REPUBLIC OF KENYA
COUNTY GOVERNMENT OF KAKAMEGA

COUNTY CLIMATE CHANGE ACTION PLAN

2023-2027

May 2023

FOREWORD

This is the first County Climate Change Action Plan that has been developed after a rigorous qualitative Participatory Climate Vulnerability Assessment process in all the sixty wards. This provided an ample opportunity for the vulnerable community to participate in identifying climate risks that affect them, share past coping mechanisms, demonstrate trends in key hazards and provide locally led solutions to build community resilience. The plan presents the voices and resolution of the vulnerable community in the county.

Climate change poses undoubtedly the greatest risk to the realization of the ideals of Sustainable Development Goals, Kenya vision 2030, The Bottom-Up Economic Transformation Agenda , the Kakamega County Integrated Development Plans and other blueprints that push agendas for poverty reduction and food security. Our County has experienced extreme weather events which heighten threat to food security, contribute to deteriorating water resources, diminish our biodiversity and increase land degradation.

The Conference of Parties(COP) 27 in Sharm el-Sheikh Egypt in 2022 resolved to combat climate change through a loss and damage Fund where the larger biggest emitters/polluters are expected to contribute funds to help the lowest emitters to adapt to the impacts of climate change. Parties reaffirmed their commitment to limit the global temperature rise to 1.5 degrees which is a sign of a new horizon for humankind to have a healthy and safe living future environment. Our County is committed to providing a framework to increase the ability to adapt to the adverse impacts of climate change, foster resilience and adopt low carbon development pathways.

The Kakamega County Climate Change Action Plan (KCCCAP) 2023-2027 provides the framework for enhanced response to climate change impacts through proposing low carbon climate smart actions. For a stable climate system, and to enhance our mitigation interventions we plan to conserve and increase our carbon sink as well as adopt clean production technologies. The Plan mainstreams climate considerations into our flagship projects for resilience to achieve the Sustainable Development Goals. We commit to direct efforts towards ensuring that our economy is recalibrated to ensure Asset level adaptation, system adaptation and support climate-smart, carbon-efficient pathways investment in “Bankable Projects”. The actions proposed in this Plan are geared towards ensuring that our development remains sustainable in the event of any adverse climate change impacts that continue to affect our economy. We focus on sustainable Livelihoods and adaptation to improve the adaptive capacity of the rural population engaged in farm-based livelihoods to cope with climate variability and change.

Climate change requires societies and communities to change quickly with greater variability in climate patterns. Implementation of this plan calls for concerted efforts and therefor urge all stakeholders ranging from the community, the civil society, research and academia, private sector, government entities and development partners to pull together resources to ensure effective implementation for the benefit of the present and future generations.

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EXECUTIVE SUMMARY

Kenya committed to protecting the climate system for the benefit of the present and future generations by supporting the United Nations Framework Convention on Climate Change (UNFCCC) process, ratifying the Kyoto Protocol in 2005, and contributing to continental and regional climate change initiatives. The 2013-2017 and 2018-2022 National Climate Change Action Plan (NCCAP) provides an implementation framework for the National Climate Change Response Strategy (NCCRS). Upon this foundation the National Climate Change Policy, the NCCRS, the NCCAP, and the National Climate Change Act, 2016 were built and provides a framework for this Plan. The County prioritizes the issue of climate change which is why it focuses on developing relevant plans and strategies that aim towards promoting resilience to the effects of climate change.

Kakamega County's economy is highly dependent on the natural resource base therefore highly vulnerable to climate variability and change. Climate change adversely impacts key sectors that are important to the economy and society, including water resources, agriculture, fisheries and livestock; land use management; energy; public works; environment, disaster risk reduction; tourism wildlife and culture; trade and extractive industry and public health. This Action Plan provides a clear and concise articulation of priority actions to climate variability and change as well as addressing implementation gaps in these areas.

The Kakamega County Climate Change Action Plan 2023-2027 is informed and guided by key global, regional, national and county climate change adaptation frameworks, policies, legislations, and aspirations. KCCCAP seeks to provide mechanisms and measures to achieve low carbon climate resilient development, in a manner that prioritizes adaptation, and recognizes the essence of enhancing the climate resilience. The Action Plan supplements the Kakamega County Adaptation Plan as it takes cognizance of the impacts of climate change on the socio-economic sectors. KCCCAP identifies strategic areas where climate action is linked to the Bottom-Up Economic Transformation Agenda 2022-2027, recognizing that climate change is likely to limit the achievement of key pillars including Agriculture, Micro, Small and Medium Enterprise (MSME) economy, Housing and Settlement and Healthcare among others. It provides a framework for priority enabling actions to be addressed which include; enabling policy and regulatory framework, technology and innovation, capacity development and knowledge management, climate finance and resources mobilization, transparency, measurement, reporting and verification.

The Action Plan identifies the relevant institutions and sectors that will be essential for the actions to realize the strategic objectives and the problem to be solved. It also outlines the implementation roles of the relevant county agencies and expected results in the delivery and coordination mechanisms. The estimated budget for implementing climate Actions 8,804,000,000, which will be mobilised from both local, national and international financing mechanisms.

DEFINITION OF TERMS

Adaptation means adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities**.**

Adaptive capacity refers to the ability of systems, institutions, humans, and other organisms to adjust to potential damage, take advantage of opportunities, or respond to consequences.

Climate change refers to a change in the climate system that is caused by significant changes in the concentration of greenhouse gases due to human activities, and which is in addition to the natural climate change that has been observed during a considerable period.

Global warming refers to the observed or projected gradual increase in global surface temperature. It is one of the consequences of climate change.

Greenhouse gases (GHGs) are gases that absorb and emit radiant energy within the thermal infrared range. The main GHGs measured in a GHG inventory are, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), per-fluorocarbons (PFCs), hydro-fluorocarbons(HFCs), sculpture hexafluoride (SF6) and nitrogen tri-fluoride (NF3).

Mitigation refers to human interventions to prevent or slow down atmospheric GHG concentrations by limiting current or future emissions, and/or enhancing potential sinks for greenhouse gases.

Resilience refers to the capacity of social, economic and environmental systems to cope with a hazardous event, trend, or disturbance. It is manifested through responding or reorganizing in ways that assert the essential function, identity, and structure of the system, while also maintaining the capacity for adaptation, learning and transformation Carbon credit or offset is a financial unit of measurement that represents the removal of one tone of carbon dioxide equivalent from the atmosphere. Carbon credits are generated by projects that deliver measurable reductions in greenhouse gas emissions.

Vulnerability refers to the propensity or predisposition to be adversely affected. It encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm, and lack of capacity to cope and adapt.

ABBREVIATIONS

Acronym	Meaning
CA	Conservation Agriculture
CCCAP	County Climate Change Action Plan
CH_4	Methane
CIDP	County Integrated Development Plan
CIS	Climate Information Services
CO_2	Carbon Dioxide
COP	Conference of Parties
CSA	Climate Smart Agriculture
DRR	Disaster Risk Reduction
ERC	Energy Regulatory Commission
GCMs	Global Climate Models
GDP	Gross Domestic Product
GESIP	Green Economy Strategy and Implementation Plan
GHGs	Green House Gases
GIS	Geographic Information System
Ha	Hectares
HFCs	Hydro fluorocarbons
HH	House Hold
ICRAF	International Council for Research in Agro Forestry
ILRI	International Livestock Research Institution
KACRWASCO	Kakamega County Rural Water and Sanitation Company
KACUWASCO	Kakamega County Water and Sewerage Company
KALRO	Kenya Agriculture and Livestock Research Organization
KCCCAP	Kakamega County Climate Change Action Plan
KCIC	Kenya Climate Innovation Centre
KCSAIF	Kenya Climate Smart Agriculture Implementation Framework
KCSAS	Kenya Climate Smart Agriculture Strategy
KEFRI	Kenya Forestry Research Institute
KenGen	Kenya Electrical Generating Company
KETRACO	Kenya Electricity Transmission Company
KFS	Kenya Forest Service
KM	Kilometres
KMD	Kenya Meteorological Department
KPLC	Kenya Power Limited Company
KWS	Kenya Wildlife Service
KWTA	Kenya Water Towers Agency
LPG	Liquefied Petroleum Gas
LVNWWDA	Lake Victoria North Water Works Development Agency
MRV+	Monitoring, Reporting and Verification plus
N_2O	Nitrous Oxide
NAP	National Adaptation Plan

NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy
NDC	Nationally Determined Contributions
NEMA	National Environment Management Authority
NF_3	Nitrogen Tri-fluoride
NRW	Non-Revenue Water Management
NWHSA	National Water Harvesting and Storage Authority
PDS	Prolonged Dry Spell
PFCs	Per fluorocarbons
REA	Rural Electrification Authority
REA	Rural Electrification Authority
SDGs	Sustainable Development Goals
UNFCC	|United Nations Framework Convention on Climate Change.
WASH	Water Sanitation and Hygiene
WRA	Water Resources Authority
WRUAs	Water Resource Users Association

1. CHAPTER ONE

1.1. Background and Context

Rainfall is the climatic element that has the widest spatial-temporal variability and the highest impact on our socio-economic activities. In Kakamega county, most socio-economic activities are rain-dependent, with two rain seasons. Majority of the farming activities are rain fed. The manufacturing factories in the county for instance sugarcane processing rely on raw materials which are greatly affected by climate change. There is notable evidence of climate change including new invasive and parasitic plants e.g. *Calcutta dodder*, increased intensity of prolonged dry spell, a shift in agricultural seasons due to erratic or heavy rainfall, emergence of new pests, for example, Fall Armyworm invasion, increased prevalence of vector and waterborne diseases, increased acidity of agricultural soils and loss of biodiversity among others. Therefore, climate change is a significant threat to County's future development, including realization of the CIDP, contribution to achievement of the Kenya's Vision 2030 goals, and the Government's The Bottom-Up Economic Transformation Agenda 2022-2027 that focuses on Agriculture, Micro, Small and Medium Enterprise (MSME) economy, Housing and Settlement, Healthcare and Digital Superhighway and Creative Economy.

The rapid increase in population, dwindling quantity and quality of water resources, land degradation caused by anthropogenic activities, increased prevalence of malaria and waterborne diseases, food insecurity, increasing damage to infrastructure due to extreme weather events and high cost of energy necessitate the need for an action plan that will address and deal with climate change effects. The County's CIDP has greatly mainstreamed climate change which together with this County Climate Change Action Plan will provide an informed platform for building climate change resilience. The Plan's purpose is specifically to develop a framework that will ensure the implementation of climate change interventions as we progress towards low carbon emissions, resource efficiency, site-specific climate change adaptation and mitigation measures and inclusive socio-economic transformation.

Climate change is a sectoral cross-cutting issue that its decision making requires consensus amongst stakeholders. The County government should ensure that all departmental plans mainstream climate change. Therefore, the implementation of this plan requires inclusivity ranging from the county government, the civil society, research and academia, private sector and the local community to ensure its effective implementation.

1.2. The Goal of KCCCAP 2023-2027

The KCCCAP 2023-2027 seeks to provide mechanisms and measures to achieve low carbon climate resilient development, in a manner that prioritizes adaptation, and recognizes the essence of enhancing the climate resilience. Specifically, it aims to:

- Align climate change actions in the county with the national development agenda, including the Bottom-Up Economic Transformation Agenda 2022-2027;
- Enhance the resilience of the grass root community through provision of opportunities for participation of the private sector, civil society, and vulnerable groups within society, including children, women, older members of society, persons with disabilities, youth, and members of minority or marginalized communities;

1.3. Guiding principles

(a) Locally led decision making to the lowest level

Responding to actual adaptation and mitigation needs in Kenya through taking of measures that reduce the adverse effects of climate change and preventing or minimizing the causes of climate change.

(b) Equity and social inclusion –

Addressing the needs of vulnerable groups within society including those of children, women, older members of society, persons with disabilities and youth through addressing structural inequalities an inclusive approach to climate change action.

(c) Consultation and cooperation

Implementing actions through consultation and cooperation between national and county governments and active participation of the community, civil society and private sector.

(d) Fairness

Ensuring that climate actions do not create competitive disadvantage for the Kenyan private sector, relative to its trading partners.

(e) Dynamic and flexible planning

Ensuring flexible programming to address even emerging needs of the community occasioned by climate change.

(f) sharing of best practices and lessons learned

Investing in local capabilities including indigenous knowledge, community innovations and sharing of good practices and lessons learnt

1.4. Approach Used in Developing KCCCAP 2023-2027

The Climate Change Unit coordinated the development of KCCCAP 2023- 2027 through a multi sectoral working group drawn from sectors highly affected by climate change. This included County's departments responsible for Disaster Risk Reduction; Agriculture, urban development, water and the blue economy; forestry, wildlife and tourism; health, Sanitation and human Settlements; manufacturing; energy and transport. Considering the cross-cutting nature of climate change sector, players and actors participated and have been considered as key institutions that will realize achievement of strategic objectives within their jurisdiction.

This KCCCAP was developed after conducting a Participatory Climate Risk Assessment through a co-created participatory approach and the outcomes used to inform this The Participatory Climate Risk Assessment provided an understanding of the climate hazards the county is exposed to and their probability of occurrence alongside their historical, current and potential impacts.

2. CHAPTER TWO

2.1. County Setting

Kakamega county is one of the 47 counties in Kenya located in western part of Kenya about 30km north of the equator. It consists of 12 constituencies namely: Butere, Mumias, Matungu, Likuyani, Mumias East, Khwisero, Shinyalu, Lurambi, Ikolomani, Lugari Malava and Navakholo. It is subdivided into 60 wards, 87 village units and 400 community areas.

2.2. Location

Kakamega County is located on 0.2827° N, 34.7519° E. The county borders Vihiga County to the South, Siaya and Busia Counties to the West, Bungoma and Trans Nzoia Counties to the North and Nandi and Uasin Gishu Counties to the East. The County covers an area of 3,051.3 KM^2 Geographical Features.

The altitudes of the county ranges from 1,240 meters to 2,000 metres above sea level. The southern part of the county is hilly and is made up of rugged granites rising in places to 1,950 metres above sea level. The Nandi Escarpment forms a prominent feature on the County's eastern border, with its main scarp rising from the general elevation of 1,700 metres to 2,000 metres. There are several hills in the county such as Misango, Imanga, Eregi, Butieri, Sikhokhochole, Mawe Tatu, Irhanda, Kiming'ini, Maturu, Khuvasali, Kambiri hills among others. The county consists of major rivers such as Yola, Isiukhu, Lusumu, Nzoia, Shatsala, Firatsi, Kipkaren, Kamehero, Lukusitsi, and Sivilie and a number of several streams.

2.3. Biodiversity

There exists a forest ecosystem that plays a significant role in human existence. This includes; land conservation, securing of water sources, control of climate change, and creation of natural environs essential to natural life. Kakamega Forest Ecosystem comprises Kakamega, Lugari, and Butere/Mumias Forest Zones. The Kakamega zone has Kakamega Forest, the only remaining tropical rainforest, Malava, Kisere, and Bunyala forests. Lugari Forest Zone has Turbo, Lugari, and Nzoia forests. The Butere/Mumias Zone has only one gazetted forest area which is Misango hills. The Forest ecosystem is facing degradation resulting in deforestation which adversely impacts the natural environment through the drying of rivers, siltation of surface water bodies, and decline in land production among other effects.

There are over 60 wetlands in Kakamega County. These wetlands reveal an enormous diversity and support a variety of ecosystem services. Many wetlands are threatened by climate change resulting in loss of biodiversity and disruption in ecosystem benefits to the society.

2.4. Demography

According to the 2019 Kenya Population and Housing Census Report, the County had a population of 1,867,579 comprising 897,133 males and 970,406 females giving a population distribution of 48% male and 52% female including youth, elderly and children population (KNBS 2019).

2.5. Climate Change Vulnerability and Risk

The County is characterized by a rapidly growing population, high population density, portable water scarcity, falling food production, and low resilience to climate change. The combined effects of climate change and rapid population growth are increasing food insecurity, environmental degradation, and poverty levels in the county. The Kakamega County Integrated Development Plan (CIDP), 2023-2027; identifies environmental degradation and climate change as key development challenges.

The growing population in the region coupled with the changing climate has resulted in severe environmental concern in the County. These challenges include poor land use planning, improper waste management; source and non-source pollution; dropping water levels; increase in catchment degradation (land and forest ecosystems); wetland degradation; and loss of biodiversity as well as deteriorating ecosystem services.

Global Climate Models (GCMs) projects atmospheric warming which results into increasing global temperatures, increased precipitation in specific areas and rising sea levels. In Kakamega county both minimum and maximum temperatures are rising and rainfall is expected to increase in certain areas. In Lugari and Likuyani which receive less rainfall than the rest of the county are likely to experience decrease soil moisture and therefore decreased agriculture productivity. Increased precipitation in areas of Malava, Mumias and Shinyalu are likely to suffer frequent flooding.

The important climate change threats to Kakamega county are the extreme weather events such as heavy rainfall or prolonged dry spell that can overtly result into high crop losses and food insecurity in the county. Some of the effects of climate variabilities includes:

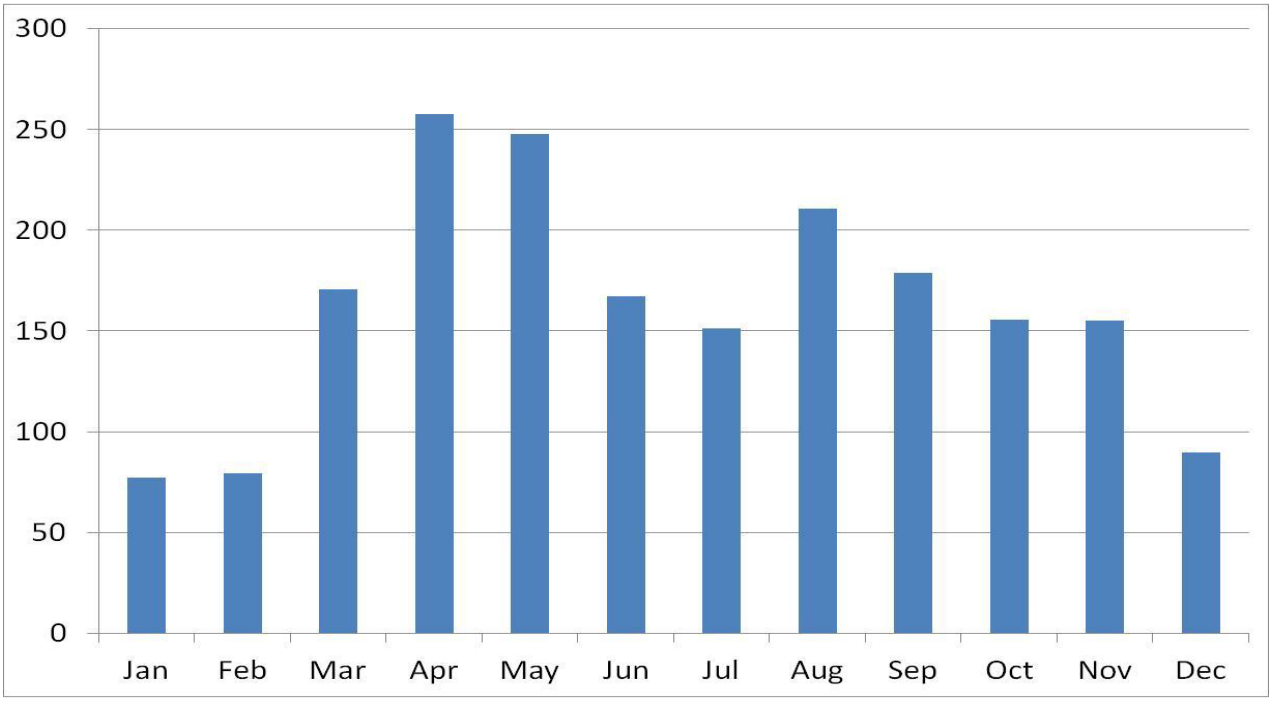
1) deteriorating water quality and quantity, water yields from hitherto, highly productive springs; loss of biodiversity, emergence of invasive pests and declining agricultural productivity; which in tandem are already causing losses to the community;
2) floods and landslides; all of which are projected to be more intense, frequent and unpredictable;
3) decreasing forest cover due to land degradation and rapid change in climatic conditions whose immediate impact include extinction and migration of natural vegetation plant and animal species and emergence of invasive species such as *striga weed, Cascuta dodder, Psidium guajava* and *Lantana camara*;
4) destruction of infrastructure including roads, bridges and other utilities;
5) increasing public health risks, high prevalence of vector and water borne diseases;
6) exposure to lightening, mudslides, landslides, hailstorms and strong winds; and
7) emergence of pests such as fall army worms

2.6. Climate change situation in the county

Recent trends show a marked increase in inter-annual variability and distribution of rains, with an increase in the number of consecutive dry days and shorter but more intense periods of rainfall resulting in an increase in frequency of floods. Future climate change may lead to a change in the frequency or severity of such extreme weather events, potentially worsening impacts. Increased average temperatures and changes in annual and seasonal rainfall will be felt across key economic sectors, such as agriculture, health, water, energy, infrastructure, forests, environment and roads.

Impacts are likely to have disproportionate effects on the farmers dependent on rain fed agriculture, People with Disability, urban poor living in ecologically fragile areas and women whose livelihood depend are affected by climatic factors. In the county people living on hillslopes, along riverine areas, or in areas prone to severe storms are more vulnerable to extreme weather. Those living in poverty may be less able to prepare for or respond to extreme events. As a result, these individuals are expected to have greater impacts from climate-related hazards since they may in addition have fewer resources to adapt to climatic change and vulnerability. Figure 2.1 below shows the annual average distribution of rainfall:

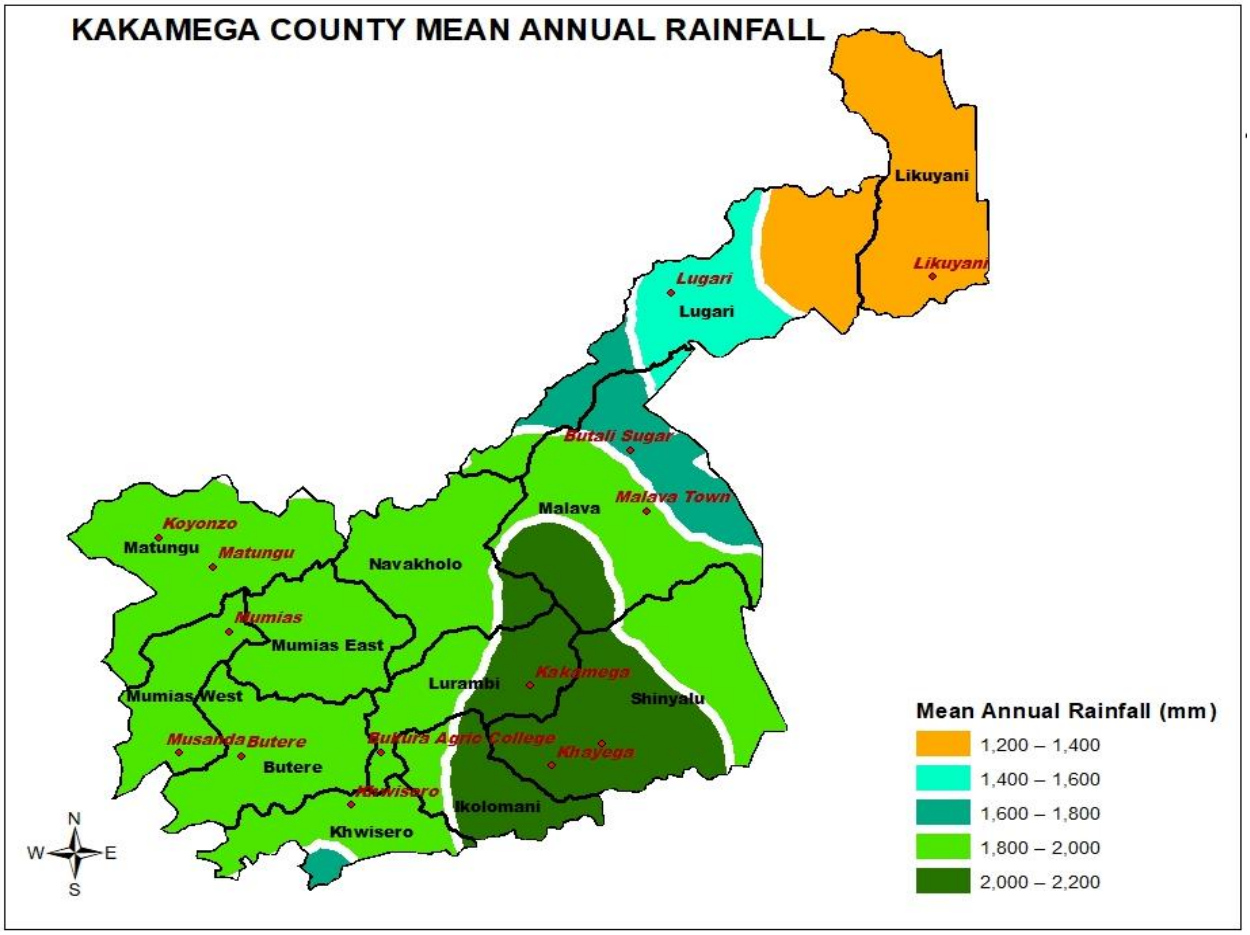
Figure 2.1: Kakamega Annual Rainfall Distribution



Source: Kenya Meteorological Department 2022

The distribution of rainfall across counties is different with Likuyani receiving the lowest rainfall whereas Shinyalu, parts of Ikolomani and Lurambi receive the highest. This is illustrated in figure 2.2.

Figure 2.1: Rainfall variability by sub-county



Source: Kenya Meteorological Department 2022

Generally areas around Kakamega forest receive over 2000 mm average annual rainfall.

2.7. Impacts of climate change in the county

The most identified hazards included: heavy rainfall, prolonged dry spell, Landslides/mudslide Lightning, hailstorms, strong winds and invasive species.

a) Heavy rainfall resulting into floods:

In the County, floods are common along Rivers Nzoia in Lugari lower Matungu and Mumias West) Lusumu(Mumias East, Kholera in Matungu; Yala, (Khwisero and Ikolomani); Isiukhu (Shinyalu and in the flood plains of Namamali in Matungu), near dams such as Siyenga, and Kilimani and major urban towns such as Kakamega and Matete. This is common during both the long and short rains seasons including March -June and October-December in high rivers overflow their banks and the impacts are often widespread. These hazards have resulted into loss of lives and property, destruction of existing infrastructure, proliferation of water related diseases such as malaria,

typhoid, cholera, destruction of crops, scarcity of water, and destruction of other vegetation causing reduction in the quality of pastures and soil erosion resulting into gulley formation.

b) Prolonged dry spell

In recent times intense and prolonged dry spells have occurred. Each of these has caused severe crop, reduced livestock production, and food scarcity. Climate change introduces an additional uncertainty into existing vulnerabilities, particularly in the northern region of the County. Increased temperatures in the future are likely to exacerbate the dry conditions and may have a significant impact on water availability and general well-being. Prolonged dry spells delays supply of farm produce and lowers farm yields.

c) Landslides/mudslides

Mostly occur on hill slopes and areas with poor control of storm water. Mudslides occurred along the Kakamega /Nandi border, Khuvasali in Malava subcounty, Ileho in Shinyalu, Lirhembe in Ikolomani and along River Yala in Ikolomani and Khwisero. They normally affect small or large areas and leads to loss of life, injuries and structural damage, contamination of water sources, loss of productive land and loss of livelihoods

d) Lightning, hailstorms and strong winds

Most of the climate hazards occur during the rainy/thunderstorm seasons in the months of March, April, May and June. Lightning is common in Navakholo, Khwisero, Likuyani, Shinyalu and Lugari though the occurrence is unpredictable. Lightning strikes cause injuries and deaths. Hailstorms affect agricultural products, which are main trading products and industrial raw materials.

e) Invasive species

Invasion of pests and parasitic plants cause crop losses until complete failure of crop productivity. The economic consequences of invasive species include poor food quality, reduced farm yields and increased cost of on farm crop management. This is also causing forest degradation, a source of fuel wood mostly used by the residents

2.8. Climate change effect on sectors

The impacts of climate change on different sectors of society are interrelated. The climate hazards affect sectors differently as illustrated in Table 2:1 below:

Table 2.1: Summary of likely impacts of climate change by sector in the County

Sector	Likely impacts of climate change
Agriculture, Fisheries and Livestock	• Decline in overall crop yields in most areas due to erratic rainfall, excessive moisture conditions; and emergence of pests, diseases, and weeds thus greater risk to food insecurity.

	• Uncertainty regarding the impact on the production of specific crops, but likely reduction in the yields of maize and beans, and potential reductions of cash crops such as tea and sugarcane. • Reduction in livestock yields caused by prolonged dry spell due to lack of pasture, reduced access to water and heat stress. • Changes in disease patterns, and potential for re-emergence of climate related diseases(Vector borne, water borne or zoonotic), pests and invasive species.
Disaster and Risk Reduction	• Increased frequency and intensity of flooding, which could decrease people's ability to cope. • Increased number of food insecure and malnourished people. • Increased number of people without access to clean water. • Safety risks associated with existing buildings that do not meet standards and codes.
Energy	• Decline in forest productivity, which limits availability of fuel wood. • Reduction in the capacity for hydroelectric generation, due to decline in water flows in rivers, particularly during dry seasons and, increased reservoir siltation. • Damage to infrastructure particularly power lines, transformers and poles.
Environment	• Increased likelihood of contestation and conflict over diminishing natural resources. • Increases in invasive species, new pests and diseases • Ecosystem loss e.g. aquatic, venal pools, wetlands and forest
Forestry	• Increased exposure to wild fire, pathogens, and invasive species • Reduced provision of environmental resources and benefits, and forestry-associated economic activities • Loss of biodiversity • Diminishing forest products
Health	• Shifts in the geographic range and incidences of malaria. • Increase in water-borne diseases, such as cholera, and typhoid • Zoonotic diseases.
Public Works	• Damage to infrastructure, including roads and bridges, during heavy rainfall • Interruptions to road networks because of flooding, and heavy rainfall events. • Disruption of access to work, markets, education, and healthcare facilities, due to damaged infrastructure. • Increase in risks from collapse, declining health of buildings, and loss of value, due to more frequent and heavier rain events and water encroachment. • Increased cost of maintenance of the physical infrastructure as a result of extreme weather effects.
Trade and industry	• Reductions in hydroelectric generation, which could cause energy fluctuations or blackouts because of energy supply interruptions. • Greater resource scarcity, such as water and raw materials that are inputs in manufacturing processes. • Greater risk of plant, product and infrastructure damage, and supply chain disruptions from extreme climate events. • Higher costs to companies, including for insurance.

Tourism, wildlife and Culture	• Tourist facilities affected by reduced availability of water, and lack of access due to damaged roads and infrastructure. • Adverse impacts on ecologically-sensitive tourist destinations. • Potential for migration of wildlife populations, with implications for park boundaries and human-wildlife conflict. • Potential for species extinction.
Water	• Reduced availability of surface water for activities, such as irrigation, livestock production, household use, wildlife, and industry • Increased water loss from reservoirs, due to evaporation. • Lower underground water levels in boreholes and wells a • Drying of springs and water sources

2.9. County's Contribution to Climate Change

Contribution to climate change is mainly attributed to the amount of greenhouse gases (GHGs) that humans release into the atmosphere. As carbon dioxide and other GHGs build up in the atmosphere, they trap heat, which causes global warming. Most residents in the county rely on wood fuel for cooking. The County also has a number of manufacturing industries such as Butali and West Kenya sugar industries that are likely to emit GHGs. Adaptation is to ensure zero net emission so that our emissions are offset by the existing sinks.

2.10. Progress on Enabling Actions, Adaptation and Mitigation

Currently, the County has put in place strategies to eliminate the existing gaps in the quest to address climate change. These include the development of the Kakamega County Climate Change Act, Kakamega County Climate Change Policy and Kakamega County Climate Finance Policy which are vital for creating an enabling environment to attract funding and investments (both locally, nationally and internationally) to mitigate and adapt to climate change. Moreover, the County has mainstreamed climate change into its CIDP and Departmental Plans since it is a cross-cutting issue. These sectors include; Water Resources Management; Agriculture, Fisheries and Livestock; Land Use Management; Disaster Risk Reduction; Public Health; Energy; Public Works; Environment; Tourism, Wildlife & Culture; and Trade and Industry.

2.11. The Political, Economic, Social and Environmental factors

(a) Political Environment

Successful delivery of Kakamega County Climate Change Action Plan 2023-2027 requires a supportive political and legal environment. The county's political environment is favourable, as the political leadership at the County levels is supportive of climate change action.

(b) Economic Environment

A stable and supportive economic environment is vital to the effective delivery of KCCCAP 2023-2027. The actions in this Plan require resources that depend on a stable and supportive economy. A sufficient budgetary allocation is vital for the implementation of the actions in this KCCCAP. However, this might not be achieved due to competing demands for the revenues collected.

Therefore the County will require implementing strategies to attract foreign climate financing to supplement the local allocation.

(c) Social Environment

The county's social situation is a key to the success of KCCCAP. Kakamega has an absolute poverty rate of 35.8 percent which is slightly lower than the national rate of 36.1 percent(CIDP 2023-2027). The projected persons with Disabilities were 68,421 in the County as at 2022.Most households rely on wood- based fuels that emit substantial GHGs and particulate matter during cooking. There is need for community empowerment and ownership of the projects in this plan for successful implementation. These projects should be geared towards promotion of green and clean energy alternatives.

3. CHAPTER THREE POLICY AND LEGAL FRAMEWORK

The Kakamega County Climate Change Action Plan 2023-2027 is informed and guided by key global, regional, national, and county climate change adaptation and/or targets, frameworks, policies, legislations, and aspirations. This section specifies some of the key governance instruments context informing this plan and its linkage to various development plans. These are captured at three levels including international, national and county:

3.1. Enabling Policy and Legal Framework at international level

There exist frameworks that provide the basis for concerted international action to mitigate climate change and to adapt to its impacts. Its provisions are far-sighted, innovative and firmly embedded in the concept of sustainable development as described hereunder:

3.1.1. Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016. The Paris Agreement works on a five-year cycle of increasingly ambitious climate action or, ratcheting up carried out by countries. Since 2020, countries have been submitting their national climate action plans, known as nationally determined contributions (NDCs). Each successive NDC is meant to reflect an increasingly higher degree of ambition compared to the previous version. As a county Government, we have been submitting our County Determined contributions to inform the NDCs.

3.1.2. United Nation Framework on Climate Change

The international response to climate change is founded upon the 21st Conference of Parties to the United Nation Framework on Climate Change (UNFCC-Cop 21). The aim was to strengthen the global response to the threat of climate change by keeping global temperature rise this century well below 2°C above pre-industrial levels. Under this convention, each country committed a set of actions known as the "Nationally Determined Contributions" aimed at combating climate change through establishment of policy and legal frameworks. Kenya ratified the UNFCCC in 1994 and set out actions to contribute to achieving the global goal. The County has been actively participating in development of the second NDC that was submitted to UNFCCC and reports on the County Determined Contributions.

3.1.3. Sustainable Development Goals

The Agenda 2030 on Sustainable Development Goals emphasizes the global commitment to address climate change with goal 13 addressing the need to take urgent action to combat climate change and its impact. The county is obligated to mainstream the SDG in CIDP and other Development blue print.

3.1.4. East African Community Regional Climate Change Master Plan 2011-2031

East African Community Regional Climate Change Master Plan 2011-2031 serves as a blueprint to guide regional climate change response measures in the long term. This will help deal with Trans-boundary climate change issues.

3.2. Enabling Policy and Legal Framework at national level

Kenya has shown commitment to protect the climate system for the benefit of the present and future generations by supporting the United Nations Framework on climate change. This has been exemplified in the constitution and other frameworks on climate change.

3.2.1. Constitution of Kenya 2010

The Constitution of Kenya 2010 established a devolved system of government and specifies the distribution of functions between the national and county governments, as set out in the fourth schedule. As set out in Article 2(6) of the Constitution of Kenya (2010), international convention such as the Paris Agreement forms part of the laws of Kenya. The County Governments in accordance to Article 185 of the Constitution and County Government Act (2012) are empowered to develop county legislations hence regulate devolved functions provided for in Article 186. The county is expected to implement specific national government policies on soil and water conservation and forestry.

3.2.2. Climate Change Act 2016

This is the main legislation guiding Kenya's climate change response through mainstreaming climate change into sector functions, and it is the legal foundation of the NCCAP. It recognizes the complementary role between the County governments and National governments in the management of climate change matters. In addition, climate change impacts are localized placing county governments in a vantage point to identify and address them. A key objective of the Climate change Act 2016 is to integrate climate change governance between the county and national governments and also establish institutions mechanisms to mainstream climate change matters at both national and county levels. The Act requires Counties to mainstream implementation of the National Climate Change Action Plan in the development of the County Integrated Development Plan and the County Sectoral Plans.

3.2.3. National Climate Change Policy (2018)

The Policy was developed to facilitate a coordinated, coherent, and effective response to the local, national and global challenges and opportunities that climate change presents. This is achieved through the adoption of a mainstreaming approach that ensures integration of climate change considerations into the development planning process, budgeting, and implementation in all sectors and at all levels of government. In its entirety, the Policy aims to enhance adaptive capacity and build resilience to climate variability and change while promoting low carbon development pathways.

3.2.4. The National Climate Change Response Strategy 2010

This was formulated by the Country to respond to the challenges and opportunities posed by climate change by strengthening and directing actions towards climate change adaptation and GHG emission mitigation. This was to be achieved by ensuring commitment and engagement of all stakeholders while taking into account the vulnerable nature of Kenya's natural resources and society.

3.2.5. Kenya Vision 2030

This is an economic blueprint that seeks to create "a globally competitive and prosperous nation with a high quality of life by 2030". The Vision is anchored on three key pillars: economic; social; and political. As a climate change adaptation measure, vision 2030 aspires to conserve water sources and initiate new ways of harvesting and using rainwater, underground water, and increasing acreage under irrigation. The Plan envisages the rehabilitation of hydro-meteorological data gathering networks; construction of multipurpose dams and increasing tree cover by planting at least seven billion trees to address food, water, and energy security. All efforts are incognizant of the fact that the Country is water-scarce amid the increasing water demand. The County Government of Kakamega has contextualized vision 2030 in Kakamega County Vision 2030 as a framework that will contribute to the realization of the strategic goals.

3.2.6. National Climate Change Action Plan (NCCAP) 2018-2022

This was a framework linked to the "Big Four agenda" to enable Kenya to reduce vulnerability to climate change and to improve ability to take advantage of the opportunities that climate change offers. NCCAP 2018-2022 sets out a vision for a low carbon climate-resilient development in a manner that prioritizes adaptation. This plan builds on the first Action Plan (2013-2017) and 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). The Plan guides the climate actions of the National and County Governments, the private sector, civil society, and other actors as Kenya transitions to a low carbon climate-resilient development pathway.

3.2.7. Climate Change Plans

Kenya developed the first NCCAP (2013-2017), National Adaptation Plan (NAP 2015- 2030), Kenya Climate-Smart Agriculture Strategy (2017-2027), Climate Risk Management Framework (2017), and National Climate Finance Policy (2018), among other sector plans and policies that address aspects of climate change.

3.3. Enabling Policy and Legal Framework at county level

The county of Kakamega identifies climate change as a threat to development milestone achieved since devolution. Various policy and legislative framework have been developed as illustrated below:

3.3.1. Kakamega County Integrated Development Plan (CIDP 2023-2027)

The CIDP 2023-2027 commits to integrate climate change risks and adopt clean energy pathway through investment in renewable energy technologies. All key sectors affected by climatic hazards have mainstreamed climate change to make them resilient to the climatic effects. The CIDP has been tailored to implement national policies on climate change to enhance community resilience to climate change impacts through promotion of climate change adaptation and mitigation programmes. The target is particularly in agriculture, public works, environment, land use, water, energy, natural resource management and education sectors among others.

3.3.2. Departmental Strategic Plan (2018-2022)

The County Department of Water Environment and Natural Resources has developed a strategic plan with climate change mitigation and adaptation as a key thematic area with programs aimed at enhancing community-based resilient initiatives. This includes strengthening locally led climate change projects. To strengthen compliance and governance, the department targets to develop and institutionalize key County policies and legislative framework related to Climate change as illustrated in table 3.1 below.

Table 3.1: Climate plans and regulations at county government level

County Framework	**Description**
County Integrated Development Plan 2023-2027.	This is the County's five-year plan to guide development. It is required that the plan mainstream climate change.
County Annual Development Plan 2023/2024	Provides for mainstreaming of green economy considerations in all capital projects.
Kakamega County Climate Change Policy 2020	The Policy proposes a legislative framework to institutionalize climate change management as well as facilitate flow of climate finances from national and international sources to finance locally led projects.
Kakamega County Water Policy 2018	Provides for rain water harvesting, bulk water harvesting and use of clean energy such as solar.
Kakamega County Water Master Plan 2018-2022	Provides a framework for handling storm water, rain water harvesting, conservation of water catchment areas and bulk water harvesting.
Kakamega County Climate Change Act 2020	The Act provisions for establishment of County Climate Change Fund; Climate change governance structures; climate change adaptation and mitigation plans; and up scaling of climate information services
Kakamega County Water Act 2019	The Act provides for the development, regulation and management of County public works related to water and sewerage services, storm water management systems, water conservation and for connected purposes.

Kakamega County Climate Finance Act 2020	The Act provides for climate finance mobilisation, management, reporting, monitoring and evaluation and climate change governance and climate information services
Kakamega County Environment Management Act 2019	The Act provides for a clean and healthy environment by abating air pollution among other environmental hazards.
Kakamega Natural Resource Management Act 2023	Provides for optimal and sustainable utilization on county natural resources

4. CHAPTER FOUR: PRIORITY CLIMATE CHANGE ACTIONS

The priority Climate Change actions were identified during the Participatory Climate Risk Assessment undertaken in all the sixty Wards. This was an inclusive process where a total of 443 community members participated in identification of climate hazards and risks as well as developing community climate actions as coping strategies against the identified risks. From the total participants, 164 were women and 279 were men. The vulnerable community was represented as follows: 13.5% Persons with Disability (PWDs); 28% Youth and 8.4% elderly. From the total participants 67.7% were the vulnerable groups (PWDs, Youth, Women and the elderly).

4.1. Identification of Priority Climate Change Actions

The KCCCAP 2023-2027 takes into consideration the impacts of climate change on the county's socio-economic context. It integrates the proposed strategic actions and the County Departmental Annual Plans, CIDP, the Bottom-Up Economic Transformation Agenda 2022-2027, Vision 2030 and the SDGs. Adaptation actions prioritized in this KCCCAP are as a result of the devastating impacts of climate change experienced in County in the recent past as identified by the community during the Participatory Climate Risk Assessment. These effects include; flooding along Rivers and in urban areas, shifting of planting seasons, prolonged dry spells and emergence of new pests, parasitic plants and diseases. The community also identified their assets and resources including forests, rivers, wetlands which are affected by climate change. This Therefore, the actions in this KCCCAP are geared towards contribution to achieving sustainable development as well as empowerment of vulnerable groups, including women, the youth, persons with disabilities, and members of marginalized and minority communities to build their resilience. The outcomes of the implementation of these actions will include increased agricultural productivity, increased access to affordable and clean cooking energy, improved access to water and climate proofed infrastructure which will enhance the adaptive capacity of the community.

4.2. Priority Climate Change Actions

This section outlines the priority climate change actions envisaged in KCCCAP 2023-2027 for implementation in the County from 1st July, 2023 to 30th June 2027. The actions will:

- Enable county departments dealing with sectors affected by climate change to concentrate efforts towards achieving climate change adaptation and mitigation objectives.
- Support achievement of the Bottom-Up Economic Transformation Agenda 2022-2027, Vision 2030 and Sustainable Development Goals related to climate change.
- Enhance the adaptive capacity and build resilience of communities, with emphasis on vulnerable groups in the society.
- Require to be undertaken in a way that limits GHGs emissions, to ensure a clean carbon pathway development.
- Require climate action to be undertaken in an integrated manner that includes all stakeholders ranging from the research institutions, academia, county departments, the civil society, the private sector and the community.

- Require that the proposed actions be locally driven to ensure community involvement and ownership of the projects.

Table 4.1: Priority Climate Change Actions per sector

Priorities	**Objectives**
Disaster Risk (Floods and Drought) Management	Reduce risks that result from climate-related hazards/disasters, such as prolonged dry spell and floods, to communities and infrastructure.
Food and Nutrition Security	Increase food and nutrition security through enhanced productivity and resilience of the agricultural systems, in as low-carbon a manner as possible.
Water and the Blue Economy	Promote multiple use of water sources, enhance the resilience of the water sector by ensuring access to clean water for domestic use, and efficient use of water for agriculture, manufacturing, domestic, wildlife, and other uses, and conservation of water resources
Forestry, Wildlife and Tourism	Increase forest cover to 10% of total land area, increase the resilience of the wildlife and tourism sectors, and rehabilitate degraded lands, including forest lands, riparian land and hill slopes. Promote adoption of renewable energy to reduce overreliance on fuel wood.
Health, Sanitation and Human Settlements	Reduce incidences of malaria, zoonotic and other vector and water diseases that are projected to increase because of climate change, encourage climate-resilient solid waste management, and promote climate resilient buildings and settlements.
Manufacturing	Improve energy and resource efficiency in the manufacturing sector, promote uptake of renewable energy in the sector.
Energy and Transport	Climate-proof energy and transport infrastructure, promote renewable energy development, increase the uptake of clean cooking solutions, and develop sustainable transport systems.

For each priority action, information is included on the problem being addressed, the action required to address the problem, expected results, indicators, alignment with the Bottom-Up Economic Transformation Agenda 2022-2027, the SDGs, and relevant institutions to deliver the actions.

The KCCCAP 2023-2027 recognizes that certain actions are enabling and cross-cutting. These include; improving the legal and policy frameworks, capacity building and enhancing knowledge management, promoting technology and innovation, increasing access to climate finance, measuring and reporting on climate actions.

4.3. Alignment with other development agenda

a) The Bottom-Up Economic Transformation Agenda 2022-2027

The blue print prioritizes five sectors that form the core pillars of the strategy. This includes:

- Agriculture
- Micro, Small and Medium Enterprise (MSME) economy
- Housing and Settlement
- Healthcare
- Digital Superhighway and Creative Economy

On Environment and climate change the strategy commits to reduce emissions by 32 per cent by 2030. Key issues include climate change, impact mitigation, adaptation and resilience. The constitutional mandate to ensure at least 10 per cent land area forest cover calls for ecological sustainable development. It prioritizes value chains that include Biomass energy (wood fuel), agro-forestry and solid waste management.

b) Sustainable Development Goals (SDGs)

Relevant SDGs include; **Goal 1:** No Poverty; **Goal 2:** Zero Hunger; **Goal 3:** Good Health and Well-Being; **Goal 4:** Quality Education; **Goal 5:** Gender Equality; **Goal 6:** Clean Water and Sanitation; **Goal 7:** Affordable and Clean Energy; **Goal 8:**Decent Work and Economic Growth; **Goal 9:** Industry, Innovation and Infrastructure; **Goal 10:**Reduced Inequalities; **Goal 11:**Sustainable Cities and Communities; **Goal 12:** Responsible Consumption and Production; **Goal 13:** Climate Action; **Goal 14:** Life below Water; **Goal 15:** Life on Land; **Goal 16:** Peace, Justice and Strong Institutions and **Goal 17:** Partnership for the Goals.

4.3.1. Climate Change Priority 1: Disaster (prolonged dry spell and Flood) Risk Management

The county faces four related climate change hazards including heavy/erratic rainfall-floods, prolonged dry spell, landslides and lightening. These can impede the realization of the CIDP and other climate change relevant plans.

The increasing population has resulted in encroachment into riparian land and fragile ecosystems. Settlements in places such as Khuvasali, Ileho and Chebung'amayi hills are prone to landslides. In urban areas, the most affected populations are the urban poor, who tend to live along river banks in places such as Jua Kali in Kakamega town that is steep and exposed to storm water. The existing structures are unstable and are vulnerable to collapse during heavy rains because of high velocity of urban runoff. This area is developed haphazardly, is in the waterway and the upper area is a water spring. The urban runoff due to erratic rains also causes erosion of such areas resulting into siltation and flooding downstream. Other hazards related to heavy rainfall include strong winds and lighting. Strong winds destroy crops and property. Lighting is experienced in Lugari, Shinyalu, Likuyani and Navakholo and has contributed to loss of life, damaged infrastructure, livestock and people life and caused permanent land degradation.

a) Impacts of Climate hazards on communities and the economy

Climate disasters is a serious disruption of the functioning of a society, causing major human, property, or environmental losses which exceed the ability of the affected society to cope using its own resources. Climate change is projected to increase the extent, intensity, and frequency of natural disasters. Kakamega County faces several climatic hazards namely prolonged dry spell, heavy rainfall, emergence of pests and diseases and landslides.

Prolonged dry spell causes a shift in the farming seasons, cause crop failure, shrinking/loss of productive crop areas, loss of biodiversity, and low yield of animal products, which impact heavily on vulnerable groups. It also causes water scarcity, as a result of drying springs, wells and boreholes in turn affecting people, farming, manufacturing, livestock and wildlife.

Heavy rainfall increases likelihood of floods, hailstorms, landslides, and lighting occurrences. This has more immediate impacts because can lead to displacement of people, destruction of infrastructure, loss of lives and properties and in some cases contribute to increased cases of poverty. For instance, there was floods along River Yala in Khwisero sub-county and River Nzoia at Shibale in Mumias sub-county where residents were displaced after the rivers bursts its banks. Movement from Kakamega to Bungoma and Busia counties was also disrupted after water gushing out of River Nzoia damaged parts of the road at Shibale Bridge.

b) Interventions for Climate-Related Disasters

The KCCCAP 2023-2027 gives priority approaches to climate-related hazards. The proposed measures are aimed at Disaster Risk Reduction to increase the resilience of the community through strengthening of the adaptive capacity of people to cope with impacts of climate change and build community resilience. The priority actions include flood and prolonged dry spell early warning systems, including at the community level; implementation of flood management plans particularly bulk water harvesting and storage, installation of lightening arrestors in lightening prone areas, construction of drainage channels, creation of buffers zones to avoid settlement in fragile ecosystems, reforestation and rehabilitation of riparian areas, and construction of small dams; the community sensitization on ecosystem conservation to ensure DRR.

The County Government of Kakamega has established Disaster unit. This coordinates Disaster management through provision of disaster relief supplies and support in rehabilitation of destroyed infrastructure. In conjunction with different NGOs, donors and semi-autonomous government agencies, the unit is implementing Disaster Risk Management, humanitarian and advocacy campaigning programmes in all sub counties prone to lightening, flooding, landslides and other health emergencies. The CGK is also implement Disaster Risk Reduction programme and policies spearheaded by the National government.

Strategic Objective 1: Build capacity for mitigation and resilience against the impacts of climate related disasters.

Problem

The quantity and quality of water is projected to decline because of climate change. The major Climate change impacts particularly prolonged dry spell and flooding need to be addressed. With increased demand for scarce water resources for domestic and farming needs amid weak

enforcement of regulatory frameworks, result in encroachment on fragile ecosystems including wetlands, hilltops and forests thus increase vulnerability to climate hazards.

c) Integration with national and international priorities

a) The Bottom-Up Economic Transformation Agenda 2022-2027

The planned interventions will enhance progress towards the achievement of all the six Pillars; Agriculture, Micro, Small and Medium Enterprise (MSME) economy, Housing and Settlement

Healthcare and Digital Superhighway and Creative Economy by ensuring that climate-related disasters do not destroy resources and expose people to disasters. This will ensure reduced exposure and vulnerability of the county, especially of the poor and vulnerable groups, to climate disasters and shocks.

b) Sustainable Development Goals

Relevant SDGs include **Goal 1:** No Poverty; **Goal 2:** Zero Hunger; **Goal 6:** Clean Water and Sanitation; **Goal 11:** Sustainable Cities and Communities; and **Goal 13:** Climate Action

Problem to be addressed

Floods have national economic consequences, and extensive socio-economic effects at the household and community levels, especially for vulnerable groups, such as women, older members of society, persons with disabilities, children, youth, and members of marginalized and minority communities. Current responses are reactive rather than proactive, and impeded by inadequate early warning systems, lack of disaster management coordination, and limited support to build disaster preparedness.

Key Performance Indicators

- Acreage of fragile ecosystems rehabilitated
- Number of trees planted in fragile ecosystems
- Number of households given alternative livelihoods
- Number of households receiving donations
- Number of households resettled
- No. of household's capacity build on disaster management
- Number of households affected by climate related disasters
- No. of water harvesting and storage systems installed
- No. of plans developed
- Risk Management Strategy developed
- Average time to respond to disasters
- Implementation report of the Climate Information Service plan
- GIS laboratory equipment purchased and installed
- Financial statements

Table 4.2: Actions to realize the strategic objective 1

Action	Expected Results by 2027	Adaptation/mitigation/Enabling
Enhance resilience of vulnerable populations to climate related shocks	• Acreage of fragile ecosystems rehabilitated increased to 500 Ha. • Number of households given alternative livelihoods in disaster prone zones. • Number of households able to cope with disasters by receiving donations increased by 30%. • Undertake resettlements of HH from fragile ecosystems by 200 HH. • Number of trees planted in fragile ecosystems increased to 5M. • Number of households capacity build on disaster management increased to 600 households.	Adaptation
Improve the ability of people to cope with climate related disasters	• People-centred early warning systems developed. • Number of recipients of climate information services who use the information in their risk management decisions increased from 2000 to 200,000 • Bulk water harvesting and storage facilities increased from 10 to 20	Adaptation
Improve the coordination and delivery of disaster risk management.	• Improve the coordination of disaster risk management, including of floods, prolonged dry spell, disease outbreaks, landslides, and other disasters by reviewing the Kakamega County Disaster Risk Management Act; • Engendered County Disaster Risk Management plan; • Committees to coordinate disaster response at County levels; • Disaster Risk Management Fund to provide funds for disaster preparedness, mitigation of disaster impacts, and disaster recovery measures, particularly for vulnerable groups.	Enabler
Technology and knowledge management.	• Implementation of County climate information service plan. • Invest in GIS laboratory to utilize modern data tools to map vulnerability areas.	Enabler
Enabling finance	• Contingency Fund allocations within Climate change finance to address urgent and unforeseen needs	Enabler

Relevant Institutions

The sectors that will be essential to realize the strategic objective include: the County Treasury and Planning, Kenya Metrological Department, County Department of Public Administration, County Department of Water Environment and Natural Resources, Lake Victoria North Service Board, Water Resources Authority (WRA), Water Resource Users Associations, community groups, Public Benefit Organizations, civil society and the private sector.

4.3.2. CLIMATE CHANGE PRIORITY 2: FOOD AND NUTRITION

Climate change has the potential to prevent achievement of the Bottom-Up Economic Transformation Agenda item particularly Agriculture. This sub-section highlights how food insecurity is increased by climate change and, the win-win solutions for the climate, agriculture, and food security.

Agriculture is the main stay means of the people of Kakamega contributing to 52.2 percent of the Gross County Product. During the period under review, the sector purposed to improve food security through increased crops, livestock, and fisheries production

a) Increased Food Insecurity due to Climate Change

Food security is underpinned by effective food systems, which are a set of dynamic interactions between and within bio geophysical and human environments. They include a number of activities (producing food; processing, packaging and distributing food; and retailing and consuming food), which lead to a number of associated outcomes some of which contribute to food security (i.e., food availability, access to food and food utilization) and others which relate to environmental and other social welfare concerns. Since food security is diminished when food systems are disrupted or stressed, food security policy must address the whole food system.

In Kakamega County big percentage of the County's population is dependent on rain fed agriculture. The sector is highly susceptible to climate variability, including temperature rise, changes in precipitations, and extreme climate events. Extreme variability causes poor plant growth, on farm loses and poor crop productivity. An incidence such as excessive rainfall and floods causes post-harvest loses. The county's economy is dependent on agriculture. The manufacturing factories in the county for instance sugarcane processing, proposed dairy plant, maize meal and tea factory rely/or will rely on agricultural raw materials which are greatly affected by climate change. Dry spell cause shortage of pasture and water affecting production of livestock.

b) Climate-smart, nutrition-sensitive mitigation and adaptation to protect nutrition

Climate-smart food systems engage producer and consumer decision making through "triple win" scenarios that improve food productivity and minimize loss, reduce GHGs from agriculture, and implement adaptation strategies for the most vulnerable. Producers can grow more nutrient-rich foods, such as fruits, vegetables, and legumes, while reducing food losses and curbing GHGs. Food companies can create more nutritious processed products. Consumers can also make better choices: they can buy and eat only what is needed as every year nearly one-third of the food produced globally is wasted.

In low-income countries, both processors and consumers can use food processing and preservation techniques that ensure food safety and nutrition while minimizing the need for cold storage. The entirety of the food supply chain as well as each link in the chain can be "nutrition sensitized" to ultimately increase the consumption of nutritious food. The way food is produced and passed along the supply chain creates both entry and exit points for nutrition. These entry points can enhance, restore, or prevent losses in the nutritional value of foods during processing. Entry points can also raise awareness among different actors in the supply chain to stimulate demand for nutritious products. However, entry points can just as easily become exit points when nutrients are removed from foods as they move along the chain. Economic constraints, lack of knowledge, and related lack of demand are critical factors that limit the access of poor populations to nutritious foods.

Agriculture must be "smarter" in the context of climate change: it needs to be sensitive to food and nutrition needs, while also minimizing negative effects on climate. Both the Sustainable Development Goals, adopted in 2015, and the Paris Climate Agreement of 2015 under the United Nations Framework Convention on Climate Change call for significant action on climate change. Climate-smart agriculture is an effective means of responding to this call and reducing the sector's impacts on climate change. Though costly, sustainable development must include interventions that jointly promote climate-smart agriculture, health, nutrition, and environmental resilience.

The effects of climate change can exacerbate undernutrition at all stages of chain: they decrease agricultural yields, affect the nutritional quality of crops, limit access to food, increase foodborne pathogens, and necessitate greater cold storage.

Climate-smart agriculture is one promising approach to address the challenges from climate change, but more action is needed to link climate-smart approaches to diets and nutrition—especially for the most vulnerable. Moreover, agriculture needs to be not only climate-smart, but also gender- and nutrition-sensitive. Governments, nongovernmental organizations, and the private sector must act to maximize nutrition in the face of climate change. These actions must target the urban and rural poor in low- and middle-income countries because they will be the most affected by climate change and the least able to respond on their own. It is also essential to evaluate the unique needs and priorities of each situation and recognize the trade-offs inherent in these actions.

c) Win-Win Solutions for the Climate, Agriculture, and Food Security

Agriculture is the county's backbone for food security, rural livelihoods, and poverty alleviation. Increasing food security requires climate change-response actions that revolve around the agriculture sector relating to crops, livestock and fisheries which should integrate climate. Our farming techniques, produce processing and storage should ensure low carbon emissions.

This CCAP provides actions to increase production in a varying climate for the achievement of the Bottom-Up Economic Transformation Agenda 2022-2027 pillar of Agricultural Transformation and Inclusive Growth by increasing productivity and enhancing resilience of the agricultural systems. This will be achieved by promoting large-scale production, investing in climate resilient crop species, crop diversification, sustainable land management, reduction in post-harvest losses and multiple use of water to include irrigation and storm water harvesting for

irrigation. These actions will have focused interventions to address gender because women account for the biggest percentage of labour in the agriculture sector.

Ongoing initiatives such as the Kenya Climate Smart Agriculture (CSA) Strategy, 2017-2027 are vital in addressing climate change impacts in this sector. The program seeks to enhance the adaptive capacity and resilience of farmers and minimize GHG emissions from agricultural production systems.

d) Climate change mitigation in agriculture emissions

1. Cropland management

   a) Avoiding bare fallow: Bare soil is prone to erosion and nutrient leaching and contains less carbon than the same field with vegetation. An important solution is 'catch' and 'cover' crops, which cover the soil in between the actual crop or in fallow periods, respectively.
   b) Using an appropriate amount of N fertilizer by avoiding applications in excess of immediate plant requirements, by applying it at the right time and by placing it more precisely in the soil. Reducing the reliance on fertilizers by adopting cropping systems such as use of rotations with legume crops has a high mitigation potential.
   c) No burning of crop residues in the field.
   d) Reducing tillage: While the carbon benefits from no-till agriculture in industrial farming settings maybe offset by increasing reliance on herbicides and machinery, there are some preliminary study results which show that reduced tillage without the use of herbicides in organic systems has positive benefits for carbon sequestration in the soil.

2. Grazing land management such as reducing grazing intensity or reducing the frequency and intensity of fires (by active fire management). These measures typically lead to increased tree and shrub cover, resulting in a CO_2 sink in both soil and biomass.
3. Restoration of organic soils that are drained for crop production and restoration of degraded lands to increase carbon sinks, avoid drainage of wetlands and carry out erosion control.
4. Lower but still significant mitigation is possible with set-asides, land use change (e.g., conversion of cropland to grassland) and agro-forestry; as well as improved livestock and manure management.

Strategic Objective 2: *To Increase food and nutrition security by enhancing productivity, resilience and low carbon pathway development of the agricultural sector*.

Problem to be addressed

Climate change instances such as shifting farming seasons and erratic rains with prolonged dry periods are threats to food security as they negatively impact crop and animal production. A climate disaster such as prolonged dry spell and floods causes on-farm and post-harvest loses.

a) **Integration with national and international priorities**
   a) Kenya Vision 2030

To achieve the objectives of Kenya Vision 2030, agriculture is expected to be innovative, commercially oriented and modern. The Vision also states that the country aims to be a nation that has a clean, secure and sustainable environment. It provides for an increase of 4% in forest cover and to lessen by half all environment-related diseases. The Vision has provided for flagship projects in water catchment management, land cover and land use mapping and specific programs in agricultural development, and investment in renewable sources of energy. The implementation of Vision 2030 will lead to the achievement of Sustainable Development Goals (SDG) through programs envisaged in social, economic and political pillars.

b) Agriculture Sector Development Strategy (ASDS) 2010-2020

The ASDS is the blue-print of the agricultural sector to implement Vision 2030. It sets out a detailed plan to "position the agricultural sector as a key driver for delivering the 10% annual economic growth rate envisaged under the economic pillar of Vision 2030". It envisions "a food-secure and prosperous nation" and aims to increase productivity; commercialization and competitiveness of agricultural commodities and enterprises; and develop and manage key factors of production. The Strategy advocates for sustainable land management and scaling up of appropriate technologies suitable for areas prone to prolonged dry spell. It further proposes programs for mitigation and adaptation to climate change.

c) Water Master Plan Towards 2030

The plan recognizes that the country has not fully developed her irrigation potential estimated at 1.342 million hectares. This is based on surface and underground water including water harvesting and storage. It identifies that approximately 12% of the potential has been equipped with irrigation infrastructure, presenting an opportunity to increase productivity to meet the rising demand for food and other agro-products. However, it proposes formulation of irrigation development programmes and financing to build infrastructure and a well-equipped human resource capacity for sustainable operations and management. It also proposes the establishment of an institutional arrangement for efficient management and coordination to facilitate enhanced participation of stakeholders so as to embrace business-oriented irrigated agriculture.

d) National Land Policy (2007)

The policy focuses on sustainable and equitable use of land. It requires actions to address environmental problems such as land degradation, soil erosion and pollution. The policy stipulates the principles of conservation and management of land based natural resources; protection and management of fragile and critical ecosystems including wetlands and arid lands. The policy further calls for extensive overhaul to current policies and institutions in an attempt to address chronic land tenure insecurity and equity. The overall objective of the policy is to secure rights over land and provide for sustainable growth, investment and reduction of poverty in line with the Government's overall development objectives. This policy was developed through extensive stakeholder consultations and most policy recommendations are reflected in the Constitution of Kenya, 2010.

b) Integration with national and international priorities

Enhanced progress toward the achievement of food and nutrition security agenda.

Sustainable Development Goals

Relevant SDGs include Goal 1: No Poverty; Goal 2: Zero Hunger; Goal 3: Good Health and Well-Being; Goal 12: Responsible Consumption and Production and Goal 13: Climate Action.

Key Performance Indicators

- Number of farmers with crop/livestock insurance
- No. of farmers trained on CA
- No. of farmers practicing Conservation Agriculture
- No. of pests and disease incidences reported.
- No. of farmers trained on pre- and post-harvest management.
- No. of groups/cooperatives supported on value addition
- No. HH adopting soil conservation structures.
- No. of HH trained, accessing and using weather and climate information.
- No. of farmers with 10% farm forest cover
- No. of HH producing traditional foods.
- Hectares of crop under irrigation, drainage and practicing smallholder irrigation.
- Hectares under climate resilient fodder crop.
- No. of farmers accessing subsidies.
- No. of operational milk coolers
- No. of dams stocked and cages for fish farming
- No. of de-silted dams stocked and cages for fish farming
- No. of climate resilient fish ponds.
- No. of systems developed
- No. of households supported to diversify livelihoods

Table 4.3: Actions to realize the strategic objective

Action	**Expected Results by 2027**	**Adaptation/ Mitigation/ Enabling**
Enroll farmers to crop/livestock insurance	• Increased number of farmers enrolled to crop/livestock insurance	Adaptation
Farmers training on CA, Fall army worm management and production of organic fertilizers	• Increased number of farmers practicing CA	Adaptation

Action	Expected Results by 2027	Adaptation/ Mitigation/ Enabling
Carry out integrated Pests and disease control program	• Reduced incidences of pests and diseases	Adaptation
Train farmers on pre- and post-harvest management	• Reduced pre- and post-harvest loses	Adaptation
Formation of support groups/cooperatives on value addition	• Increased agricultural produce processing and marketing.	Adaptation
Promote soil and water conservation initiatives	• Reduced soil erosion and pollution	Adaptation
Dissemination of weather and climate information (diversify media/ use of local languages)	• Improved usage of climate information	Adaptation
Promotion of agro-forestry	• Increased farm forestry	Adaptation
Promotion of tradition foods	• Improved traditional food production	Adaptation
Construction of climate resilient irrigation and drainage infrastructure	• Increased production under irrigation	Adaptation/Mitigation
Train farmers on production of climate resilient fodder	• Increased fodder production	Adaptation
Provision of farm subsidies	• Increased number of farmers accessing subsidies	Adaptation
Distribute and operationalize climate friendly milk coolers	• Reduced milk losses	Adaptation
Caging of rivers, ponds and dams	• Increased fish production in cages	Adaptation
De-silting of dams and stocking	• Increased number of dams stocked	Adaptation
Establish climate resilient fish ponds	• Improved fish production from ponds	Adaptation/Mitigation
Establish re-circulating aquaculture system	• Reduced carbon in aquaculture system	Adaptation
Training households on diet diversification	• Improved diet diversification	Adaptation

Institutions

Department of Agriculture, DWENRCC and Natural Resources, WRA, KFS, KMD, KALRO, Private sector, ICRAF, ILRI, farmer groups, Faith Based Organizations, Community Based Organization, Research Institutions, and self-help groups.

4.3.3. CLIMATE CHANGE PRIORITY 3: WATER AND THE BLUE ECONOMY

Kakamega County is endowed with water resources both surface and ground except for the northern region which has less surface water sources. The main sources of water in the County are rivers, streams, dams, springs, boreholes and shallow wells.

This KCCCAP addresses one of largest challenges, which is dwindling water resources. The decline in access to quality water is exacerbated by climate change, and its associated prolonged dry spell, lack of climate resilient infrastructure; inadequate water harvesting systems to meet the demand/population; degradation of water catchment areas; pollution of existing sources; increased levels of siltation in our water reservoirs; flooding that led to destruction of water systems; and prohibitive costs of infrastructure development, repair and maintenance. Lack of access to quality water has the potential to undermine achievement of The Bottom-Up Economic Transformation Agenda . Water is also linked to the Blue Economy, which refers to the "sustainable use and economic development of both aquatic and marine spaces, including lakes, rivers and underground water" to enhance livelihoods.

a) Dwindling water resources

Approximately 80 percent of the population access clean and safe water from 71.3 percent and there are plans to increase the number of households accessing piped water schemes down from 10.1 percent to 40 percent of the population in the county. The majority of the population access water from improved sources (CIDP 2023-27). The County is endowed with water resources however climate change is a threat to future availability of this resource. Prolonged dry spell and anthropogenic activities such as deforestation, land degradation, low storage capacity, growing demand for water and high pressure on our water resources including aquifers is threatening our water resources. As a result, rivers are reducing their flow, dams and water pans are silting, and water quality is deteriorating. Erratic rains due to climate change have affected water supply, increased costs of acquiring water and lowered the hygiene standards with severe impacts on food production. In the year 2018, the county experienced prolonged dry spell resulting in drying of many rivers which impacted the quality and quantity of water in both rural and urban areas. Most communities dependent on agriculture were exposed to food insecurity due to reduced incomes from water reliance productive activities.

Climate change also impacts the Blue Economy. Climate change is driving changes in the composition of species assemblages, the abundance, biomass and distribution of species, fish yields and the efficiency of fishing methods and gears. Increase in water flows may result in siltation which may contribute to reduced Dissolved Oxygen that suffocates aquatic organisms including fish. Climate change is not the only threat or stressor on a fisheries system but is an additional, possibly unidirectional one, adding to what is typically a range of other stressors and uncertainties from anthropogenic and natural causes including overfishing, pollution, habitat loss, competition for space and environmental variability. Flooding leads to rise in water levels

submerges fish ponds, estuaries and swamps destroying aquatic breeding grounds. Increased water temperatures are not ideal for fish breeding. Changing rainfall patterns leads to water scarcity thus threat to diminish aquatic ecosystems.

b) Ensuring Access to Quality Water for All

The KCCCAP 2023-2027 seeks to increase bulk water harvesting and storage strategies. This will be achieved through development of climate proofed water infrastructure e.g., water harvesting infrastructure, gravity water schemes, and use of green energy technologies in water pumping. The Plan proposes concrete actions to enhance the resilience of the water sector, by ensuring adequate access to, and efficient use of water for agriculture, manufacturing, domestic use and other uses. Conservation of water catchment areas ensures sustainability of water resources. Efficient use of water for example adoption of climate resilient methods of farming such as drip irrigation; climate proof water and sewerage treatment facilities and public education on water conservation and management will be over emphasized. Large volumes of treated water are lost at the household level where treated water ends up in gardens or septic tank. Efficient water management technologies such as Water catchment protection innovations, Non-Revenue Water Management (NRW), Commercial Financing, smart meter reading, billing and complaints management, solar water pumping and online leakage detection.

The climate actions are expected to result in adaptation; increased water availability through water harvesting and storage infrastructure such as earth dams, bulk water storage tanks, roof catchment in institutions; improved water efficiency, and improved water availability through Climate proof water supply infrastructure and storm water infrastructure.

Strategic objective 3: *To promote sustainable utilization of water, improve access to adequate, safe water and sanitation services for sustainable development*.

Problem to be addressed

Access to, and quality and quantity of, water is projected to decline because of climate change impacts, particularly extreme weather events including prolonged dry spell and extreme rainfall.

c) Integration in national and international frameworks

The Bottom-Up Economic Transformation Agenda 2022-2027

- **Agriculture-** Minimizing overreliance on rain-fed agriculture; promotion of drought resistant crops; dissemination of climate information to farmers and reduction of post-harvest loses.
- **Micro, Small and Medium Enterprise (MSME) economy-** Recycling and reuse of water; and adaption of green energy for pumping water for industrial use.
- **Housing and Settlement-** Roof catchment infrastructure for rain water harvesting; increased water connectivity and improved sanitation infrastructure
- **Healthcare** -Provision of clean and safe water; surveillance of water quality and treatment and safe disposal of waste water

- **Digital Superhighway and Creative Economy**-Water catchment protection innovations, Non-Revenue Water Management (NRW), Commercial Financing, smart meter reading, billing and complaints management, solar water pumping and online leakage detection

Sustainable development Goals

Relevant SDGs include **Goal 13:** Climate Action; **Goal 6:** Clean Water and Sanitation; **Goal 9:** Industry, Innovation and Infrastructure; **Goal 10:** Reduced Inequalities; **Goal 12:** Responsible Consumption and Production; **Goal 14:** Life below Water; **Goal 1:** No Poverty; **Goal 2:** Zero Hunger and Goal **3:** Good Health and Well-Being.

Key Performance Indicators

- Volume of water stored in de-silted dams
- No. dams de-silted
- No. of institutions with water harvesting and storage system
- Area of riparian conserved
- Length in KM of dyke constructed along river banks in flood prone areas.
- No. water projects installed with water solar pumping supplies.
- No. climate proof water infrastructure developed.
- 1200KM of distribution line.
- Water regulation developed.
- No. of awareness forums conducted
- No. waste water treatment units installed.

Table 4.4: Actions to realize the strategic objective

Action	**Expected Results by 2027**	**Adaptation/ Mitigation/ Enabling**
De-siltation of dams	15 dams de-silted	Adaptation and Mitigation
Construction of reinforced concrete water storage tanks	12 No. 3000M^3 storage tanks	Adaptation
Construction of roof catchment in public institutions	3000 No. institutions	Adaptation
Conservation of riparian corridor	120KM of riparian area on major rivers conserved	Mitigation
Flood control	15 KM of dyke constructed along river banks in flood prone areas	Mitigation
Adoption of green energy technologies	50 water projects installed with water solar pumping supplies	Adaptation
Increasing climate proof pipe water supply	1200KM of distribution line	Adaption

Action	Expected Results by 2027	Adaptation/ Mitigation/ Enabling
Developing of policies and regulations	1 No. water regulation	Enabling
Capacity building of WASH actors and staff	60 No. trainings on water resource climate resilience building.	Enabling
Install non-sewered waste water treatment units in Mumias, Malava and Matunda	9 No. waste water treatment units.	Adaptation

Relevant institutions

County Treasury, County DWENRCC and Natural Resources, County Legal office, Lake Victoria North Water Works Development Authority, Kakamega County Urban Water and Sanitation Company, KACRWASCO, Water Resources Authority, National Environment Management Authority, Water Sector Fund, Kenya Water Sector Network, Water Resource Users Association, Kenya Water Towers Agency, Private Sector, Civil Society Organizations.

4.3.4. CLIMATE CHANGE PRIORITY 4: FORESTS, WILDLIFE AND TOURISM

Climate change has emerged as one of the greatest concerns towards forestry since climate determines the distribution of vegetation. Forests play a crucial role as habitats to varied biodiversity, carbon sinks that abate climate change as well as having socio-economic benefits to the human population among other ecological benefits. Therefore, efforts to ensure their protection and sustainable use are necessary.

Kakamega County is endowed with various ecosystems such as forests, wetlands, and hills. These ecosystems are characterized by rich biodiversity, some of which are rare, endemic and threatened fauna and flora. Forests and wetlands are of great hydrological importance since they contribute to large volumes of water into rivers within the county and also influencing the rainfall pattern in the region. Most communities living around the forest entirely depend on the forests and wildlife for livelihoods and fuel wood. However, these ecosystems are being subjected to a lot of pressures such as increase in population size, urbanization, and industrial growth among other development activities, which are degrading the forests at an alarming rate.

Kakamega forest is the only remaining tropical rainforest in Kenya. The forest is a major carbon sink in the county. The current county forest cover is 9.8% which is below the national target by 0.2%. other forests within the county include Malava, Bunyala, Lugari, Misango and Turbo. These are major habitats for wildlife. Kakamega forest is the main tourist attraction centre in the county. Other tourist sites include Crying Stone, Mawe Tatu, Misango Hills and Nabongo Cultural centre.

Climate change is likely to affect these forests resulting in reduced biodiversity and capacity to deliver important ecosystem services. It also shifts the distribution of wildlife species, reduce the population sizes of species, and lead to extinction of some impacting tourism.

a) Multiple **Benefits of Sustainable Management of fragile ecosystems**

These ecosystems are characterized by vegetation which;

- Provide hydrological ecosystem services, such as regulation of storm waters. Vegetation improves infiltration of rainwater, reduce surface run- off, and control soil loss, storing run-off and recharging it to stream.
- Mitigation of the harmful effects of GHG emissions by acting as "sinks" through carbon sequestration.
- These ecosystems are also sources of livelihood to many communities. For instance, wetlands are used as fishing grounds, source of water for domestic uses, vegetation such as reeds are used for art.

Therefore, any actions to combat degradation of these ecosystems and speed up restoration of degraded lands will contribute to economic growth, poverty reduction, and greater food and nutrition security and, help communities to adapt to climate change.

The planned actions in this KCCCAP include:

- **Adaptation**- Sustainably managed forests, increased forest cover, improved management of landscapes, reduced riverbank erosion through riverine vegetation conservation and restoration, and maintenance of ecosystems for wildlife and linking of protected areas.
- **Mitigation** - GHG emission reductions of through forest restoration, afforestation, reforestation, and reduction of deforestation.

Strategic objective 4: *Increase Forest/tree cover to 10% of total land area, rehabilitate degraded lands, protection of fragile ecosystems, conservation of riverbanks, and increase the resilience of the sector to the effects of climate change.*

Problem to be addressed

Encroachment into fragile ecosystems for settlement, agriculture, infrastructure development; deforestation and forest degradation which leads to ecosystem destruction and increased GHG emissions.

b) Integration with national and international priorities

The Bottom-Up Economic Transformation Agenda 2022-2027

- **Digital Superhighway and Creative Economy**- The implementation of the Digital Master Plan will adhere to environmental agreements including Climate change in which Kenya is a signatory;
- **Environment and climate change -** there is a commitment to reduce emissions by 32 per cent by 2030. Addresses key issues such as climate change, impact mitigation, adaptation

and resilience. The constitutional mandate to ensure at least 10 per cent land area forest cover calls for ecological sustainable development

Sustainable development Goals

Relevant SDGs include **Goal 3:** Good Health and Well-Being; **Goal 6:** Clean Water and Sanitation; **Goal 9:** Industry, Innovation and Infrastructure; **Goal 11:** Sustainable Cities and Communities; **Goal 13:** Climate Action; **Goal 14:** Life below Water and **Goal 15:** Life on Land.

Key Performance Indicators

- Percentage of land under forest/tree cover.
- No. indigenous tree nurseries established
- Distance/ area fenced.
- No. of hectares of hill slopes afforested.
- No. of hectares of degraded forest restored.
- Percentage of land under forest/tree cover.
- No. of farmer groups supported in apiculture and value addition
- No. of conservancies established.
- No. of sensitization workshops conducted.
- County Urban and Farm Forest Policies
- County Natural Resource Act
- County Natural Resource Regulations

Table 4.5: Actions to realize the strategic objective

Action	**Expected Results by 2027**	**Adaptation/ mitigation/ Enabling**
Restoration of degraded gazetted forest land	▪ 600 hectares of forest land restored aimed at planting 600,000 indigenous tree seedlings ▪ Establishment of 36 No. indigenous tree nurseries ▪ Fencing of 117 Km Kakamega Forest	Mitigation
Afforestation and re-afforestation outside gazetted forest areas	▪ 200 hectares of hill slopes afforested. ▪ 550 hectares afforested through initiatives such as greening of open public spaces, promotion of agroforestry and edible landscaping, establishment of tree nurseries	Adaptation and Mitigation
Promotion of nature-based enterprises	▪ 300 No of farmer groups supported in aquaponics. ▪ Value addition through promotion of cottage industry such as briquetting, bamboo cottage and bio fuel	Adaptation and mitigation
Establishment of wildlife conservancy	▪ 3 No wildlife conservancy centres established	Adaptation

Capacity of actors on implementation of forest transition plans	▪ 15 sensitizations for a conducted	Enabling
Develop county policies and regulation	▪ County urban and farm forest policies ▪ County natural resource Act ▪ County natural Resource Regulations	Enabling

Relevant Institutions

Kenya Forest Service, Kenya Wildlife Service, Water Resources Authority, National Environment Management Authority, County Departments of Environment and Natural resources, Kenya Water Towers Agency, Kenya Forest Research Institute, Community Based organizations, Faith Based Organizations, conservation groups, research institutions and the community.

4.3.5. CLIMATE CHANGE PRIORITY 5: HEALTH, SANITATION AND HUMAN SETTLEMENTS

Increased cases of climate change contribute in many ways to increase in vector and water borne diseases across the county. Frequency of disease of the respiratory System is higher at- 21.9 percent, followed by Malaria at 15.2 percent and diarrhoea at 3.9 percent. The County also recorded 440 cases per 1000 population on malaria-related deaths in 2019/2020. As per statistics, malaria is the leading cause of deaths in the County and said to increase because of the rising temperatures and increasing cases of flooding in areas around Kakamega forest, and villages along River Yala.

The county has not adequately invested in climate proofing infrastructure including pipelines to enhance waste management. There is existence of open defecation where only 766 villages are declared ODF against a total of 3,036 villages across the County. Cases of Waterborne diseases caused by environmental contamination due to open defecation have slightly reduced in the County as a result of increased latrine coverage which stands at 93% and continuous hand washing practices under community strategy. Waterborne diseases are expected to increase as a result of increase in cases of flooding because usage of pit latrines is not climate proof and therefore increased levels of ground water can easily seep in to such pit latrines. There are only two sewerage facilities in the County i.e. Amalemba and MMUST with approximately 4800 connections which overstretch the capacity of the facilities. In addition, the technology used is inadequate to effectively treat the waste particularly due to increased storm water flows in the treatment ponds.

The volume of solid wastes that is collected in Kakamega town has increased to approximately 42 tonnes per Day, a rate that is faster than that of the county's urbanization. Improperly managed solid wastes could accumulate in areas otherwise intended for water runoff and flood control, major urban areas vulnerable to floods and contaminated water from moderate rainfall, let alone the intense and heavy rains projected due to climate change. Solid waste dumping is done at Rosterman dumpsite which is open and often exposed to run-off during heavy rains. This leads to flow of leachate into water resources exposing the residents to water borne diseases.

The emergence of high-density human settlements including informal settlements namely Al Kareem, Masingo, Majengo, Jua Kali and Scheme Ndogo increases the vulnerability of the residents to the effect of climate change. This is because these schemes lack basic infrastructure including roads, solid waste management facilities and climate resilient drainage infrastructure.

a) Climate-Related Threats to Human Health

Climate change related disasters such as floods create a medium for vector breeding e.g., mosquito that transmits malaria.

Poor waste management increases the vulnerability of communities relying on springs and shallow wells to cases of water borne diseases. This has also resulted in water borne diseases due high rate of seepage into ground water aquifers. Building the climate resilience waste disposal systems and facilities is vital for controlling water pollution from storm water.

Strategic objective 5: *Mainstream climate change adaptation into the health sector, and increase the resilience of human settlements through climate resilient waste infrastructure.*

Problem to be addressed

County's improvements in the control of malaria, water-borne, respiratory diseases 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.

b) Integration with national and international priorities

The Bottom-Up Economic Transformation Agenda 2022-2027

- **Health –**Initiatives in this KCCCAP will ensure that climate change related health risks are reduced for a healthy society.

Sustainable Development Goals

Relevant SDGs include **Goal 3:** Good Health and Well-Being; **Goal 6:** Clean Water and Sanitation; and **Goal 13:** Climate Action.

Key Performance Indicators

- No. of malaria incidences per 1000 population
- No. of water borne diseases incidences per 1000 population
- Floodway developed.
- No. of reported incidences of flooding.
- Percentage of urban solid waste regularly collected
- No. of improved dumpsites
- No. of sensitization and awareness on climate-related health risks, and proper solid waste management conducted.

- Strategies developed.
- Number of modern solid waste management plants established

Table 4.6: Actions to realize the strategic objective

Action	**Expected Results by 2027**	**Adaptation/ Mitigation/ Enabling**
Reduce the incidence of malaria and other vector- borne diseases	▪ Uptake and utilisation of malaria treatment services increased in new malaria areas to reduce the incidence of malaria from 33% to 30%. ▪ Reduce malaria-related deaths from 440 per thousand populations to 350. ▪ Community-level interventions on malaria control scaled up county-wide.	Adaptation
Reduce incidences of water borne diseases	▪ Increased number of ODF villages from 766 to 1000. ▪ Increased sewerage connection from 4800 to 5500.	Adaptation.
Control flooding in human settlements	▪ Flood ways (manmade channels to divert flood water) constructed in select urban centres.	Adaptation
Promote recycling to divert collected waste away from disposal sites.	▪ A circular economy solid waste management approach that diverts at least 40% of collected waste away from disposal sites toward various recycling practices in municipalities implemented.	Adaptation/ Mitigation
Ensure climate proof waste management infrastructure	▪ Screen of existing and upcoming dumpsites for vulnerability to climate change, and plans developed to adapt to extreme climate patterns.	Adaptation
Capacity building	▪ Strengthened enforcement of development control measures by capacity building the responsible County officers. ▪ Environmental education, sensitization and awareness on climate-related health risks, and proper solid waste management promoted.	enabling
Policy and regulation	▪ Storm water harvesting strategy developed; ▪ Revision and implementation of the Solid waste management strategy.	Enabling
Technologies and innovations uptake	▪ Modern solid waste management technologies adopted. ▪ Incentives provided to investors/developers who adopt green energy technologies e.g. use of solar, installation of rain water facilities and environmentally friendly waste management	Enabling

	interventions (bio digester) and installation of lighting arrestors.	

Relevant Institutions:

Department of Health Services, Department of Environment & Forestry, National Environment Management Authority, WRA, KACUWASCO, Faith-Based Organizations, Public Benefit Organization, private sector, and civil society.

4.3.6. CLIMATE CHANGE PRIORITY 6: MANUFACTURING

The county is under obligation to implement national plans including vision 2030 and the six core pillars of the Bottom-Up Economic Transformation Agenda 2022-2027. Climate change could prevent achievement of the Bottom-Up Economic Transformation Agenda 's goal of increasing manufacturing to 15% of GDP by 2022. Manufacturing has fallen from 9.3 per cent to 7.6 percent in five years (2016-2020). The Kakamega County Vision 2030 embrace value chain addition to agricultural products to increase resilience of the sector as well as the community to climate change through increased processing, value addition, up scaled opportunities to new markets and diversified sources of livelihoods.

a) Impacts of Climate Change on Manufacturing

The manufacturing sector has huge assets and investment in terms of infrastructure, buildings and is reliant to raw materials which depend on agricultural productivity. Most processing factories also require steady supply of electricity and water which may be in one way or the other affected by prolonged dry spell and flooding. Emerging invasive and evasive pests such as fall army worms and locusts may affect maize productivity which is a raw material for Factories. Extreme dry conditions may as well affect production of tea which is a crucial cash crop and source of livelihood to many in the county. Extremely heavy rains affect majority of the roads in the county disrupting timely transportation of farm produce to the factories leading to post-harvest losses. Also, the heavy rain may interfere with harvesting period causing on-farm losses e.g., increased cases of maize aflatoxin. On the other side, prolonged dry spell reduces crop productivity resulting in low yields and losses.

b) Impacts of Manufacturing on Climate Change

While being impacted by climate change, manufacturing also produces GHGs emissions. The manufacturing industries in the County for instance Sugar factory releases effluent into the environment causing air, water and land degradation which in turn contribute to decreased vegetation cover. In case of adoption of circular economy, chances of climate change are reduced as potential waste that may emit carbon get utilized.

c) Win-Win Solutions for Low Carbon development pathways

Climate actions to promote a green manufacturing sector focus on resource efficiency including use of water, sustainable production, and managing waste as a resource in the creation of new product lines from waste recovery and re-use. Moving toward green manufacturing will require innovation and the promotion of micro, small and medium enterprises started by entrepreneurs in urban agriculture, and sustainable bio-ethanol for cooking. Waste to energy strategies such as utilization of bagasse which is a waste product from Batali sugar factory, is used to produce bio-fuel (ethanol) at Mumias factory.

Due to emissions caused by production units that run on fossil fuels, the industry is shifting towards alternative clean energy production units that have no carbon emissions and are of lesser cost of running, such as solar-powered machines, bio-ethanol and wind energy.

Given water is a scarce resource; manufacturing industries are efficiently utilized through recycling within the production system for cooling of boilers and cleaning.

Actions delivered under the Green Economy Strategy and Implementation Plan (GESIP) are critical to the achievement of green manufacturing as elucidated in the CIDP 2023-2027 in which some of the actions will be implemented. Some of the proposed climate actions include use of solar energy and hydro power energy for pumping water, lighting and other industrial/manufacturing uses; bio-treatment of waste from manufacturing plants for instance and use of bio digesters.

The climate actions are expected to result in:

a) **Adaptation** –for example use of solar energy, hydro energy and biogas for pumping water, lighting and other industrial/manufacturing uses; forwards and backward linkages in production chain for raw materials for agricultural industries; and water efficient technologies in manufacturing plants
b) **Mitigation** - GHG emission reductions through sustainable adoption of bio-ethanol; industrial energy efficiency and industrial symbiosis;

Strategic Objective 6: *Promote sustainable manufacturing though efficient use of energy and optimal utilization of resources.*

Problem to be addressed

Unsustainable exploitation and usage of natural resources caused by competing interests on resources, including water, electricity, and other inputs in manufacturing processes, which arises due to climate change and, in-ancient energy use in the manufacturing sector, such as unsustainable sugar production, increases GHG emissions

Integration of national and international development agenda

The Bottom-up Transformation Agenda

Enhanced Manufacturing- Actions in this plan will enable achievement of the national the Bottom-Up Economic Transformation Agenda 2022-2027 goal of transformation of our manufacturing, through bottom-up approach for specific value chains including building products, leather, pharmaceuticals and medical supplies, garments and textiles, edible oil processing, dairy, electric motorcycle/vehicle and plastic waste

Sustainable Development Goals

Relevant SDGs include **Goal 3:** Good Health and Well-Being; **Goal 7:** Affordable and Clean Energy; **Goal 8:** Decent Work and Economic Growth; **Goal 9:** Industry, Innovation and Infrastructure; **Goal 11:** Sustainable Cities and Communities; **Goal 12:** Responsible Consumption and Production; **Goal 15:** Life on Land; **Goal 14:** Life below Water and **Goal 13:** Climate Action.

Key Performance Indicators

- Number of industries that have adopted cleaner energy systems, renewable energy systems and by products recycling strategies.
- Number of companies participating in water efficiency initiatives.
- No. of companies in symbiosis.
- No. of awareness forums conducted
- No. of policies and regulations developed.

Table 4.7: Actions to realize the strategic objective

Action	**Expected Results by 2027**	**Adaptation/ Mitigation/ Enabling**
Adoption of clean /renewable energy and increased energy efficiency.	• Two factories participating in energy efficiency and renewable initiatives.	Mitigation
Improve water use and resource efficiency	• Two factories participating in water efficiency initiatives.	Mitigation
Promote industrial symbiosis in industrial zones	• Scale-up of industrial symbiosis and environmentally sound technologies and practices in existing and upcoming industries. For example, use of bagasse from sugar industries for briquetting.	Adaptation/ Mitigation
	• Circular economy to ensure recycling and composting of waste	
Capacity development	• Creation of awareness to promote resource efficiency within the sector through sustainable production and consumption.	Enabling
Policy and regulatory	• Legislations that encourage zonation of industries to promote industrial symbiosis. • Legislations to ensure proper treatment of industrial effluents and water recycling.	Enabling

Relevant institutions

Department of Trade, Industrializations and Tourism, Kenya Bureau of Standards (KEBS), NEMA, Environment Natural Resources and Climate Change, the private sector, research institutions, academia, civil society.

4.3.7. CLIMATE CHANGE PRIORITY 7: ENERGY AND TRANSPORT

Clean, sustainable and affordable energy and transportation systems are essential for sustainable development. They are also key enablers for the achievement of the Bottom-Up Economic Transformation Agenda 2022 - 2027. It aims at achievement of universal access to electricity in

the shortest time possible , development of policy, regulatory and financing framework for off-grid community-owned development projects (mini and micro-grids) and investment in biofuel, Overall is the investment in renewable energy to reduce use of fossil fuels.

a) Major Impacts of Climate Change on the Energy and Transport Sectors

Climate change related disasters such as floods damage energy and transport infrastructure. Incidences such as drought impairs with the generation of hydro- electric power which is a vital input for production processes, health and life wellbeing. These impacts call for climate proofing in terms of designing, construction, location, and operations and maintenance of energy and transport infrastructure. Climate-proofing as a means of addressing infrastructure-related climate change impacts is a key recommendation of this KCCCAP, and is necessary to maximize potential development benefits.

Reduction of GHGs emissions from the sectors is also a vital component to mitigation. The transport sector is a direct emitter of the GHGs. For instance, GHG emissions in the transport sector are projected to increase to 17% of the country's total national emissions in 2030 from 13% in 2015. Therefore, alternative energy sources such as geothermal, solar and electric buses can be adopted contribute to low emissions.

b) Strong Opportunities for Transforming the Energy and Transport Sectors

Implementation of NCCAP 2018-2022 could drive major transformations in the County's energy and transport systems, support achievement of the six pillars in the Bottom-Up Economic Transformation Agenda 2022-2027, and provide strong benefits for poverty reduction and sustainable development.

In regard to energy demand, transition to clean cooking is a priority action. It presents an opportunity for technological leapfrogging on savings in energy, and reducing GHG emissions and, delivery of health and cost- saving benefits compared to the business- as-usual incremental improvements. Clean cooking is an opportunity for investment in innovation and technology development in the biomass energy sub-sector.

The transition to clean cooking through uptake of LPG, ethanol and other alternative fuels in urban areas, and uptake of briquettes, biofuels and improved biomass cook stoves in rural areas is about more than just energy; it improves the health of women and children, and protects forests.

Wood is the main source of solid fuel for cooking in the county. The energy sub-sector focused on increasing access to clean energy among households and public institutions within the County. In the review period the sub-sector managed to increase access to electricity coverage from 50.4 percent to 67.2 percent due to installation of 66 strategic transformers across the County and connection of 1,150 households to electricity. Uptake of solar and alternative sources of energy is 19.3 percent as of December 2022 as per the Sustainable Energy(CIDP 2023-2027). Women and children are disproportionally 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 be integrated into community development initiatives, and activities involving women. Women are the most affected by lack of clean cooking technologies, and have the potential to drive the achievement of the desired outcomes.

Renewable energy is gaining prominence and is being used by some sectors in their solar powered projected. There is need for the prioritization of electricity reticulation and use of solar. This will reduce production costs and improve the livelihoods of the people

The climate actions in the energy and transport sector result in:

- **Adaptation**- Climate-proofed energy and transport infrastructure.
- **Mitigation–**Reduction of GHGs emissions.

Strategic Objective 7: *Ensure the energy sector is resilient to climate change, promotes energy efficiency, transition to clean cooking and renewable energy reducing the demand for biofuel*.

Problem to be addressed

Most residents in the county are dependent on biomass energy for cooking. Industries are dependent on hydro-electric power for production processes albeit the fact that it is highly affected by climate change. This implies indoor air pollution, deforestation, GHG emissions, and power outages.

Integration with national and international priorities

The Bottom-Up Economic Transformation Agenda 2022-2027

- **Enhanced Manufacturing** - Progress toward the achievement of the through the provision of green energy and transport services; modernization and prioritization of value chains including biomass energy (wood fuel), agro-forestry and solid waste management. value chain and specifically the adoption of modern kilns.

Sustainable Development Goals

Relevant SDGs include integrated include **Goal 3:** Good Health and Well-Being; **Goal 7:** Affordable and Clean Energy; **Goal 13:** Climate Action; **Goal 9:** Industry, Innovation and Infrastructure; **Goal 11:** Sustainable Cities and Communities and **Goal 8:** Decent Work and Economic Growth.

Key Performance Indicators

- No. of households and industries using renewable off grid power solutions such as solar.
- Percentage of sector energy use and energy trend statistics
- Vulnerability assessment reports.
- Percentage of households using clean cooking alternatives such as Liquefied Petroleum Gas.
- No. of adopted alternatives.
- No. of research proposals.
- No. of awareness forums conducted.
- Legislations developed

Table 4.8: Actions to realize the strategic objective

Action	Expected Results 2027	Adaptation/ Mitigation/ Enabling
Promote uptake of renewable energy in a climate resilient manner	Adoption of solar energy as an off-grid solution in industries and households	Mitigation
Improve energy efficiency and conservation	Energy efficiency and conservation projects delivered, which focus on: efficient lighting; energy efficiency in buildings; and Minimum energy performance standards	Mitigation
Ensure climate proofing of existing and upcoming energy and transport infrastructure.	• Vulnerability assessment of the existing and upcoming energy and transport infrastructure done. • Periodic maintenance and improvement of existing energy and transport infrastructure.	Adaptation and Mitigation
Promotion of clean cooking with alternative fuels such as LPG, LNG and briquettes in both rural and urban areas.	• Increase in number of households using clean cooking with alternative fuels such as LPG in both rural and urban areas. • Reduction of GHGs emissions from the sector. • Reduced deforestation by reducing the demand for wood fuel. • Increased production of energy efficient cook-stoves and non-forest biomass fuel such as briquettes.	Mitigation
Technology and Innovation	Research undertaken on new and emerging energy technologies that would reduce GHG emissions in the energy sector such as adoption of biofuel, solar and wind energy	Enabling
Capacity development	• Training and public awareness on the importance of adjusting to cleaner, efficient energy household initiatives. • Trained Jua kali artisans on production of improved cook stoves;	Enabling
Policy and regulations	Use of fiscal and tax policies and regulations to encourage uptake of clean cooking.	Enabling

RELEVANT INSTITUTIONS:

State Department of Energy, Department of Roads Energy and Public Works, Energy Regulatory Commission (ERC), Kenya Power, Kenya Electricity Generating Company (KenGen), Kenya Power, Rural Electrification Authority (REA), Kenya Electricity Transmission Company (KETRACO), Kenya Climate Innovation Centre (KCIC), micro- finance institutions, the private sector, civil society, women's groups, youth groups.

4.3.8. CLIMATE CHANGE PRIORITY 8: CHILDREN AND THE YOUTH

In Kenya, 26 per cent of children under five years of age (1.5 million children) are chronically malnourished. Twenty-eight per cent or 707,000 children (369,310 boys and 337,690 girls) are out of pre-primary schools. In Kakamega County the 0-4 years age cohort constitute the highest category with a total projected population of 253,523 representing 13 per cent of the total population in indicating a high birth and fertility rates in the county. The population on infant populations, under 5 years, preschool population, secondary school and youth is 613738 which is projected to increase to 667,708 in 2027. Therefore need for County Government to put in place measures to cater for the growing population socio-economic demands in respect to climate variability

The six core pillars of the Bottom-Up Economic Transformation Agenda 2022-2027 recognises that Education is the ultimate means of ensuring an equitable society. Equitable education ensures that every child has a chance to fulfil their potential and rise to the highest level of accomplishment reducing vulnerability.

Climate change could prevent achievement of the Bottom-Up Economic Transformation Agenda ’s goal of increasing the school feeding programme to benefit 8 million in primary and Early Child Development (ECD) schools.

Climate change exacerbate environmental degradation that will impacts children, youth and women increasing their responsibilities in unpaid care work, at the farms and in the community, thereby accelerating poverty, early marriages, childhood pregnancies and other adverse consequences for women.

d) Impacts of Climate Change on children and youth

Climate change is the greatest threat facing children and young people. Climate change poses major threats to their health, nutrition, education, and future. Children are less able to survive extreme weather events and are more susceptible to toxic chemicals, temperature changes and diseases. Poor birth outcomes – Including foetal strain, pre-mature birth, and lower birth weights. It can affect physical, Mental health , cause physical health and diseases – Including increased risk of respiratory and cardiovascular issues, cancer, water-borne diseases such as gastroenteritis, and vector-borne diseases ; and also affect their Education lowering academic performance as well as the wider disruption of missed school days.

Human activities, such as the use of fossil fuels, deforestation and unsustainable agriculture contribute to climate change, which decreases the availability of nutritious food and clean water, and destroys ecosystems and secure living environments. This leads to malnutrition, ill health and migration, rendering children and youth particularly vulnerable.

e) Win-Win Solutions for youth and children inclusion

Inclusion of youth and children in climate change provides an opportunity to leave the Earth to today's children and young people, and to future generations. The benefits of climate include:

lower energy costs; better agricultural yields; probably fewer droughts; maybe richer biodiversity in some circumstance that will benefit youth and children.

At the same time, Children and youth constitute the majority of the population in Kakamega County and have an

The climate actions are expected to result in:

c) **Adaptation** –Children and youth are the majority providing an increasingly strong social and environmental awareness, which has the power to transform our societies towards adoption of a low-carbon and climate resilient future for example use of solar energy, biogas for pumping water and lighting , adoption of alternative livelihoods and emerging technologies
d) **Mitigation** - GHG emission reductions and capture through planting of trees by youth and children in learning institutions.

Strategic Objective 6: *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.*

Problem to be addressed

Children and youth have not participated adequately in climate change actions in the county. This makes it difficult to make milestones in implementation of interventions and adoption of innovations and technology to minimize the adverse impacts of climate change. Back in their communities, youth are taking action on climate change mitigation and adaptation by participating in small projects. There is need to craft adaptation and mitigation actions with enhanced and effective participation of youth in climate change policy decision-making processes.

There is also need to increase funding for projects on mitigation or adaptation to climate change proposed by youth organizations or non-governmental organizations that work with youth.

Integration of national and international development agenda

The Bottom-Up Economic Transformation Agenda 2022-2027

- **Social protection**- Actions in this plan will enable achievement of the national the Bottom-Up Economic Transformation Agenda 2022-2027 goal of establishing a universal social security system that will eradicate malnutrition within five years. Also it aims to improve learning outcomes by pledging to connect all schools to the Internet and therefore able to increase access of children and youth to climate change technologies and connect to the rest of the world.

Sustainable Development Goals

Relevant SDGs include **Goal 1** no Poverty**; Goal 2** No hunger **; Goal 3:** Good Health and Well-Being; **Goal 7:** Affordable and Clean Energy; **Goal 8:** Decent Work and Economic Growth; **Goal 9:** Industry, Innovation and Infrastructure; **Goal 11:** Sustainable Cities and Communities; **Goal**

12: Responsible Consumption and Production; **Goal 15:** Life on Land; **Goal 14:** Life below Water and **Goal 13:** Climate Action.

Key Performance Indicators

- Extent to which child-critical services are more inclusive, and resilient;
- Proportion of 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.

Table 4.7: Actions to realize the strategic objective

Action	**Expected Results by 2027**	**Adaptation/ Mitigation/ Enabling**
Children and youth climate strategy	• Develop a children and youth climate change engagement strategy	Enabler
	• Two factories participating in water efficiency initiatives.	Mitigation
Youth and children climate innovations	• Sharing of best practises in climate action	Adaptation/ Mitigation
	• Exchange visits	
Climate information	• Develop a youth platform for accessing climate finance information and initiatives	Adaptation/ Mitigation
Establish and Operationalize County youth climate change innovation hubs	• Creation of awareness to promote resource efficiency within the sector through sustainable production and consumption.	Adaptation/ Mitigation
Empower youths in climate change Advocacy and Financing	• Youth Climate Forums • Children Climate Forums	Enabling
Capacity building	• Build capacity of youth on development of bankable climate change project proposals	Enabling
	• Build the capacity of children and youth on climate action	Adaptation/ Mitigation
	• Build capacity of children and youth on climate change and risk management education and practice	Enabling
Policy and regulatory	• Mainstream youth and Children in climate related legislations.	Enabling
	• Participation in Climate governance	

Relevant institutions

Department of social services, NEMA, Environment Natural Resources and Climate Change, the private sector, research institutions, academia, civil society, National Department of Education, County Department of Education Science and Education.

5. CHAPTER FIVE: DELIVERING THE KCCCAP 2023-2027

The effective delivery of the mitigation and adaptation actions set out in this plan requires articulation with the various enabling actions as set in the seven priority climate change areas described in Chapter 3. This section provides brief descriptions of the priority enabling actions to be addressed. These include;

- Enabling policy and regulatory framework;
- Technology and innovation;
- Capacity development and knowledge management;
- Climate finance and resource mobilization; and
- Transparency, Measurement, Reporting, and Verification Plus (MRV+)

5.1. Enabling Policy and Regulatory Framework

Development of comprehensive policy and regulatory framework for climate change is vital for the delivery of this KCCCAP. Kakamega County has developed a County Climate Change Act 2020 and a County Climate Change Policy 2020. The former has established climate change governance institutions such as the county climate change steering committee, the Climate Change Directorate to spearhead the implementation of the actions in this KCCCAP and the Ward Climate Change Planning Committee at grass root level to ensure delivery of locally led actions. The County Climate Change Policy 2020 identifies thematic climate change interventions areas including Water Resources Management, Agriculture, Fisheries and Livestock, Land Use Management, Energy, Public Works, Forestry, Disaster Risk Reduction, Tourism, Wildlife & Culture, Trade and Industry and Public Health. It Also describes mechanisms to mainstreaming gender, youth and special needs Groups and proposes institutionalize to enable flow of climate finances from national and international sources climate finance and institutional arrangement.

Table 5.1: Priority enabling actions: Enabling policy and regulatory framework

Enabling action	**Coordinating institution and relevant partners**	**Expected Results (Process Indicator)**
Prioritise, develop and implement the needed regulations to effectively implement the County Climate Change Act, 2020 through a multi-stakeholder process.	County Treasury Climate Change Unit	**By 30th March 2024,** The County Climate Change Policy and Climate Finance Policy developed and operationalized
Operationalisation of the County Climate Change Institutions	Climate Change Directorate	**By 30th March 2024** Capacity building of climate change institutions at all tiers
Sensitize and raise the awareness of the Community on Climate change	Climate Change Directorate	By 30th January 2024 Public sensitization forums in all wards

5.2. Technology and Innovation

Technology and innovation are a vital enable component for the success of this KCCCAP. This enables various sectors to apply research in technologies for climate change infrastructure proofing, Climate Information Services (CIS), efficiency in energy and clean cooking technologies, water harvesting, plant and animal engineering. The objective of this section is to ensure the county embraces appropriate technologies to deliver the adaptations and mitigation actions in Chapter 3.

This enabling action improves and promotes the capacity of the private sector, research institutions and academia to develop technologies and innovations that are vital for climate action. Provision of fiscal incentives and skill enrichment of the community is a vital aspect to promote locally-relevant technologies. Appropriate production technologies ensure sustainable production, consumption, resource efficiency and industrial symbiosis which are vital elements to the success of this plan.

Table 5.2: Priority enabling actions: Technology and Innovation

Enabling action	**Coordinating institution and relevant partners**	**Expected Results (Process Indicator)**
Promotion and enrichment of relevant traditional technologies as well as their incorporation into mitigation and adaptation.	• The academia and Research institutions • The private sector • All relevant County Departments	**By 30th June 2024** Appropriate and locally led Technologies adopted in each priority sector
Encourage innovation in collaboration with the academia and research institutions and civil society organisations in a gender responsive manner.	• The academia and Research institutions • The private sector • All relevant County Departments	New innovations adopted; sharing of best practices in the community
Establishment and implementation of County Information Plan	• Meteorological Department, • County Government	Participatory Scenario Plans
Identify policy and fiscal incentives to promote the uptake of climate-friendly technology and innovations (such as tax incentives, reduced energy tariffs, low-interest loans, and public-private partnerships).	• The academia and Research institutions • The private sector • All relevant County Departments	Integration in County Finance Bill 2024

5.3. Capacity Development and Knowledge Management

Climate change-related knowledge management refers to the organization and sharing of climate change knowledge, while climate change-related capacity development is defined by the UNFCCC as "enhancing the capacity and ability of countries to take effective climate change action". This involves collation and dissemination of climate change information to stakeholders for incorporation into the planning and decision-making processes.

Table 5.3: Priority enabling actions: Capacity development and knowledge management

Enabling action	**Coordinating institution and relevant partners**	**Expected Results (Process Indicator**
Operationalize a publicly accessible County Climate Information Service centre that includes a robust and up-to- date climate change information.	• KMD • All other relevant County Departments • The academia and Research institutions • The private sector	**By June 2024** County Climate Information Service implemented.
Operationalize a community empowerment, skills enrichment, and education centres for community awareness and outreach	• KMD • All other relevant County Departments • The academia and Research institutions • The private sector	Community based climate information empowerment centres established. Capacity building of lead farmers to disseminate climate information
Operationalize and strengthen the capacity of governance structures to implement the County Climate Change Act 2020	• Public Service and Administration	By June 2024 Capacity building of ward Administrator, community area Councils and Sub County Administrators
Monitoring and Evaluation	• Climate Change Unit	Quarterly reports on progress
Evaluation of PCRA and the Workplan	• Climate Change Unit	Project implementation report and score card
Review the County Climate Risk assessment to identify emerging climatic hazards, change vulnerability to inform identification and prioritisation of adaptation and mitigation actions.	• All other relevant County Departments • The academia and Research institutions • Private sector	June 2026 Undertake County Climate change vulnerability assessment.

5.4. Climate Finance and Resource Mobilization

Climate Finance plays a critical role towards building the County's resilience to impacts of climate change and variability. The transition to a low carbon and climate resilient development pathway requires a significant financial investment and interventions that will reduce the GHS emissions

from key emitting sectors, climate proof sectors driving the economy and promote human well-being and ecological integrity. The County, in its Climate Change legislations provides for formation of a Climate Change Fund, climate change finance management strategies as well as facilitation of flow of climate finances from national and international sources. These policies ensure that climate activity is targeted to the lowest level in the context of devolution be it a ward, village or community area. They also advocate for climate-compatible development, enhancement of social inclusion and promotion of public accountability. It is also expected that the County shall mainstream climate change in its annual and long-term development plans, and allocate a percentage of its budget contributing to climate finance.

Climate Finance is critical to realization of the actions set out in this plan and it is therefore imperative that the County boosts mobilization of adequate and predictable financial resources from domestic and international sources.

The County is benefitting from Financing Locally- Led Climate Action (FLLoCA), a conditional Programme for Results(PfR) World Bank funded through the National Treasury. So far, two disbursements of County Climate Institutional Support (CCIS) grant, amounting to 11m each has been approved and disbursed into Kakamega County Revenue Account to strengthen climate risk management capacity, establishment of County Climate Change units and County Climate Change Fund, development of supporting policy and legislative and institutional framework, upscale community sensitizations and establish Climate Information. The County will benefit from minimum performance conditions required to access County Climate Resilience Investment(CCRI) grant.

Table 5.4: Priority enabling actions: Climate finance and resource mobilization

Enabling Actions	**Coordinating Institution**	**Process Indicator**
Financing Locally Led Climate Action	• National Treasury • Climate Change Unit • All other relevant county departments	• Access to Climate Change Institutional Support • Access to Climate Change Investment Grant
Operationalization of the County Climate Change Fund	• County treasury • Climate change unit	• Transfer of own funding into the climate change fund account
Capacity building of the oversight committee for the Fund; annual budgeting and reporting;	• Climate Change Unit	• Capacity Building of the County Assembly committee responsible for climate change
Enhance the capacity of the climate finance management to mobilisation, tracking and reporting of financial flows.	• County treasury • All other relevant county departments	• County Climate resource mobilisation strategy developed and implemented • Capacity building of county treasury staff in tracking and reporting

Capacity building of the local community, private sector and civil society to develop bankable projects.	• Climate change unit • All other relevant county departments • Ward based climate change committees	Project concepts developed for funding consideration

5.5. Monitoring and Evaluation: Measurement, Reporting and Verification Plus (MRV+)

The Monitoring and Evaluation of this KCCCAP 2023-2027will be mandate of the DWENRCC and Natural Resources. The County Climate Change Act 20202 provisions the county climate change steering committee with the role of promoting monitoring, evaluation, reporting and verification of climate change mitigation and adaptation initiatives. Adaptation actions under KCCCAP will be tracked through a monitoring and evaluation (M&E) system based on indicators.

M&E provides a vital mechanism to assess and manage progress of implementation of the proposed climate actions. Therefore, any M&E system needs to have a feedback mechanism which will ensure the continued assessment, collation and dissemination of information relating to climate change actions for ease of tracking progress, reporting and learning. This KCCCAP puts into consideration the 'The Bottom-Up Economic Transformation Agenda 2022-2027: Agriculture, Micro, Small and Medium Enterprise (MSME) economy, Housing and Settlement, Healthcare, Digital Superhighway and Creative Economy, the Sustainable Development Goals and the Vision 2030.

Kenya is expected to provide information on GHGs emissions, mitigation, adaptation, and the support received as in the Paris Agreement under the UNFCCC to achieve the country's NDC goals. As per the National Climate Change Act 2016, the National Climate change Council has been mandated to set targets for the regulation of GHGs emissions. The County is expected to track and report its GHGs emissions, adaptation and mitigation actions deployed to the National Council for Kenya's reporting to the UNFCCC.

Therefore, the following enabling actions must be in place for efficient Monitoring &Evaluation.

Table 5.5: Priority enabling actions: MRV+

Enabling actions	**Coordinating institution and relevant partners**	**Expected Results (Process Indicator)**
Establish and operationalise a functional County GHGs inventory and an MRV+ system for tracking mitigation for NCCC reporting. Strengthen its capacity for carbon management and verification.	• KMD • Climate Change Unit. • All other relevant county departments	Established County GHGs inventory and an MRV+ system.

Establish a system to track and report sector-based emissions; monitoring and reporting system.	• KMD • NEMA • Research Institutions and Academia • Climate Change Unit. • All other relevant county departments	Reporting on sector-based emissions fully integrated in GHG inventory.

5.6. Delivery and Coordination Mechanisms

For the effective implementation of this KCCCAP 2023-2027, there is need to define the roles of the relevant institutions.

5.6.1. Institutional Roles and Responsibilities

The County Climate Change Act 2020 sets out institutional structures and responsibilities to guide the oversight and management of KCCCAP. The County Climate Change Steering Committee will be responsible for the overall coordination and advisory functions and guidance as pertains to the implementation of KCCCAP. Responsibilities of the main institutions engaged in the oversight, implementation, and monitoring of this Plan are as below.

5.6.2. Climate change governance structures

This county climate change Act sets out the following institutional structures;

a) **County Climate Change Steering Committee (CCCSC)** is chaired by the County Executive Committee Member responsible for climate change matters. The Committee is mandated to oversee the implementation of the county climate change action and adaptation plans priority actions to enhance resilience and adaptive capacity of the county.

b) County Climate Change Directorate domiciled in the county department responsible for climate change headed by the director responsible for climate change. The Secretariat has the mandate to provide technical support on climate change matters to county departments and agencies; prepare and submit operational and statutory reports to the relevant authorities; and ensure need-based allocation of the monies available in the climate change fund with regard to the projects received from the ward administrators.

c) County Climate Change Technical Working Group-provide technical services to evaluate project concepts and develop them into projects or programmes**.**

d) Ward Climate Change Planning Committees-Identification of projects based on need and prioritization based on resources available at the grassroot level

5.6.3. Implementation Roles of other agencies

The implementation of this plan is reliant on enabling environment, including the establishment of governance structures proposed in the County Climate Change Governance Framework and

mainstreaming of climate change actions, interventions and duties into County Integrated Development Plans (CIDPs).

The implementation of actions in the Plan requires the involvement and contribution of all the stakeholders across the affected and vulnerable thematic areas. Below are some of the stakeholders and their roles;

a) **Government Agencies**

The Government agencies will coordinate interventions by integrating the Plan into their Annual Development Plans. Medium Term Plans or County Integrated Development Plans to prioritize mitigation and adaptation projects. For instance, the Kenya Meteorological Department can provide climate information and NEMA to ensure environmental and social safeguards compliance.

b) **Public and Private sector:**

The county government recognizes the importance of building and sustaining partnerships with the public and development partners at all levels to ensure collective ownership of all climate change responses. Strengthening the working relations with the partners for efficient adoption of priority climate adaptation and mitigation actions is vital for successful KCCCAP implementation. Platforms such as the media are vital since they can provide vital information at times of emergency from warning on natural climate change related disasters and awareness creation.

c) **Academia and research institutions:**

These institutions are vital in performance of experiment-based researches on different aspects of climate change adaptation and resilience and come up with innovations that can improve resilience in terms of technologies and innovations.

d) **Public Benefit Organizations:**

These include non-governmental organizations, civil society organizations and faith-based organizations, amongst others. The civil society is vital in creation of public awareness, policy development, research and analysis, information sharing and promotion of adoption of improved technologies, livelihood support advocacy on societal issues.

5.6.4. Financial Requirement

The implementation of this KCCCAP 2023-2027 will require **Kshs** 8,804,000,000.

Implementation Matrix for *KCCCAP 2023-2027*

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
Disaster (Drought and Flood) Risk Management *Build capacity for mitigation and resilience against the impacts of climate related disasters.*	Rehabilitation of fragile ecosystems.	Increased acreage of fragile ecosystems rehabilitated to 2000Ha.	Acreage of fragile ecosystems rehabilitated. Number of trees planted in fragile ecosystems.	Community, DWENRC,WRA, KFS, WRUAs, LVNSB	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	20	8	5	3	2	2
	Alternative livelihood programmes in disaster prone areas.	Increased resilience of households in disaster prone zones.	-Number of households given alternative livelihoods.	Community groups; Public Benefit Organizations; Civil society and the private sector	Vulnerable populations comprising the elderly, children and women	2023-2027	National Government, County Government & Development partners	50	10	10	10	10	10
	Donations to affected households.	Increased number of households able to cope with disasters by receiving donations increased by 30%.	Number of households receiving donations.	Community, County Treasury and Planning; Community groups; Public Benefit Organizations; Civil society and the private sector	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	100	20	20	20	20	20
	Resettlements of households from fragile ecosystems.	Undertake resettlements of HH from fragile ecosystems by 200 HH.	Number of households resettled.	Community, County Treasury and Planning, Community groups; Public	Vulnerable populations comprisin	2023-2027	National Government, County Government &	200	100	70	20	5	5

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
				Benefit Organizations.	g the elderly, children and women.		Development partners						
	Capacity building of households on disaster management	Number of households capacity build on disaster management increased to 600 households.	No. of household's capacity build on disaster management.	Community groups, Public Benefit Organizations, Civil society and the private sector	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	25	5	5	5	5	5
	Develop people-centred early warning systems.	People-cantered early warning systems developed.	Number of households affected by climate related disasters.	KMD, County DWENRCC, Dept of Agriculture, community	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	15	10	2	1	1	1
	Installation of bulk water harvesting and storage systems.	Bulk water harvesting and storage systems installed.	No. of water harvesting and storage systems installed.	Community, NWHSA, WRA, WRUA, County DWENRCC.	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	300	200	25	25	25	25

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	Develop county integrated climate disaster management plan	County integrated climate disaster management plan developed and implemented.	No. of plans developed.	Community, DWENRCC, County Treasury and Planning, KMD, WRA, County, Public Service & Admi	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	5	5	-	-	-	-
	Developing the Kakamega County Disaster Risk Management Strategy	Improve the coordination of disaster risk management.	-Risk Management Strategy developed.	Community, DWENRCC., County Treasury and Planning, KMD, WRA, County Public Service & Adm.	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners.	5	5	-	-	-	-
	Improve the coordination and delivery of disaster response and risk management by implementing the Kakamega County Disaster Risk Management Strategy	Improved coordination and delivery of disaster response and risk management.	-Average time to respond to disasters.	Community, DWENRC, County Treasury and Planning, KMD, WRA& County Public Service & Adm.	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners.	100	40	20	20	10	10
	Implementation of County Climate Information Service Plans.	Improved climate related knowledge management.	Implementation report of the CIS.	Community groups, community DWENRCC, County Treasury and Planning, KMD, WRA, & County Public	Vulnerable populations comprising the elderly, children	2023-2027	National Government, County Government & Development partners	50	10	10	10	10	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
				Service & Adm.	and women								
	Develop a GIS laboratory to utilize modern data tools to map vulnerability areas.	Vulnerability areas mapped and documented.	GIS laboratory equipment purchased and installed	DWENRCC -County Treasury and Planning, KMD & WRA -County Public Service & Adm., community	Vulnerable populations comprising the elderly, children and women	2023-2027	National Government, County Government & Development partners	10	10	-	-	-	-
	Set aside Contingency Fund allocations to address urgent and unforeseen needs.	Improved address of urgent and unforeseen needs.	Financial statements	County Treasury and Planning.	Vulnerable populations comprising the elderly, children and women.	2023-2027	National Government, County Government & Development partners	25	5	5	5	5	5
Sub-Total								**905**	**428**	**172**	**119**	**93**	**93**
Food and Nutrition *To Increase food and nutrition security by enhancing productivity, resilience and low carbon pathway development of the agricultural*	Farmers training on conservation agriculture (CA), Fall army worm management and production of organic fertilizers.	Increased number of farmers practicing conservation agriculture (CA)	No. of farmers trained on CA No. of farmers practicing Conservation Agriculture	-Department of Agriculture, Livestock and Fisheries, Framers, KFS, KMD, KALRO, Private sector, ICRAF & ILRI, Community	Farmers and farmer groups. Vulnerable populations- elderly, children and women.	2023-2027	National Government, County Government & Development partners	50	20	40	10	10	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
sector.	Carry out integrated Pests and disease control program.	Reduced incidences of pests and diseases.	No. of pests and disease incidences reported.	-Department of Agriculture, Livestock and Fisheries -KMD -KALRO -Private sector -ICRAF -ILRI, community	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	100	30	20	20	15	15
	Train farmers on pre- and post-harvest management.	Reduced pre- and post-harvest loses.	No. of farmers trained on pre- and post-harvest management.	Community, Department of Agriculture, Livestock and Fisheries, ILRI, ICRAF & ILRI, community	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	25	10	5	5	3	2
	Formation of support groups/cooperatives on value addition.	Increased agricultural produce processing and marketing.	No. of groups/cooperatives supported on value addition	Community, Department of Agriculture, Livestock and Fisheries, KALRO, Private sector, ICRAF, ILRI, community	Farmers and farmer groups	2023-2027	National Government, County Government & Development partners	20	10	10	0	0	0
	Promote soil and water conservation initiatives.	Reduced soil erosion and pollution.	No. HH adopting soil conservation structures.	Community, Department of Agriculture, Livestock and Fisheries, KALRO, Private sector ICRAF, ILRI Community	Farmers and farmer groups comprising of women, PWDs and elderly	2023-2027	National Government, County Government & Development partners	50	20	10	8	6	6
	Dissemination of weather and climate information	Improved usage of climate information.	No. of HH trained, accessing and using weather and	Community, Department of Agriculture, Livestock and	Farmers and farmer groups	2023-2027	National Government, County Government	25	5	5	5	5	5

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	(diversify media/ use of local languages and Braille)		climate information.	Fisheries, community, KALRO, Private sector, ICRAF ILRI	consisting of women, PWDs and elderly		& Development partners						
	Promotion of agro-forestry.	Increased farm forestry.	No. of farmers with 10% farm forest cover.	Community, Department of Agriculture, Livestock and Fisheries, community, KALRO, Private sector, ICRAF, ILRI	Farmers and farmer groups of women, PWDs and elderly	2023-2027	National Government, County Government & Development partners	400	150	100	70	50	30
	Promotion of traditional foods.	Improved traditional food production.	No. of HH producing traditional foods.	Community, Department of Agriculture, Livestock and Fisheries, KALRO, Private sector, ICRAF, ILRI, KFS	Farmers and farmer groups of women, PWDs and elderly	2023-2027	National Government, County Government & Development partners	200	70	50	40	20	20
	Construction of climate resilient irrigation and drainage infrastructure.	Increased production under irrigation.	Hectares of crop under irrigation, drainage and practicing smallholder irrigation.	Community, Department of Agriculture, Livestock and Fisheries -Private sector -ICRAF	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	150	100	10	10	20	10
	Train farmers on production of climate resilient fodder.	Increased fodder production	Hectares under climate resilient fodder crop.	Community, Department of Agriculture, Livestock and Fisheries, KALRO, Private sector, ICRAF, ILRI, KFS, community	Farmers and farmer groups, PWDs groups, women groups	2023-2027	National Government, County Government & Development partners	30	10	7	5	4	4

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	Provision of farm input subsidies.	Increased number of farmers accessing subsidies.	No. of farmers accessing subsidies.	Department of Agriculture, Livestock and Fisheries, KALRO, Private sector, ICRAF, ILRI, community	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	300	80	60	60	50	50
	Distribute and operationalize climate friendly milk coolers.	Reduced milk losses	No. of operational milk coolers	Department of Agriculture, Livestock and Fisheries -KALRO, Private sector, ICRAF, ILRI	Farmers and farmer groups of women, PWDs and elderly	2021-2023	National Government, County Government & Development partners	100	70	30	0	0	0
	Caging of rivers, ponds and dams.	Increased fish production in cages	No. of dams stocked and cages for fish farming	Department of Agriculture, Livestock and Fisheries, KALRO, Private sector, ICRAF, ILRI	Farmers and farmer groups, Community living along River, wetlands and streams	2023-2027	National Government, County Government & Development partners	50	20	8	7	10	5
	De-silting of dams and stocking.	Increased number of dams stocked	No. of de-silted dams stocked and cages for fish farming	Department of Agriculture, Livestock and Fisheries -KALRO -Private sector -ICRAF -ILRI	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	30	10	8	7	3	2
	Establish climate resilient fish ponds.	Improved fish production from ponds	No. of climate resilient fish ponds.	Department of Agriculture, Livestock and Fisheries -KALRO	Farmers and farmer groups.	2023-2027	National Government, County Government &	50	30	20	0		0

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
				-Private sector -ICRAF -ILRI			Development partners						
	Establish recirculating aquaculture system.	Reduced carbon in aquaculture system.	No. of systems developed	Department of Agriculture, Livestock and Fisheries -KALRO -Private sector -ICRAF -ILRI	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	100	40	30	20	10	0
	Training households on diet diversification	Improved diet diversification	No. of households supported to diversify livelihoods	Department of Agriculture, Livestock and Fisheries -KALRO -Private sector -ICRAF -ILRI	Farmers and farmer groups.	2023-2027	National Government, County Government & Development partners	25	5	5	5	5	5
Sub- Total								**1705**	**680**	**418**	**272**	**211**	**164**
Water and the Blue Economy *To promote sustainable utilization of water, improve access to adequate, safe water and sanitation services for sustainable development.*	De-siltation of dams	Reduced siltation in dams.	-Volume of dams de-silted -No. dams de-silted	-County Treasury, DWENRCC, LVNWSB KACUWASCO KACWASCO, WRA NEMA Water Sector Fund Kenya Water Sector Network WRUA KWTA Private Sector, -Civil Society Organizations.	WRUAs Community,	2023-2027	National Government, County Government & Development partners	30	20	10	0	0	0

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	Construction of water harvesting and storage systems	12 No. 3000M^3 storage tanks installed	No. of water harvesting and storage system	County Treasury, DWENRCC LVNWSB KACUWASCO KACRWASCO Water Sector Fund -NWHSA	Children, community and public institutions	2023-2027	National Government, County Government & Development partners	150	50	30	20	25	25
	Conservation of riparian corridor.	120KM of riparian area on major rivers conserved.	Area of riparian conserved	DWENRCC, LVNWSB, WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, Civil Society Organizations, community	WRUAs Conservation groups. Community along Rivers, streams	2023-2027	National Government, County Government & Development partners	50	20	20	20	20	20
	Flood control	Reduced flood incidences reported.	Length in KM of dyke constructed along river banks in flood prone areas.	-DWENRCC, LVNWSB, WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, -Civil Society Organizations, community	Communities in flood prone areas.	2023-2027	National Government, County Government & Development partners	200	40	40	50	50	20
	Adoption of green energy technologies in water sector.	Increased adoption of green energy use in the water sector.	No. water projects installed with water solar pumping supplies.	Water Sector Fund, Department of Energy, Private Sector, , Civil Society Organizations.	Community and groups of women, PWDs and elderly	2023-2027	National Government, County Government & Development partners	200	50	50	40	30	30

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	Increasing climate proof pipe water supply	Improved climate proof water infrastructure Green pipeline	-No. climate proof water infrastructure developed. Length of green line developed	DWENRCC, -LVNWS, WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, Civil Society Organizations.	Community in flood prone areas	2021-2024	National Government, County Government & Development partners	230	40	70	40	50	30
	Developing of policies and regulations	Water regulations developed.	Water regulation developed.	DWENRCC, LVNWSB,WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, -Civil Society Organizations		2023-2027	National Government, County Government & Development partners	33	10	8	5	5	5
	Conservation of water catchment	springs Protected	No of springs protected	DWENRCC, -LVNWS, WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, Civil Society Organizations.	Vulnerable communities living near natural springs	2023-2027	National Government, County Government & Development partners	200	40	40	40	40	40
	Ground water exploitation	Boreholes drilled and equipped	No of boreholes developed	DWENRCC, WRA, KACRWASCO	Vulnerable communities without access to portable water	2023-2027	National Government, County Government & Development partners	250	40	40	40	40	40

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
	Capacity building of WASH actors and staff	WASH actors and staff sensitized on water resource climate resilience building.	No. of awareness forums conducted	DWENRCC, LVNWSB, WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, Civil Society Organizations	WASH actors	2023-2027	National Government, County Government & Development partners	25	5	5	5	5	5
	Install non-sewered waste water treatment units	Improved waste water treatment.	No. waste water treatment units installed.	DWENRCC, LVNWSB, WRA, NEMA, Water Sector Fund, Kenya Water Sector Network, WRUA, KWTA, Private Sector, Civil Society Organizations	Community without access to sewerage and sanitation facilities	2023-2027	National Government, County Government & Development partners	250	50	50	50	50	50
Sub-Total								**1618**	**365**	**363**	**310**	**315**	**265**
Forests, Wildlife and Tourism *Increase forest/tree cover to 10% of total land area, rehabilitate degraded lands, protection of fragile ecosystems, conservation of riverbanks, and increase the resilience of the sector to the*	Restoration of degraded gazetted forest land	Degraded forests restored with indigenous tree species and increased forest cover.	-Percentage of land under forest/tree cover.	-Department of Environment KFS, KWS, WRA, NEMA, Kenya Water Towers Agency, KEFRI	Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners	250	50	70	70	40	20
	Establishment of indigenous tree nurseries.	Increased seedlings supply for increased forest cover.	No. indigenous tree nurseries established	-Department of Environment -KFS, KWS, WRA, NEMA, Kenya Water Towers Agency, KEFRI	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners	200	30	30	50	50	40

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
effects of climate change.	Fencing of forests	Natural regeneration natural forests.	No. of Kilometres / acreage fenced.	-Department of Environment -KFS -KWS - WRA -NEMA -Kenya Water Towers Agency -KEFRI	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners	500	100	100	100	100	100
	Promotion of farm and urban forestry	Increased tree cover.	-No. of hectares of hill slopes afforested. -No. of hectares of degraded forest restored. -Percentage of land under forest/tree cover No of green spaces established Kilometres of roadside tree planting	-Department of Environment -KFS -KWS - WRA -NEMA -Kenya Water Towers Agency -KEFRI	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners	240	40	40	50	80	30
	Promotion of nature-based enterprises through apiculture and value addition initiatives.	Improved livelihoods.	No. of farmer groups supported in apiculture and value addition.	DWENRCC, KFS, KWS, WRA, NEMA, Kenya Water Towers Agency, KEFRI	Community, Community groups for women, PWDs, Youth and elderly.	2023-2027	National Government, County Government & Development partners.	250	40	60	50	50	50
	Establishment of wildlife conservancy	Wildlife protection.	No. of conservancies established.	DWENRCC, Department of tourism, KFS, KWS, WRA, NEMA, Kenya	Community, Community groups for	2023-2027	National Government, County Government &	110	20	30	30	20	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
				Water Towers Agency, KEFRI	women, PWDs, Youth and elderly.		Development partners.						
	Capacity of actors on implementation of forest transition plans.	Actors sensitized on implementation of forest transition plans.	No. of sensitization workshops conducted.	DWENRCC, Department of tourism, KFS, KWS, WRA, NEMA, Kenya Water Towers Agency, KEFRI	Actors	2023-2027	National Government, County Government & Development partners.	40	5	10	10	5	5
	Develop county policies and regulation s	Policies developed	-County Urban and Farm Forest Policies -County Natural Resource Act -County Natural Resource Regulations	-DWENRCC, Department of tourism, KFS, KWS, WRA, NEMA, Kenya Water Towers Agency, KEFRI		2023-2027	National Government, County Government & Development partners.	30	10	10	0	10	0
Sub-Total								**1620**	**295**	**350**	**360**	**355**	**255**
Health, Sanitation and Human Settlements *Mainstream climate change adaptation into the health sector, and increase the*	Uptake and utilization of malaria treatment services increased in malaria prone areas to reduce the incidence of malaria from 33% to 30%.	Reduced incidences of malaria.	No. of malaria incidences per 1000 population.	-Department of Health Services -Public benefit organization, private sector, and civil society.	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	100	40	20	15	15	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
resilience of human settlements through climate resilient infrastructure.	-Increased number of Open Defecation (ODF)villages from 766 to 1000.	Reduced incidences of water borne diseases.	No. of water borne diseases incidences per 1000 population	-Department of Health Services -Public benefit organization, private sector, and civil society.	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	50	10	10	10	10	10
	Control flooding in human settlements.	Reduced incidences of flooding.	-Floodway developed. - No. of reported incidences of flooding.	-Department of Health Services -Public benefit organization, private sector, and civil society.	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	50	10	10	10	10	10
	Promote recycling to divert collected waste away from disposal sites.	Enhanced solid waste management.	Percentage of urban solid waste regularly collected.	-Department of Health Services -Public benefit organization, private sector, and civil society.	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	50	30	5	5	5	5
	Ensure climate proof waste management infrastructure through screening of existing and upcoming dumpsites for vulnerability to climate change, and plans developed to adapt	Enhanced solid waste management.	No. of improved dumpsites.	-Department of Health Services -Public benefit organization, private sector, and civil society	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	80	40	40	0	0	0

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	to extreme climate patterns.												
	Capacity building of community on solid waste management.	-A sensitized community on solid waste management. -Proper solid waste management.	No. of sensitization and awareness on climate-related health risks, and proper solid waste management conducted.	-Department of Health Services -Public benefit organization, private sector, and civil society	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	50	10	10	10	10	10
	Development of Policies and regulations.	-Storm water harvesting and Solid waste management strategy developed.	Strategies developed.	-Department of Health Services -Public benefit organization, private sector, and civil society.		2021-2023	National Government, County Government & Development partners.	20	10	10	0	0	0
	Promotion of technologies and innovations uptake on solid waste management through provision of incentives to investors/developers who adopt green energy technologies e.g., use of solar, installation of rain water facilities and environmentally friendly waste	Modern solid waste management technologies adopted.	Number of modern solid waste management plants established	-Department of Health Services -Public benefit organization, private sector, and civil society.	Community, Community groups for women, PWDs, Youth and elderly	2023-2027	National Government, County Government & Development partners.	200	100	25	25	25	25

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	management interventions (biodigester) and installation of lighting arrestors.												
Sub Total								**600**	**250**	**130**	**75**	**75**	**70**
Manufacturing *Promote sustainable manufacturing though efficient use of energy and optimal utilization of resources.*	Promotion of clean /renewable energy adoption and increased energy efficiency in industries.	Reduction in greenhouse gas emissions through adoption of efficiency and conservation of energy	Number of industries that have adopted cleaner energy systems, renewable energy systems and by products recycling strategies.	-Department of Trade, Industrialization and Tourism -Kenya Bureau of Standards (KEBS) - NEMA -Private sector, research institutions and academia -Civil society.	Factory, community	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	400	100	70	50	50	30
	Improving water use and resource efficiency.	Improved water conservation in the sector.	Number of companies participating in water efficiency initiatives.	-Department of Trade, Industrialization and Tourism -Kenya Bureau of Standards (KEBS) - NEMA -Private sector, research institutions and academia -Civil society.	Factory, community	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	100	50	20	10	10	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
	Promote industrial symbiosis in industrial zones through scaling-up of industrial symbiosis and environmentally sound technologies and practices in existing and upcoming industries. For example, use of bagasse from sugar industries for briquetting.	Alternative uses of industrial by-products.	No. of companies in symbiosis.	-Department of Trade, Industrialization and Tourism -Kenya Bureau of Standards (KEBS) - NEMA -Private sector, research institutions and academia -Civil society.	Industries	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	200	100	25	25	25	25
	Capacity development by creation of awareness to promote resource efficiency within the sector.	Sustainable production and consumption.	No. of awareness forums conducted	-Department of Trade, Industrialization and Tourism -Kenya Bureau of Standards (KEBS) - NEMA -Private sector, research institutions and academia -Civil society.	Industries	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	20	4	4	4	4	4

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
	Development of policies and regulations that encourage zonation of industries to promote industrial symbiosis, ensure proper treatment of industrial effluents and water recycling.	Promotion of industrial symbiosis, proper treatment of industrial effluents and water recycling.	No. of policies and regulations developed.	-Department of Trade, Industrialization and Tourism -Kenya Bureau of Standards (KEBS) - NEMA -Private sector, research institutions and academia -Civil society.	Industries	2021-2023	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	20	10	10	0	0	0
Sub Total								**740**	**264**	**129**	**89**	**89**	**69**
Energy and Transport *Ensure the energy sector is resilient to climate change, promotes energy efficiency, transition to clean cooking and renewable energy reducing the demand for bio fuel.*	Adoption of solar energy as an off-grid solution in industries and households.	Reduced emissions of GHGs.	No. of households and industries using renewable off grid power solutions such as solar.	Department of Energy, Energy Regulatory Commission (ERC) -Kenya Power, Kenya Electricity Generating Company (KenGen) -Kenya Power, Rural Electrification Authority (REA) -Kenya Electricity Transmission Company (KETRACO) -Kenya Climate Innovation Centre (KCIC) -Private sector	Industries and households.	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	500	300	50	50	50	50

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
				-Civil society.									
	Improve energy efficiency and conservation with focus on: Efficient lighting; Energy efficiency in buildings; and Minimum energy performance standards.	Reduced energy wastage and GHGs emissions.	Percentage of sector energy use and energy trend statistics.	-Department of Energy -ERC -KPLC/KenGen - REA - KETRACO - KCIC -Private sector -Civil society.	Industries and households.	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	50	10	10	10	10	10
	Ensure climate proofing of existing and upcoming energy and transport infrastructure through vulnerability assessment and periodic maintenance and improvement of existing energy and transport infrastructure.	Climate resilient energy and transport infrastructure.	Vulnerability assessment reports.	-Department of Energy -ERC -KPLC/KenGen - REA - KETRACO - KCIC -Private sector -Civil society		2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	500	300	50	50	50	50
	Promote use of biofuel	-Reduction of GHGs emissions from the sector. -Reduced deforestation by reducing the demand for wood fuel.	Percentage of households using clean cooking alternatives such as ethanol and Liquified Natural Gas	-Department of Energy, ERC, KPLC/KenGen, REA, KETRACO, KCIC, Private sector & Civil society.	Households	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit	100	50	20	10	10	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
							Organization						
	Promotion of research on technology and Innovation in the sector.	Reduced GHG emissions in the sector.	-No. of adopted alternatives. -No. of research proposals.	-Department of Energy -ERC -KPLC/KenGen - REA - KETRACO - KCIC -Private sector -Civil society. -Academia, Community entrepreneurs		2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	50	10	10	10	10	10
	Capacity development through training and public awareness on the importance of adjusting to cleaner, efficient energy household initiatives.	-Trained Jua kali artisans on production of improved cook stoves; -Reduced GHG emissions in the sector.	No. of awareness forums conducted.	-Department of Energy -ERC -KPLC/KenGen - REA - KETRACO - KCIC -Private sector -Civil society.	Households and Jua Kali artisans.	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	25	5	5	5	5	5
	Developing Policies and regulations to encourage uptake of clean cooking alternatives	-Reduced GHG emissions in the sector.	Legislations developed.	-Department of Energy -ERC -KPLC/KenGen - REA - KETRACO - KCIC -Private sector		2023-2027	National Government, County Government & Development partners, Civil	20	10	10	0	0	0

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
				-Civil society.			Society, Private sector & Public Benefit Organization						
Sub Total								**1245**	**685**	**155**	**135**	**135**	**135**
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.	Develop a children and youth climate change engagement strategy	A County strategy developed to engage children and youths on climate change actions.	A Strategy	GoK, County Government, Development partners	Youth, Children, Women, Leaders	2023-2027	National Government, County Government & Development partners.	5	0	5	0	0	0
	Enhance children and youth engagement in both National and County climate change policy processes	36 youth groups and children focused local entities participate in policy development	No of youth groups	GoK, County Government, Development partners	Youth	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	8	0	2	2	2	2
	Build capacity of children and youth on climate change and Disaster risk management practices	mainstreaming climate change in teaching and dissemination through skills-based curriculum a child-sensitive risk management plans that address risks related to education challenges	Climate sensitive ECDE curriculum Climate Change child sensitive Plans	GoK Private sector CSOs Development Partners GoK Development Partner	Youth and children	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector &	20	0	2	3	5	5

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
		in extreme climate shocks.					Public Benefit Organization						
	Build the capacity of children and youth on climate action	1,000 children and youth taking climate action through schools, arts, competitions among others	No of children	GoK CSOs Development Partners	Youth and children	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	16	0	4	4	4	4
	Build capacity of youth on development of bankable climate change project proposals	2,000 youth capacity built on developing and accessing climate change funding through various funding mechanisms	No	GoK, Private sector and Development partners	youth	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	70	15	20	15	15	10
	Climate Change learning events	Climate Resource Centre Climate change Children corner Climate finance portal	No	GoK CSOs Development Partners	Youth and children	2023-2027	National Government, County Government & Development partners,	10	2	2	2	2	2

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	22/23	23/24	24/25	25/26	26/27
							Civil Society, Private sector & Public Benefit Organization						
	Establish and Operationalize County youth climate change innovation hubs	I No. 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 base solutions	No	GoK CSOs Development Partners	Youth groups	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	25	0	5	10	5	5
	Build capacity of children and youth on climate change technologies and innovations	500 youth adopt climate change technologies for climate action	No	GoK CSOs Development Partners	children and youth	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	20	0	5	5	5	3
	Participation of youths in climate change governance,	Engage youth to create spaces to make their voices heard at, national, county and	No	GoK CSOs DPs, Schools	youth	2023-2027	National Government, County Government	25	5	5	5	5	5

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
	Advocacy and Financing	local level climate change platforms (Engage with institutions and organizations to develop strategy to integrate climate action into their activities					& Development partners, Civil Society, Private sector & Public Benefit Organization						
	Financing of climate Actions for building resilience of child critical services	Climate change competitions and Champions/ambassadors	No of Awards	GoK, CSOs, DPs	Children	2023-2027	National Government, County Government & Development partners, Civil Society, Private sector & Public Benefit Organization	22	4	5	5	3	5
Subtotal								**221**	**26**	**55**	**51**	**46**	**41**
Capacity building of climate change institutions	Training and awareness	Climate change workshops upscales Climate change forums increased	No of people sensitized	Climate Change Unit, Department of Agriculture	Women, Persons with disability, Farmers, County Departments, Civil society and Faith Based Organizations	2023-2027	National Government, County Government & Development partners	50	10	10	10	10	10

Strategic Objectives	Priority Actions	Expected Outputs/Outcomes	Key Performance Indicators	Responsible Institutions	Targeted Groups	Time frame	Source of Funds	Indicative Budget (KES million)					
								Total	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**
	Climate Change knowledge dissemination	Information Education and Communication material produced and circulated	No of Information, Education and communication material	Climate change Unit, KMD	Women, Persons with disability, Farmers, County Departments, Civil society and Faith Based Organization and community	2023-2027	National Government, County Government & Development partners	100	20	20	20	20	20
Sub Total								**150**	**30**	**30**	**30**	**30**	**30**
GRAND TOTAL FOR KCCCAP							**8,804,000,000**						