affordable and social housing units commissioned No. of climate-smart affordable and social housing units with green building technologies integrated No. of slum upgrading developments with ISUDP replicated No. of climate-resilient urban spatial plans developed	State Department of Housing and Urban Development (SDHUD) County governments National Housing Corporation (NHC) Partners	Vulnerable groups Industry Urban residents	GoK Partners County governments						
Policy (Enabling) .	Kenya Climate Change and Health Strategy 2023–2027 is implemented. CoP 26 health commitments are implemented – Development of a Health National Adaptation Plan 2023–2027. A baseline assessment of GHG emissions of the health system and healthcare facilities (including supply chains). Develop an action plan setting out a roadmap to a sustainable low carbon health system (including supply chains). Implementation of WHO Air Pollution Roadmap.	Strategy developed and implemented Health NAP developed Baseline assessment carried out Household Air Pollution Strategy developed	MOH County governments Partners MoEP	Vulnerable communities Women Children School-going girls	GoK Partners	18.0 14.0	3.6 2.8	3.6 2.8	3.6 2.8	3.6 2.8	3.6 2.8

Priority Action	Expected Outputs/Outcomes By 30th June 2028	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Development and implementation of a 5-year Household Air Pollution Strategy. Guidelines for climate change- resilient WASH infrastructure for health facilities, schools, and communities developed and implemented. Standards for biodegradable sanitary pads are developed and implemented; standards for disposal of sanitary pads for schools are developed and implemented.	CC&H WASH guidelines developed Standards developed	Ministry of Education			13.0 10.0 15.0 10.0	2.6 2.0 3.0 2.0	2.6 2.0 3.0 2.0	2.6 2.0 3.0 2.0	2.6 2.0 3.0 2.0	2.6 2.0 3.0 2.0
	A training curriculum for healthcare workers is developed. Training in climate change and health integrated in all health courses in all middle level colleges and universities. The capacity of Healthcare workers to develop proposals for funding from the Green Climate Fund (GCF) and other partners enhanced.	Capacity developed	MoH Ministry of Education Partners		GoK Partners GoK Partners	20.0 10.0	4.0 2.0	4.0 2.0	4.0 2.0	4.0 2.0	4.0 2.0

Priority Action	Expected Outputs/Outcomes By 30th June 2028	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	Community health volunteers are trained on clean cooking and health linkages.	Community health workers trained									
Enabling	A National Climate Health Research Network is developed and implemented. Causal pathways between climate change-related exposures and health outcomes are understood.	Research network created	MoH Partners Researchers								
Adoption of waste hierarchy **Align county waste management laws and strategies to the waste management hierarchy**	Waste managed as a resource that should be harnessed	No. of county waste management laws aligned	County governments NEMA	Residents Tenants County governments	GoK	95	10	20	50	10	5
Domesticate the National Waste Management Action plan	Responsible waste handling from source	No. of counties that have domesticated the sustainable waste laws	County governments NEMA Private sector	County governments Waste management value chain actors	GoK	45	5	15	15	5	5
improve waste management infrastructure to promote source segregation, collection, reuse, set up materials recovery facilities	Promotion of circularity	No. of waste reduction technologies No. of material recovery sites constructed in counties	County governments Housing and Urban Development Trade and Industry	Waste collectors and recyclers	GoK	520	80	100	100	100	120
Enhance composting/ biological processing of waste **Provide technical support to county governments and private sector to manage food and organic waste collection with appropriate treatment**	Reduced GHG emissions from waste sector.	No. of waste composting facilities across counties .	County governments NEMA Urban Development and Housing	Waste treatment and recycling facility owners	GoK	900	200	300	200	100	100

Priority Action	Expected Outputs/Outcomes By 30th June 2028	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
options depending on the local conditions											
National and county governments carry out feasibility studies to identify potential sites for setting up composting plants and financial requirements of setting up composting technology			.	Investors in waste value chain	GoK	600	150	150	100	100	100
Transitioning from dumpsites to landfills	Progressively phase out open dumpsites. Develop guidelines for closure and decommissioning of existing dumpsites.	No. of guidelines developed to phase out open dumpsites	County governments NEMA Urban Development and Housing	County governments	GoK	1,000	300	400	200	50	50
Strengthening the institutional framework **Mainstream county waste management oversight in the county by including under the environment committee**	Review and align current national waste management strategy to the waste management hierarchy and circular model.	No. of waste management strategies reviewed and aligned to the waste management strategy	NEMA CoG, MoECC&F	County governments	GoK	70	10	10	20	20	10
						3,430	**792**	**1,032**	**722**	**422**	**427**

7.6 Implementation Matrix for Climate Change Priority 6
Manufacturing

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Strategic Objective 6: Promote energy and resource efficiency in the manufacturing sector. **National Indicators:** • Number of manufacturing facilities adopting energy efficiency processes. • GHG emissions in the manufacturing sector.											
Enhanced energy efficiency	Implementation of Minimum Energy Performance Standards (MEPS): • Six devices put under MEPS • Study on adoption and impact of MEPS conducted • Adoption of MEPS increased by an additional 20%.	No. of MEPS adopted % of adoption of MEPS	Ministry of Energy and Petroleum (MoEP) Kenya Bureau of Standards (KEBS) Energy and Petroleum Regulatory Authority (EPRA) Kenya Association of Manufacturers (KAM) KEPSA	Manufacturers Households	GoK DPs	280 .	140 .	140 .	.	.	.
	Energy audits increased from the current 2,000 audits to at least 3,000 audits.	No. of energy audits	MoEP EPRA KAM	Manufacturers and designated facilities	GoK DPs Private sector	1,000	200	200	200	200	200
	50 cleaner production process optimisation audits.	No. of process audits	MoEP EPRA KAM Kenya National Cleaner Production Center KNCPC)	Manufacturers and designated facilities	GoK DPs Private sector	50	10	10	10	10	10
	Support 100 companies to map out their carbon footprint emissions.	No. of assessments	KAM KEPSA	Manufacturers	GoK DPs Private sector	50	10	10	10	10	10
	Formation of energy service companies (ESCOs) for increased implementation rates of audit recommendations among designated facilities from 50% to 75% of energy efficiency in the designated facilities.	No. of ESCOs, % implementation	EPRA KAM ESCOs	Manufacturers	GoK DPs Private sector	1,000	200	200	200	200	200

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Promote resource use efficiency and circular economy in industrial processes	Implementation of Extended Producer Responsibility (EPR) and formation of five Producer Responsibility Organisations (PRO).	No. of PROs formed	KAM KEPSA	Manufacturers	Private sector	50	10	10	10	10	10
	Implementation of cleaner production mechanisms in industries.	No. of green industrial parks/clusters	KNCPC KIRDI KAM County governments	Manufacturers	Private sector	1,000	200	200	200	200	200
	Promote industrial symbiosis in three Special Economic Zones.	No. of Special Economic Zones	KNCPC KIRDI KAM County governments	Manufacturers							
Expansion on adaptation to green building design and construction	Increase more buildings certified to green building standards – at least 30% of all projects to be certified.	% of buildings certified	Kenya Green Building Society	Buildings	Private sector						
						3,430	**770**	**770**	**630**	**630**	**630**

7.7a Implementation Matrix for Climate Change Priority 7a
Energy

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Strategic Objective 7a: Ensure an electricity supply mix that is based mainly on renewable energy, is resilient to climate change, and promotes energy efficiency and, encourage transition to clean cooking to reduce demand for fuelwood. **National Indicators:** • Share of renewable energy in the total electricity generation mix. • Households using clean cooking fuels. GHG emissions in the energy sector.											
Promote clean, affordable, and quality alternative renewable energy sources	Energy centres increased from 16 to 47 for increased dissemination of renewable energy technologies.	No. of centres	MoEP KENGEN Rural Electrification and Renewable Energy Corporation (RERE C) Kenya Power	Local communities	GoK	218,987	49,464	48,743	49,326	46,564	24,890
	Alternative energy technologies including 195 energy efficient charcoal kilns developed, biogas digesters, small hydro-plants, biofuel plants, wind masts, data loggers, ethanol production plants, and clean cooking solutions.	No. of alternative technologies									
	589 MW new renewables developed, including:	MW installed	KenGen Independent Power Producers (IPPs) Geothermal Development Corporation (GDC)	KTDA Citizens and residents							
	Geothermal (208 MW) and prioritised as baseload generation that is climate resilient.				GoK	39,985					
	Solar – 174 MW.				KenGen DPs IPPs	30,000	5,000	5,000	13,000	7,000	2,000
	Wind – 161 MW.				KenGen DPs IPPs	18,000	3,000	3,000	7,000	4,000	1,000

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
	§ Two biofuel plants developed for value chain addition by the private sector.	No. of biofuel plants developed	Citizens and residents	Citizens and residents	GoK	500					
Enhance power network expansion and improvement, as well as last mile electricity access in both on-grid and off-grid areas	§ 2.3 million additional customers	No. of customers added	Kenya Power REREC	Citizens and residents	GoK Kenya Power DPs	79,000	15,000	24,000	20,000	11,000	9,000
	30,000 public facilities	No. of public facilities	Kenya Power REREC	Citizens and residents	GoK Kenya Power DPs	150,000	30,000	30,000	30,000	30,000	30,000
	90,000 transformers installed and maximised.	No. of transformers installed and maximised	Kenya Power REREC	Citizens and residents	GoK Kenya Power DPs	315,000	63,000	63,000	63,000	63,000	63,000
	75,000 lanterns installed under the Public Lighting Project.	No. of lanterns installed	Kenya Power REREC County governments	Citizens and residents	GoK Kenya Power DPs	7,300	4,150	150	1,000	1,000	1,000
	200 solar powered mini-grids developed in off-grid areas.	No. of mini-grids developed	MoEP REREC	Citizens and residents	GoK DPs Private sector	29,800					
	50,473 standalone systems installed.	No. of systems installed	MoEP REREC	Citizens and residents	GoK DPs Private sector	16,460					
	Transmission grid expanded by 2,930 km.	No. of km	KETRACO	Citizens and residents	GoK DPs Private sector	255,960					
	Losses in electricity transmission and distribution reduced from 23% to 16.5%.	% losses	KETRACO Kenya Power REREC	Citizens and residents	GoK DPs	500					

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Promote clean cooking fuels and technologies	About 75% of households have adopted modern cooking energy services (LPG, e-cooking, biogas, and bioethanol).	% of households	MoEP REREC KIRDI	Citizens and residents	GoK DPs	Cooking Sector to provide					
	23% (3,450,000) of Kenyan households cooking with improved cooking (biomass) solutions.	% of households	MoEP REREC KIRDI	Citizens and residents	GoK DPs	Cooking Sector to provide					
	About 25% of households using improved biomass technologies.	% of households	MoEP REREC KIRDI	Citizens and residents	GoK DPs	Cooking Sector to provide					
	Subsidised mwananchi gas project implemented in Nairobi and its environs for urban and peri-urban households.	No. of households	State Department of Petroleum	Citizens and Residents	GoK DPs	5,040	1,040	1,000	1,000	1,000	1,000
	Global eCooking Coalition implemented to have electricity as a primary cooking fuel for additional 10% of the population of Kenya by 2030.	% level	MoEP REREC	Citizens and residents	GoK DPs	Cooking Sector to provide	.	.	.	.	.
	5,000 public secondary schools transition to LPG. Installation of the infrastructure 2 ton LPG storage bullet and piping from bullet to gas burners and the gas burners. Training and capacity building on use and risk management.	No. of schools	MoEP REREC	Citizens and residents	GoK DPs	13,393 .	733 .	3,165 .	3,165 .	3,165 .	3,165 .
	Production of non-forest biomass fuel briquettes such as agricultural waste, sawdust and human waste through youth-led programmes increased.	No. of youth-led programmes	Private sector	Citizens and residents	GoK Private sector	Cooking Sector to provide					

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Promote geothermal energy for alternative use (Direct use)	The Menengai grain dryer is commercialised.	Grain dryer commercialised	GoK GDC	Industries	GoK DPs	850	250	250	150	100	100
	Menengai geothermal brine heat used in cement manufacturing.	Geothermal brine used									
	Steam and brine supplied to industries in the KenGen Green Energy Park.	Steam and brine supplied	KenGen	Industries	GoK DPs	10,100	2,020	3,030	3,030	1,010	1,010
Climate-proofing energy infrastructure	50% of new poles either concrete or eco-poles.	% of poles	Kenya Power	Citizens and residents	GoK DPs Private sector	MoEP Confirm budget					
	2,500 hectares of water catchment areas conserved and rehabilitated by protecting the areas feeding hydro-generation reservoirs.	No. of hectares	Kenya Power	Citizens and residents	GoK DPs Private sector	1,750					
	Existing hydro-power plants optimised, and water management and conservation improved.	% optimisation	MoEP KenGen	Citizens and residents	KenGen	2,300	230	460	1,150	230	230
	Raising of Masinga Dam to enhance storage capacity.					.	.	.	.	.	.
	Conduct Environmental Social Impact Assessment.	ESIA report									
	Resettlement Action Plan.	Action plan									
	Detailed feasibility study and designs	Feasibility study report									
	Enhance dam capacity	% capacity increased									
						1,194,925	**242,878**	**250,789**	**260,812**	**237,060**	**205,386**

7.7b Implementation Matrix for Climate Change Priority 7b
Transport

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Strategic Objective 7b: Establish efficient, sustainable, world-class transport systems and logistics services that withstand projected impacts of climate change. **National Indicators:** ▪ % of freight moved by rail instead of by road. ▪ Expansion of non-motorised transport (NMT) infrastructure. ▪ Expansion of Bus Rapid Transportation (BRT) infrastructure. ▪ Implementation of e-mobility options to boost efficiency and reduce GHG emissions from transport sector. ▪ GHG emissions in the transport sector.											
Reduce traffic congestion	Intelligent Transport Systems including Traffic Management Centre designed and implemented – 81 junctions.	No. of junctions	Kenya Urban Roads Authority (KURA) Ministry of Roads and Transport	Citizens and residents	GoK	400					
	70 km of the BRT for Nairobi Metropolitan Area (BRT design, infrastructure, equipping and operation)	No. of km	Nairobi Metropolitan Area Transport Authority (NaMATA) State Department of Transport (SDoT)	Citizens and residents	GoK DPs	25,600	.				
	Matatu operations/public transport operations upgraded through fleet upgrading.	% upgrade	Private operators NaMATA								
Efficient public transport operations	Intermodal connectivity for rail, road, air and NMT improved.	% improvement	Ministry of Roads and Transport (MoR&T) All transport and road agencies								
	Improved transportation to and from airports and rail stations (e.g., BRT and rail connection to the JKIA, BRT connection to the commuter rail, and commuter rail line to JKIA).										
	Commuter rail in cities (including in Nairobi and Mombasa) expanded – 52 km	No. of km	Kenya Railways Corporation (KRC) SDoT	Citizens and residents	GoK DPs	16,210	3,249.9	8,271.3	4,348.8	170	170
	Increase number of passengers using commuter rail from 3.1 million to 6 million	No. of passengers	KRC SDoT	Citizens and residents							

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Develop improved Non-Motorised Transport (NMT) facilities	500 km of NMT (walkways, cycle lanes) designed, constructed, and maintained.	No. of km	KURA Kenya Rural Roads Authority (KeRRA) Kenya National Highways Authority (KeNHA) Counties	Citizens and residents	GoK DPs	5,000	1,000	1,000	1,000	1,000	1,000
Transition to Electric mobility to improve air quality	Electric vehicles deployed:		MoR&T Ministry of Trade and Industry (MITI) Private sector MoEP County governments NaMATA	Citizens and residents							
	1,000 electric buses	No. of e-buses			Private sector	25,000	5,000	5000	5,000	5,000	5,000
	50 GoK passenger cars.	No. of E-GK			GoK DPs	750	150	150	150	150	150
	Electric vehicle charging infrastructure deployed.	No. public charging stations			GoK DPs	50	10	10	10	10	10
	Local manufacture and use of electric vehicles including 2- and 3-wheelers promoted.	No. of assembly plants			GoK DPs	1,000	150	250	250	200	150
	Standards for electric/hybrid vehicles in Kenya developed and implemented.	No. of standards			GoK DPs	250	50	50	50	50	50
Climate- proofed sustainable transportation systems	Climate-proofing of roads, including through:		KURA KeRRA KeNHA Counties	Citizens and residents	GoK DPs	375,000	75,000	75,000	75,000	75,000	75,000
	5,000 km of roads of road climate proofed.	No. of km									
	Pavement design, drainage structures and use of sustainable materials undertaken.	No. of designs									
	Green road corridors (landscaping and tree planting and growing).	No. of corridors									
Improve rail sector contribution to environmental	Extension of SGR from Naivasha–Kisumu– Malaba: Naivasha–Kisumu 2B (262 km).	No. of km	Kenya Railways SDoT KRA KRC Kenya Ports Authority (KPA)	Citizens and residents	GoK DPs	502,900	502,900				

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
sustainability and climate change resilience	Kisumu– Malaba 2C (107 km).	No. of km	Cargo Operators County governments PPPs		GoK DPs						
	30% freight shifted from road to rail	% freight			GoK DPs						
	Increase long distance passengers from 2.5M to 2.8M.	No. of passengers			GoK DPs						
	Development of integrated climate-resilient rail cities (Eldoret and Nairobi).	No. of rail cities			GoK DPs	3,600	1,500	1,500	200	200	200
	Modernisation, upgrading and rehabilitation of meter gauge railway system.	No. of modern stations			GoK DPs	22,920					
	Construction of 20 stations in Nairobi.	No. of stations									
	Modernisation of railway fleet: locomotives, wagons, Diesel Multiple Units.	No. of rolling stock			GoK	23,614	2,052	4,610	2,258	12,454	2,240
	Development of cooling logistics for movement of fresh produce through railway and sea.	No. of cold stores/centres/facilities No. of plug-in points at all ICDs No. of wagons with cold facilities			GoK Partners	1,500	300	300	300	300	300
	Greening rail corridors.	No. of greened rail corridors			GoK	250	50	50	50	50	50

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
environmental sustainability and climate change resilience .	Modernisation of aircraft fleet through purchase of 3 Q400 Series.	No. of modern fleet acquired	748 Aircraft Leasing Service (ALS) KAA Kenya Civil Aviation Authority (KCAA) Air Navigation Service Providers (ANSP)	Citizens and residents	Private sector						
	Acquire aircrafts with more fuel-efficient engines. 8 ERJ145 and *ERJ135 aircrafts to replace the ageing 18 Dash-8.	No. of modern fleet acquired	ALS KAA KCAA ANSP	Citizens and residents	Private sector						
	Implementation of Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and report to ICAO.	% implementation and timely reports to CCD and ICAO	Kenya Airways (KQ) Astral Aviation Air operators KCAA	Citizens and residents	Private sector						
	Development of Sustainable Aviation Fuels (SAF) with lower life cycle CO_2 emissions & capacity building	Production, distribution, utilisation and piloting of green hydrogen. Reduction of aviation carbon emission.	MoEP MoTR TNT&EP KAA KCAA KPC EPRA World Trade Organization Oil marketing companies Air carriers	Citizens and residents	GOK World Trade Organizatio n (OMC) European Union World Bank (WB)						
	Implementation of measures to ensure efficient pre-departure planning and arrival planning (departure management and arrival management).	% level	ANSP KAA KCAA Air operators KMD	Citizens and residents	KCAA ANSP KMD						

Priority Action	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
							23/24	24/25	25/26	26/27	27/28
Improve maritime sustainability and decarbonisation	Increasing the number of water buses as a means of transport.	No. of water buses	Private operators Maritime agencies	Citizens and residents ,	GoK DPs	50	10	10	10	10	1
	Domestication and implementation of Annex 6 of the International Convention for the Prevention of Pollution from Ships.	Annex 6 Domesticated and % level of implementation	MMBE&MA MoRT Maritime agencies			300	60	60	60	60	6
	Installation of shore power at the Port of Mombasa, including determination whether to use solar or wind power (berth 1)	%	SDoT KPA			600	120	120	120	120	12
	E-mobility policy and requisite frameworks developed and implemented.	E-mobility policy and frameworks	MoRT Relevant players	Citizens and residents	GoK DPs	60	60				
						2,563,769 Pending conversion of US$ to KSH					

7.8 Implementation Matrix for Climate Change Priority 8

Children and the Youth

Priority Action	Expected Outputs/Outcomes	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
						23/24	24/25	25/26	26/27	27/28
Strategic Objective 8: Children and youth rights are safeguarded from the impacts of climate change including through active and continuous involvement in climate action and related policy and decision-making. **National Indicators:** • Extent to which child-critical services are more inclusive, and resilient. • Proportion of national and local DRR and climate policies and actions that integrate child-specific interventions. • Proportion of children and youth that have access to climate and environment education and are prepared for and resilient to disasters and climate change impacts. • Growth of financial investment and resources in DRR and climate change adaptation measures centred on children and youth and their communities.										
Develop a children and youth climate change engagement strategy	A national strategy developed to engage children and youth across the country on climate change actions.	MECCF Ministry of Youth Affairs, Sports and the Arts (MYASA) National Youth Council	Youth and children	GoK DPs	30	10	5	5	5	5
Enhance children and youth engagement in national and county climate change policy processes	470 youth groups and children-focused local entities are regularly and systematically involved in policy development on climate action. National and county level climate policies and strategies are child-sensitive.	MYASA MECCF CoG MoE CSOs Private sector DPs	Children and youth	GoK Private sector CSOs DPs	150	30	30	30	30	30
Build capacity of children and youth on climate change and risk management education and practice .	Increased focus on mainstreaming climate change in teaching and dissemination through skills-based curriculum. At least 16 counties have child-sensitive risk management plans that address risks related to education challenges in extreme climate shocks. At least 22,300 vulnerable children can access school education in areas highly disadvantaged by extreme climate events; Increased climate change and risk management education and practice.	MoE National Council for Nomadic Education in Kenya (NACONEK) Universities DPs CCD/MECCF Social protection County governments NDMA NDMU	Children and youth .	GoK Private sector CSOs DPs	2,000 .	400 .	400	400	400	400
Build the capacity of children and youth on climate action	At least 100,000 children and youth taking climate action through schools, arts, competitions among others.	MECCF MoE	Children and youth	GoK CSOs DPs	100	20	20	20	20	20
Build capacity of youth on development of bankable climate change project proposals	100,000 youth capacity built on developing and accessing climate change funding through various funding mechanisms.	TNT&EP MECCF	Youth	GoK Private sector DPs	100	20	20	20	20	20

Priority Action	Expected Outputs/Outcomes	Responsible Institutions	Targeted Groups	Source of Funds	Total	Indicative Budget (KES millions)				
						23/24	24/25	25/26	26/27	27/28
Develop a youth platform for accessing climate finance information and initiatives .	Operationalisation of Climate Change Knowledge portal with inclusion of a platform with information on climate finance and opportunities and initiatives for youth developed. .	MYASA MoE CCD/MECCF Ministry of Information, Communications and the Digital Economy Kenya National Innovation Agency Kenya Institute of Curriculum Development (KICD) National Industrial Training Authority (NITA) Technical and Vocational Education and Training Authority (TVETA) Universities CSOs Private sector DPs	.	GoK CSOs DPs	50 .	20 .	7.5 .	7.5 .	7.5 .	7.5 .
Establish and operationalize county youth climate change innovation hubs	Five youth climate change innovation hubs established. Scaled-up youth climate innovations and solutions such as eco-friendly technologies, nature-based solutions, knowledge-based and technology-based solutions.	MYASA MECCF CoG CSOs Private sector DPs KENIA	Youth	GoK CSOs Development partners	200	80	30	30	30	30
Build capacity of children and youth on climate change technologies and innovations	4,700 youth adopt climate change technologies for climate action	MYASA MoE KIRDI CCD/MECCF KICD NITA TVETA Universities NEMA CSOs Private sector DPs	Children and youth	GoK CSOs Development partners	100	20	20	20	20	20
Empower youth in climate change advocacy and financing	Engage youth to create spaces to make their voices heard at global, national and local level climate change platforms (may include CoPs, NAPs, planning local action plans, etc.). Engage with institutions and organisations to develop strategy to integrate climate action into their activities.	MYASA KIRDI MECCF KICD NITA TVETA university MoE NEMA CSOs Private sector DPs	Youth	GoK CSOs DPs	50	10	10	10	10	10
Increase in climate finance for building resilience of child critical services	Children are specifically mentioned and considered in all GCF, GEF and other Paris agreement linked to climate financing proposals and implementation.	TNT&EP CCD/MECCF NEMA CoG		GoK CSOs DPs	500	100	100	100	100	100
Total					3,280	710	642.5	642.5	642.5	642.5

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