REPUBLIC OF KENYA

COUNTY GOVERNMENT OF NYANDARUA

# Nyandarua County Climate Change Action Plan 2023–2027

WORLD BANK GROUP

german cooperation
DEUTSCHE ZUSAMMENARBEIT

KFW

Kingdom of the Netherlands

DANIDA

Sweden
Sverige

REPUBLIC OF KENYA
COUNTY GOVERNMENT OF NYANDARUA

# NYANDARUA COUNTY CLIMATE CHANGE ACTION PLAN 2023–2027

2023–2027

Nyandarua County Government (2023). Nyandarua County Climate Change Action Plan (2023–2027).

Published by

**THE COUNTY GOVERNMENT OF NYANDARUA**

P.O Box 701 – 20303

Ol'Kalou

Tel:(+254) 0792735720, 0792735736

Fax: 020 2660858

Email: info@nyandarua.go.ke



*First Published 2023*

Designed and Printed by:

**KENYA LITERATURE BUREAU**

Publishers and Printers
Belle-Vue Area, KLB Road, Off Popo Road
P. O. Box 30022-00100, GPO Nairobi,
Telephone: +254 (20) 3541196/7, Mobile: +254 711 318 188/ +254 732 344 599

# CONTENTS

**List of Tables**



**List of Figures**

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| CBO | Community Based Organisation |
| CDM | Clean Development Mechanism |
| CECM | County Executive Committee Member |
| CFA | Community Forest Association |
| CIDP | County Integrated Development Plan |
| CSO | Civil Society Organisation |
| CSR | Corporate Social Responsibility |
| DVS | District Veterinary Services |
| EAC | East African Community |
| ECCNR | Environment, Climate Change and Natural Resources |
| EIA | Environmental Impact Assessment |
| EMCA | Environment Management and Coordination Act |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gas |
| GoK | Government of Kenya |
| INDC | Intended Nationally Determined Contribution |
| ICT | Information and Communication Technology |
| ILBM | Integrated Lake Basin Management |
| KALRO | Kenya Agricultural and Livestock Research Organisation |
| KEFRI | Kenya Forestry Research Institute |
| KENGEN | Kenya Electricity Generating Company |
| KEPSA | Kenya Private Sector Alliance |
| KFS | Kenya Forest Service |
| KWS | Kenya Wildlife Service |
| MENR | Ministry of Environment and Natural Resources |
| MET | Meteorological |
| MoALF | Ministry of Agriculture, livestock, and Fisheries |
| NACOFA | National Alliance of Community Forest Association |
| NAP | National Adaptation Plan |
| NCCAP | National Climate Change Action Plan |
| NCCRS | National Climate Change Response Strategy |
| NEMA | National Environment Management Authority |
| NGO | Non-Governmental Organisation |
| PES | Payment for Ecosystem Services |
| PFM | Public Finance Management |
| REDD | Reducing Emissions from Deforestation and Forest Degradation |
| SDG | Sustainable Development Goal |
| SEA | Strategic Environmental Assessment |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WECCNR | Water, Environment, Climate Change and Natural Resources |
| WHO | World Health Organisation |
| WRA | Water Resources Authority |
| WRUA | Water Resource Users Association |
| WWF | World Wide Fund for Nature |

# 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, to take advantage of opportunities, or to respond to consequences (IPCC, 2014, Fifth Assessment Report (AR5) Glossary).

**A carbon credit or offset** is a financial unit of measurement that represents the removal of one tonne of carbon dioxide equivalent from the atmosphere. Carbon credits are generated by projects that deliver measurable reductions in GHG emissions.

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

**Global warming** refers to the gradual increase, observed or projected, in global surface temperature, as one of the consequences of climate change. The main greenhouse gases that are measured in a GHG inventory are: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3).

**Mitigation** means human interventions that seek to prevent or slow down the increase of atmospheric greenhouse gas concentrations by limiting current or future emissions and enhancing potential sinks for greenhouse gases.

**MtCO2eq or MtCO2e** is an abbreviation for million tonnes of carbon dioxide equivalent, or the amount of GHG emissions expressed as an equivalent amount or concentration of carbon dioxide.

**REDD+** is the acronym for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. It is a mitigation mechanism that creates a financial value for the carbon stored in forests by avoiding deforestation and increasing the carbon stock in existing forests.

**Resilience** refers to the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (IPCC, 2014, AR5 Glossary).

**Vulnerabilit**y refers to the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt. (IPCC, 2014, AR5 Glossary).

# COUNTY VISION AND MISSION

**Vision:**

To be a climate resilient county.

**Mission:**

To promote community adaptive capacity to climate change impacts for sustainable county and national development ensuring carbon neutrality.

**Objective:**

To enhance climate resilience through development planning, management, implementation, regulation and monitoring of adaptation and mitigation measures and actions.

***His Excellency Hon. (Dr.) Moses N. Badilisha Kiarie***
***Governor, Nyandarua County***

# FOREWORD

In recent years, Nyandarua County has witnessed many negative impacts of climate change. Indeed, most sectors of Nyandarua County economy including water, agriculture, livestock production, fisheries, tourism, transport, manufacturing and energy are affected. We have witnessed extensive destruction of infrastructure including roads and buildings due to floods in various parts of the County. Droughts and famine affecting communities particularly in the County's semi-arid areas have become more frequent. Frequent prolonged droughts coupled with unpredictable rainfall patterns have affected agricultural and livestock production negatively thus affecting the livelihoods of the majority of the people. Climate change has also led to reduced water availability leading to many residents of the County deteriorating the water quality resulting in increased health issues associated with poor sanitation. The situation is worsened by increasing environmental degradation due to deforestation and pollution.

The situation is worsened by increasing environmental degradation due to deforestation and pollution.

If left unchecked, climate change will derail the development agenda of Nyandarua County and hamper its contribution to the national Government's development agenda and the realisation of Vision 2030. Many of the negative impacts of climate change can be addressed by actions that help our people and the economy adapt to climate change impacts or through long-term strategies to mitigate climate change impacts. On the other hand, climate change offers many opportunities particularly for development agencies and the private sector. Such opportunities include the development and adoption of clean energy, research on and production of appropriate crop varieties, insurance against climate change impacts among others. This action plan will go a long way in helping the County Government address the impacts of climate change for the benefit of our people.

Climate change does not respect County or country boundaries. In this respect, my Government will work closely with the national Government and the neighbouring counties to implement this plan. My administration is committed to ensuring that this plan is implemented. To achieve this, we have integrated adaptation and mitigation activities proposed in this plan into the County Integrated Development Plan (CIDP3), budget and other planning processes. We shall establish governance structures recommended in this plan and also partner with development partners, national Government and non-Governmental organisations to realise the vision in this plan.

Lastly, I sincerely thank all the stakeholders that worked tirelessly to develop this plan.

**HIS EXCELLENCY HON. (DR.) MOSES N. BADILISHA KIARIE**
**GOVERNOR, NYANDARUA COUNTY**

***Hon. Samuel Wachira Mugo***
***CECM–Water, Environment, Climate Change and Natural Resources***

# ACKNOWLEDGEMENT

The 2023–2027 Nyandarua County Climate Change Action Plan is a five-year plan that will guide Nyandarua in climate change mitigation and adaptation. It aims at ensuring that we achieve a County with "a low carbon, climate resilient economy that sustains the livelihoods of its citizens while contributing to the national development agenda".

This action plan was formulated in a very participatory process by Nyandarua County stakeholders to guide the actions necessary to address climate change impacts and take advantage of any emerging opportunities. It is anchored in relevant international, national and County policy and legal frameworks. Relevant climate change issues affecting each sector were identified by the stakeholders and actions either addressing the impacts or those that can mitigate the impacts were agreed upon during stakeholder fora. The action plan has eight objectives around Food Security, Water Security, Environmental Conservation, of Climate Change Adaptation and Mitigation Actions, Enhanced Food Security, Green Energy, Climate Change Resilient Infrastructure, Knowledge Management and Capacity Building, Sustainable Financing for Climate Change Actions and Governance and Coordination.

The preparation of the 2023–2027 climate change action plan was a collaborative effort among various stakeholders. We are grateful for their inputs. Special thanks to the HE. Hon. John Mathara- The Deputy Governor and climate change ambassador for his invaluable support and guidance. We thank the technical Departments, County Government entities and climate change Committees for timely provision of information. We are also grateful for the comments received from the participants during the PCRA who provided invaluable inputs to the plan.

Finally, we are grateful to the core technical team from the directorate of climate change under the stewardship of the Chief Officer- Environment, Climate Change and Natural Resources, Ms. Njeri Njoroge who met and worked tirelessly to prepare and finalise this document.

**HON. SAMUEL WACHIRA MUGO**

**CECM-WATER, ENVIRONMENT, CLIMATE CHANGE AND NATURAL RESOURCES**

# NYANDARUA COUNTY CLIMATE ACTION PLAN (2023–2027)

## TASK FORCE

The entire process was coordinated by the technical committee whose details are as follows;

| | |
|---|---|
| 1. Samuel Wachira Mugo | C.E.C.M- WECCNR |
| 2. Njeri Njoroge | Chief officer - ECCNR |
| 3. Mwanzia Kyambia | Director Climate Change |
| 4. Benedict Kimani Mambo | Ag. Director Water |
| 5. Miriam Ngotho | Director Environment |
| 6. Samuel Bakari | Director Natural Resources |
| 7. Sarah Njuguna | Health Dept |
| 8. Daniel Njuguna | Social Safeguards Officer |
| 9. Hannah Njenga | Deputy Director Agriculture |
| 10. Peter Wambugu | County Director Meteorology |
| 11. Joseph Wahome | Director Finance |
| 12. Jefferson Lee Nderitu | Tourism Officer |
| 13. Teresiah Maina | Senior Forest Officer |
| 14. Kevin Guandaru | Climate Change Officer |
| 15. Josphat Karanja | Climate Change Officer |
| 16. Joseph Mburu | Economist |
| 17. Elijah Muchiri | Natural Resource Management Officer |
| 18. Francis Manene | Land Surveyor |
| 19. Kevin Sanare | ICT Officer |

# EXECUTIVE SUMMARY

The Nyandarua County Climate Change Action Plan (NCCCAP) 2023–2027 has been developed with the aim of ensuring that the County is able to provide quality, sustainable and affordable services, considering climatic risks and vulnerabilities, ensure increased community participation and that climate actions are implemented in an inclusive manner, with benefits being equitably distributed. The plan also aims at ensuring a safe climate for political, social and economic development, maximising the co-benefits of climate actions and avoiding possible negative impacts.

As per guidelines issued by the World Bank and FLLoCA secretariat, the Nyandarua County action plan has been formulated and consists of four sections that build premises on which the plan is laid out.

**Chapter one:** Highlights the background information, causes and evidence of climate change in the County. It encapsulates the process and various reasons for the development of the action plan. It also highlights the impacts of climate change, vulnerable groups affected, hazards and their distribution as well as climate change actions.

**Chapter two:** Outlines relevant national and County policies and regulatory frameworks on climate change.

**Chapter three:** Is on priority climate change actions in key sectors.

**Chapter four:** Outlines the delivery mechanisms, the various enablers and implementation process of CCAP. It also identifies projects, their budgetary requirements and time frame of implementation.

**Chapter five:** It outlines the monitoring, evaluation and reporting framework of the plan.

# CHAPTER 1

# INTRODUCTION AND BACKGROUND

## 1.0 Introduction

Climate change refers to the long term (typically decades or longer) shift in global temperature, precipitation, wind patterns and other measures of climate that can be verified statistically. Climate Change may be due to natural processes or the persistent anthropogenic changes in the composition of the atmosphere or land use. Natural processes that contribute to climate change include variations in solar radiation, earth's orbit, continental tectonic movements, the reflectivity of the earth's surface, and natural release of greenhouse gases.

Man's contribution to climate change is mainly through the increased release of greenhouse gases including carbon dioxide, methane, nitrous oxide, and fluorinated gases. These gases trap warmth in the Earth's atmosphere stopping it from leaving the atmosphere – just like greenhouse structures stop heat from escaping into the surrounding air. Carbon dioxide is primarily produced and released to the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, and wood products. Deforestation and soil degradation add carbon dioxide to the atmosphere, while forest regrowth takes it out of the atmosphere. Methane is emitted during the production and transport of oil, coal, and natural gas. Methane emissions also result from livestock and agricultural practices and the anaerobic decay of organic waste in municipal solid waste landfills. Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste, while fluorinated gases are emitted from a variety of industrial processes, commercial and household.

Nyandarua County has not been spared by climate change impacts. Rainy seasons have become erratic while the dry seasons have become frequent and prolonged hence affecting livelihoods. Instances of frost especially in January and September have also become more frequent.

**Evidence of Climate Change in Nyandarua**

**i. Rise in temperatures.**

Since 1981, the first half of the year has recorded a moderate increase in temperatures (1°C) especially between March and May with a slight increase in precipitation while the second half has recorded a mild increase in temperatures of approximately 0.5°C with no change in precipitation.

**ii. Prolonged droughts.**

In the first half of the year, an increase in dry spells has been noted such that 30–60 (average of 45) consecutive days experiences moisture stress while in the second half of the year shorter dry spells have been recorded such that 25–60 (average of 30) consecutive days experiences moisture stress (MoALF, 2016). The droughts have been noted to extend even into the rainy seasons at the same time being long and intense (Government of Kenya, 2018).

**iii. Extreme precipitation and flood risks**

There has been an increase by 25% in the first half of the year compared to the second half of the year. Between 1981–2015, in the first half of the year, at least each day received above 20mm of precipitation which only occurred for 3 years in the second half of the year in the same period (MoALF, 2016). Generally, the long rainy seasons have become shorter and drier while the short

rainy seasons have become longer and wetter resulting in floods. However, the overall rainfall is still low. In the last 3-6 decades, heavy rainfall has become frequent with witnessed rainfall events causing floods being <3 per year in 1980s, >7 per year in 1990s and 10 events per year between 2000-2006 (Government of Kenya, 2018). In 2020, the heavy rains witnessed caused flooding and landslides that resulted in washing away of Thitai Bridge along Malewa River in Ol' Kalou interfering with transport within the County.

In addition, **instances and frequency of frost, cold days and nights have decreased** while that of **heatwaves, hot days and nights have increased**. The frequency and magnitude of extreme weather conditions has increased within the County since 1950 (Government of Kenya, 2018).

## 1.1 Purpose and Process of the CCCAP

### Purpose

The plan:

- Provides a roadmap for implementation of climate change actions in the County.
- Provides a framework for mainstreaming climate change into sector functions.
- Aligns County development plans with those of national Government
- Encourages participation and inclusivity of vulnerable groups within the County; elderly, youth, women, children, persons living with disability, marginalized and resource poor households.

### Formulation Process

#### i. Desktop Review

Existing international, national and County level legal and policy instruments in relation to the development of County-level climate change Action plan were reviewed. These included relevant International and regional climate change policy frameworks, national policy documents (Vision 2030, The Constitution, National climate change Response Strategy, National Climate Change Action Plan 2013–2017, National Climate change Action Plan (2018–2022), Climate change act 2016, Climate adaptation Plan 2017), Nyandarua County Climate Change Act 2021, Nyandarua County Integrated Development Plan (CIDP) 2013–2017, 2018–2022, 2023–2027.

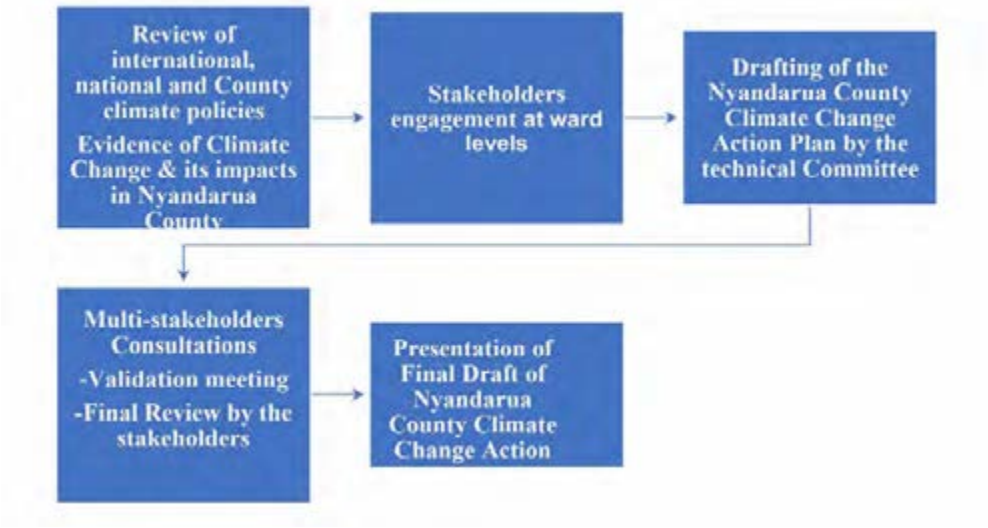



*Fig. 1: Schematic Diagram summarising Nyandarua County Climate Change Action Plan Formulation Process*

**ii. Stakeholder Engagements**

Stakeholder forums were held at ward level with an aim of building the capacity of the participants on climate change matters focusing on:

- The definition of climate change and the context within which it is discussed.
- Evidence of and impacts of climate change in Nyandarua County.
- The need for adaptation and mitigation against climate change.

The engagements also aimed at obtaining sector-based information from the stakeholders on:

- Evidence of climate change in Nyandarua County.
- Local impacts of climate change in different sectors.
- Climate change actions (both adaptation and mitigation) being carried out.
- The stakeholders working on climate change adaptation and mitigations actions.
- Other new and future climate adaptation and mitigation actions.

Stakeholders extensively deliberated on information obtained per sector and agreed on actions that will be implemented to combat climate change in the County. They also prioritised actions based on their perception of severity of climate change impact on various sectors. This information helped the formulation of a vision, mission and strategic objectives for Nyandarua County Climate Change Adaptation Plan 2023–2027.

In addition to these ward engagements, a multi-stakeholder's workshop was held involving key Government Agencies, County Government officers, private sector players with responsibilities in sectors that are vulnerable to climate change. The draft plan was then subjected to validation by stakeholders. This was then tabled at the County Executive Committee for approval. The plan was further submitted to the County Assembly for review and adoption.

## 1.2 Underlying Climate Resilience Context

### 1.2.1 Impacts of Climate Hazards in the County

Climate change has posed various risks which have adverse effects on various sectors; socio-economic, agricultural, health and environment influencing livelihoods of the people and development.

**i. Socio-economics impacts**

**Loss of lives** mainly from floods as a result of heavy rainfall. In 2018, flash floods claimed 7 lives in Karati, Kinangop Sub-County after a Toyota-Probox they were travelling in was swept away (Tuko, 2018).

**Displacement of people from increased instances of flooding**. In 2019, more than 35 people from 8 families were displaced from their homes and various herds of cattle drowned when River Turasha in Gachuha village Kipipiri sub-County burst its banks. In the same year, dozens were displaced in Ol' Joro Orok due to flooding within the area (KBC, 2019) (KNA, 2019).

**Instances of prolonged droughts resulting in food insecurity** due to delayed onset of rains. This often lowers productivity leading to food shortage.

**Increased vulnerability**–Women, elderly, youth, children, PLWDs and poor resource households are more vulnerable to impacts of climate change.

**ii. Environmental Impacts**

**Droughts.** Recently, instances of drought have become prevalent in Kenya and in Nyandarua. This

is mainly due to late and shorter rainy seasons which are poorly distributed annually and across the region. Between 1990–2015, ten (10) drought seasons occurred as reported by the International Drought Database (Government of Kenya, 2018).

**Land degradation.** Activities resulting to land degradation include deforestation, charcoal-burning, overgrazing, burning as a way of weed control, continued use of inorganic fertilizers and over cultivation. Encroachments in Aberdare Forest Reserve, Satima Escarpment and lake Ol Bolossat has led to degradation and over-exploitation of natural resources in these key critical ecosystems.

**Biodiversity loss** lowers ecosystems productivity and negatively affects provision of ecological services.

**Deforestation and degradation of forests** as climate change affects their growth, survival, regeneration capacity, quality and composition. Extended periods of droughts coupled with the rise in temperatures exposes forests to frequent fires, pests and pathogens. This limits the ability of forests to provide goods and services such as carbon sequestration hence accelerating impacts of climate change.

**Landslides and erosion**. In 2018, there were concerns in Ndunyu Njeru area, Kinangop Sub-County after heavy rains degraded cemeteries, resulting to their sinking while the flash floods from the cemeteries drained in Kinja River which is depended upon by residents for domestic and livestock use, raising health concerns among the residents (The Star, 2018).

*Fig. 1.2: Showing Sinking Graves in Ndunyu Njeru, Kinangop Sub-County Due to Heavy Rains Resulting in Land Degradation (Source: The Star)*

### i. Economic Impacts

The cost of floods and droughts is estimated to have a huge negative impact on the economy of about 2-2.8% of the GDP annually. For every 7 years, the floods are estimated to cost 5.5% while the droughts cost 8% of the GDP for every 5 years in Kenya (Government of Kenya, 2018).

During rainy seasons, floods destroys properties worth billions of shillings across the country. In 1997/1998, the El Niño induced floods caused losses and damages of between US$ 800 million and US$ 1.2 billion. In 2018, crops in about 85,000 ha of land were destroyed while the floods drowned

above 20,000 heads of livestock all over the country. (Government of Kenya, 2018). In Nyandarua County, 2019 heavy rains caused landslides destroying dozens of homes leaving more than 20 families homeless in Gachuha village, Githioro ward (The Standard, 2019) while the 2020 heavy rains posed a threat to about 16,906 hectares of maize and 37,860 hectares of potatoes cultivated within the year hence loss worth tens of billions was encountered (Daily Nation, 2020).

*Fig. 1.3: Showing Flash Floods in Gachuha Village Kipipiri Sub-County (Source: The Standard)*

Droughts delay crops and lower the yields. Between 2007–2017, droughts resulted in livestock population losses amounting to nearly US$ 1.08 billion in the country. The 2008–2011 severe droughts contributed to the reduction in Kenya's GDP growth rate from an average of 6.5% in 2006/2007 to an average of 3.8% between 2008 and 2012. This led to a loss estimated to have cost the Kenyan economy KES 968.6 billion (Government of Kenya, 2018). In Nyandarua County, continued severe droughts could have a reversible impact on Nyandarua's natural resources especially Lake Ol' Bolossat. The County Government has invested hugely on drought mitigation by drilling of boreholes, digging of water pans and distribution of water tanks to promote water harvesting and storage.

*Table 1: Summary of climate change impacts by sector in Nyandarua County*

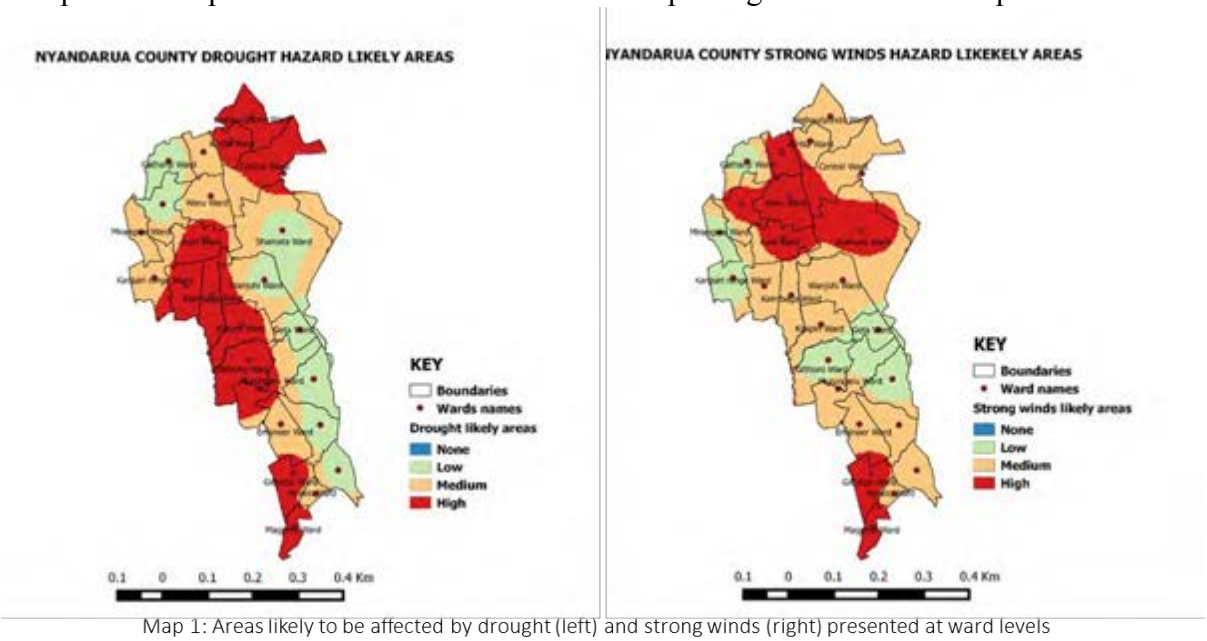
| Sector | Likely Impacts of Climate Change |
|---|---|
| Crops | • Increased food insecurity<br>• Decline in overall crop yields due to insufficient availability of water, excessive moisture conditions, more pests, diseases and weeds<br>• Lower production due to temperature increases and lower precipitation leading to reduced soil moisture<br>• Uncertainty regarding the impact of production of specific crops, but likely reduction on yields of maize, potatoes and beans, and potential reductions of export cash crops mainly the horticulture<br>• Higher temperatures may have a positive impact on agricultural production as the County lies on a highland area by increasing the plant growth rate and lowering maturity period<br>• Greater reliance on irrigation due to reduced precipitation |

| | |
|---|---|
| Livestock | • Livestock deaths caused by drought<br>• Decline in production due to lack of pasture, reduced access to water, and heat stress<br>• Expected changes in disease patterns, and potential for re-emergence of Tsetse, East coast Fever and African Trypanosomiasis in the highlands of the County |
| Environment | • Increases in invasive species, new pests, and diseases<br>• Increase in stagnant air days leading to worse air pollution<br>• Increased likelihood of contestation and conflict over diminishing natural resources |
| Forestry | • Reduced provision of environmental resources and economic activity<br>• Increased exposure to wild fires, pathogens and invasive species |
| Health | • Increase in the incidence of Malaria, Rift Valley fever, malnutrition among other diseases<br>• Increase in water-borne diseases such as typhoid and cholera due to flooding |
| Tourism and Wildlife | • Adverse impacts on ecologically sensitive tourist destinations<br>• Increased instances of human-wildlife conflict especially for hippos around Lake Ol' Bolossat basin during droughts<br>• Potential for species extinction among them many species of birds |
| Water | • Reduced availability of water for domestic and industrial use<br>• Depletion of groundwater aquifers<br>• Increased water loss from reservoirs (wetlands and rivers and water pans) dues to evaporation<br>• Continued degradation of Lake Ol' Bolossat that feeds Ewaso Ng'iro River, degradation of Aberdare Forest that acts as a catchment area for may rivers within the County may lead to lower water levels particularly in the dry season |
| Transport | • Destruction of infrastructure including roads and bridges during storms<br>• Interruption of road transport from flooding and heavy rainfall events<br>• Softened and expanded pavement creating rutting and potholes<br>• Disruption of access to work, markets, education and healthcare facilities, due to damaged infrastructure and transport services |
| Security | • Increased likelihood of conflict within the County, between Nyandarua County and the neighbouring counties as wells as the neighbouring communities<br>• Financial instability through supply line disruptions and increased risks of doing business |
| Sustainable Manufacturing and cottage industries | • Greater resource scarcity (such as water and raw materials) for inputs to manufacturing processes<br>• Greater risk of plant, product and infrastructure damage and supply chain disruptions from extreme weather events<br>• Higher costs to companies, including for insurance |

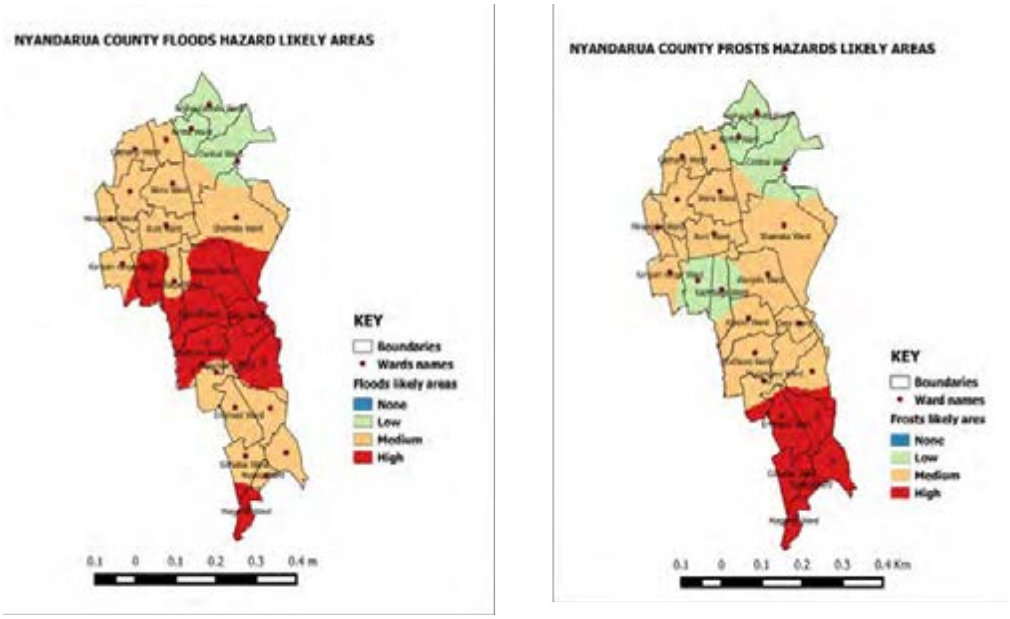
| | |
|---|---|
| Drought and Flood Management | • Increased number of people without access to water<br>• Increased frequency and intensity of droughts, decrease ability to cope<br>• Increased frequency and intensity of flooding decrease adaptive capacity<br>• Increased number of food insecure and malnourished people<br>• Declines in school attendance and rising dropout rates |
| Blue Economy and Fisheries | • Decline in economic benefits of blue economy investments<br>• Declining fisheries<br>• Damage to tourism industry hence decline in livelihoods<br>• Increased risk of alien invasive species |

### 1.2.2 County Climate Hazard Map

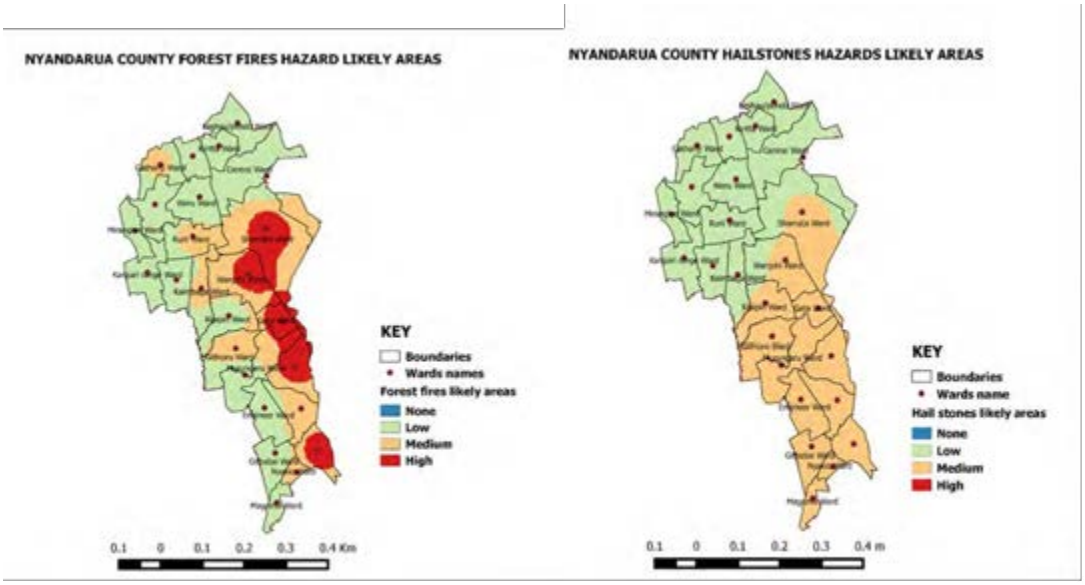
The maps below represent the likelihood of hazards impacting an area as shown per ward.




Map 1: Areas likely to be affected by drought (left) and strong winds (right) presented at ward levels




Map 2: Areas likely to be affected by floods (left) and frosts (right) presented at ward levels




Map 3: Areas likely to be affected by forest fires (left) and hailstones (right) presented at ward levels

### 1.2.3 Summary of Differentiated Climate Exposure and Vulnerability of Key Groups and Livelihoods in the County

The outcome of the PCRA indicated that the climate hazards currently deemed as having the highest impact on most vulnerable groups are drought, floods, crop pest and diseases, frost, strong winds, extreme change in temperature, forest fires, rock falls and mudslides. The top five vulnerable population groups identified as most affected by the current climate hazards are resource poor households, women, Persons living with disability, Elderly and children. These hazards have a great impact on agriculture, water, forests and health consequently affecting their livelihoods (social and economic activities) negatively. The identified vulnerable groups have no equal access and stake in the community resources and local decision making as they are looked down upon.

| S. No | Hazard | Vulnerable group | Impact |
|---|---|---|---|
| 1. | Drought | Women<br>Children<br>Youth<br>Elderly<br>PWLD<br>PRH | • Water scarcity<br>• Deforestation<br>• Crop failure hence food shortage and Malnutrition<br>• Loss of livelihoods<br>• Deaths (people and livestock) |
| 2. | Crop pests and disease infestation | Women<br>Children<br>Youth<br>Elderly<br>PLWD | • Loss of fodder and pasture<br>• Reduced production<br>• Food insecurity hence malnutrition<br>• Increased cost of Production |
| 3. | Floods | Children<br>Women<br>Youth<br>Elderly<br>PLWD | • Soil erosion<br>• Poor water quality<br>• Destruction and loss of property<br>• Water-borne diseases<br>• Seasonal displacement of people |
| 4. | Strong winds | Women<br>Children<br>Youth<br>Elderly<br>PWLD | • Soil erosion<br>• Drying of water pans and wetlands<br>• Destruction of property<br>• Reduced crop production |
| 5. | Frost | Children<br>Women<br>Youth<br>Elderly<br>PLWD | • Increased instances of respiratory diseases<br>• Crop Failure<br>• Small scale trading lowered |
| 6. | Extreme change in temperatures | Women<br>Children<br>Youth<br>Elderly<br>PWLD | • Reduced production due to loss of soil moisture<br>• Diseases (crop, livestock and human including arthritis and respiratory)<br>• Reduced trading/business activities |
| 7. | Fog and mist | Women<br>Children<br>Youth<br>Elderly<br>PWLD | • Poor visibility hence accidents (reduced mobility)<br>• Increased crop diseases<br>• Reduced crop production |
| 8. | Rock falls and mudslides | Women<br>Children<br>Youth<br>Elderly<br>PWLD | • Loss and destruction of property<br>• Poor water quality<br>• Soil erosion<br>• Reduced crop production<br>• Deaths |

## 1.3 Brief Overview of Climate Change Actions in the County

### 1.3.1 Mainstreaming of NCCAP in County Actions

The County has enacted the Nyandarua County Climate Change Act, 2021 setting the foundation for adaptation and resilience. The CECM coordinates climate change affairs and reports annually on climate interventions. The County Climate Change Fund Regulations, 2021 is enacted and 2% of the development budget allocated to the fund. Climate change resilience is mainstreamed into CIDP III.

### 1.3.2 Climate Change in CIDP

The Nyandarua County CIDP III has been developed with the recognition of the effects of climate change in the County. The priority programmes and projects identified have been coined in a way that they will address the effects of climate change as well as their mitigation strategies. The CIDP III priorities have been linked with the National priorities as captured in the MTP IV, Kenya's Vision 2030, among other plans.

CIDP III has taken bold steps to mainstream climate change in the County's development agenda. It recognizes that climate change is a key driver of environmental degradation. The CIDP lays emphasis on building resilience and enhancing adaptive capacity to climate change impacts, mainstreaming climate change at all sectors of the County Government and promotion of research in climate change.

### 1.3.3 Other key Climate Actions/Strategies in the County

Lake Ol Bolossat Integrated Management Plan (2020–2030) provides for the protection, rehabilitation and sustainable use of resources in the lake Ol Bolossat and its catchment. This will enhance climate resilience and sustenance of upstream and downstream communities.

Nyandarua Forest Landscape Restoration Strategy (2021–2030) provides for the restoration of over 200,000 Hectares of degraded forest land, protection of existing forests and diversification of community livelihoods through sustainable use of tree and forest products.

Enactment of the Nyandarua County Environment Action Plan (CEAP) will promote proper management of the environment and actions to reduce environmental degradation in all sectors in the County. County legal and institutional frameworks are providing enabling environment for establishment of partnerships in climate change adaption and mitigation.

# CHAPTER 2

# POLICY ENVIRONMENT

## 2.1 National Policy Context

All the key sectors of Kenyan economy (including agriculture and fisheries development, Environment and water, Tourism, infrastructural development, industrial development and trade among others) are dependent on natural resources which are themselves vulnerable to impacts of climate variability and climate change. Climate change has therefore been identified as a major impediment towards the realisation of the country's Vision 2030 goal of becoming a middle-level industrial economy by the year 2030 (GoK, 2010a). The country has therefore put in motion efforts to ensure that there are mechanisms to mainstream climate change in the development agenda. To achieve this Kenya has been working with the rest of the global community to address the impacts of climate change and to reduce Green House Gases (GHG) emissions that are to blame for much of the global warming problem.

Climate change is a global problem that demands a global solution and Kenya is an active player in the international efforts. The international response to climate change is founded on the UNFCCC.

Within the country, the Kenyan Government has been working with stakeholders to plan her response to dealing with climate change and has also been actively developing various national policies and strategies to combat it. However, following devolution as per the country's constitution, the lead player in some of the sectors impacted on by climate change is the County Government. In this chapter, the relevant international, regional, national, County and local level and climate change policies are examined with emphasis on mainstreaming climate change at the County level.

### 2.1.1 The National Perspective

The National Climate Change Response Strategy (NCCRS) 2010 was developed to help Kenya deal with the negative impacts of climate change and to maximise the positive impacts of climate change. The strategy was developed through a consultative process and its vision is a "prosperous, and climate resilient Kenya." Its mission is to strengthen nationwide focused actions towards adapting to and mitigating the changing climate. The strategy aimed to develop sectoral and cross-sectoral priorities for climate change adaptation and mitigation in the terms of short, medium and long-term actions.

The strategy recognizes that agriculture, tourism, infrastructure, health, natural resources especially biodiversity are the sectors that are most vulnerable to climate change.

The Strategy recognizes that the Kenyan environmental policies in place by 2010 had not mainstreamed climate change. It also took note of the prevailing international climate change policy instruments available by 2010 and Kenya's participation in the global climate change agenda. The strategy pointed out the international, national and local mechanisms to finance recommended actions. The strategy was formulated in an inclusive and participatory process that mainstreamed gender and vulnerable groups and identified research needs and vulnerable sectors.

### 2.1.2 National Legal and Policy Framework

**The Kenyan Constitution**

Although the Kenyan constitution does not specifically address climate change, it does so indirectly

by Articles 42 and 70. Under article 42, the constitution gives every person the right to "a clean and healthy environment" while Article 70 empowers any person whose right to a clean and healthy environment is violated to seek legal redress. As such any person who contributes to making the environment unhealthy can be sued for it. Article 360 (1b) of the Kenyan constitution requires that the state should work towards a 10% forest cover. County Governments can use these constitutional provisions in the formulation of County-specific policies and strategies.

**Vision 2030**

Vision 2030 – The long-term development blueprint for the country – aims to transform Kenya into "a newly industrialising, middle-income country, providing a high quality of life to all its citizens in a clean and secure environment." Emphasis was placed on infrastructure; Science, Technology, and Innovation; Public Sector Reforms; Tourism; Agriculture; Trade; Manufacturing; ICT (Information Communication & Technology) without the recognition that climate change can derail the realisation of the goals.

**County Government Act, 2012**

Section 110 of the County Government Act 2012 requires counties to produce a ten-year spatial plan to guide development. Some of the actions recommended in this plan can be implemented in the formulation of the Nyandarua County Spatial plan. These activities include the mapping of wetlands, agricultural land riparian habitat boundaries. Such actions will contribute to the County's climate change adaptation and mitigation strategies.

**Other relevant national policy and legal instruments**

a) **Environmental Management and Coordination Act** (No. 8 of 1999 and Amendment 2015). The Act is the principal instrument of Government for the management of the environment. It provides for the relevant institutional framework for the coordination of environment management including the establishment of the National Environment Management Authority (NEMA), which is the Designated National Authority (DNA) for Clean Development Mechanism (CDM) and the National Implementing Entity (NIE) for the Adaptation Fund.

b) **Water Act (No. 43 of 2016)** – Establishes National Water Harvesting and Storage Authority. Part V of the Act establishes a Water Sector Trust Fund and empowers it to work with relevant institutions to develop incentive programmes for water resources management including disaster management, climate change adaptation and mitigation.

c) **Forest Conservation and Management Act 2016** gives effect to Article 69 of the Constitution with regard to forest resources; to provide for the development and sustainable management, including conservation and rational utilization of all forest resources for the socio-economic development of the country and for connected purposes.

d) **Urban Areas and Cities Act 2016** provides for the classification, governance and management of urban areas and cities; for the criteria of establishing urban areas, also provides for the principle of governance and participation of residents and for connected purposes.

e) **Health Act (No. 21 of 2017)** – This act contains a section on environmental health and climate change (Part VII, sections 68 and 69) that is relevant to climate change.

f) **Energy Bill (2017)** – Part 3, section 43; Part 4, section 74 (i), and Part 9 address climate

change-related issues

g) **National Urban Development Policy (NUDP)** seeks to create a framework for sustainable urban development in the country and addresses environment and climate change and other themes relevant to urban development.

h) **The Integrated National Transport Policy (2010)** policy provides for transport solutions that are relevant to climate change mitigation.

i) **The National Disaster Management Policy, 2012** institutionalised disaster management and mainstreams disaster risk reduction in the country's development initiatives. The policy aims to increase and sustain resilience of vulnerable communities to hazards.

j) **Green Economy Strategy and Implementation Plan (GESIP) 2016 – 2030**.: Provides the overall policy framework to facilitate a transition to a green economy and outlines the need to mainstream and align green economy initiatives across the economic, social and environmental spheres.

k) **The Agriculture Sector Development Strategy 2010–2020** is the overall national policy document for the agricultural sector. The strategy promotes sustainable food production and agroforestry. There are also broad implications for the forestry sector, which the strategy elaborates.

l) **The National Forest Programme (2016–2030)** is the outlines the cross-sectoral and multi-stakeholder national framework for developing and coordinating forest development aimed at meeting the needs of Kenyans from 2016 to 2030. The framework aims at sustainable forest management with a to develop and sustainably manage, conserve, restore and utilise forests and allied resources for socio-economic growth and climate resilience.

m) **Climate Risk Management Framework (2017)** The framework was developed in a participatory manner with technical experts and stakeholders working on disaster risk reduction and climate change adaptation. It recognises that Kenya faces various forms of disasters, but focuses on hydro meteorological disasters given their magnitude, socio-economic and environmental impact, and frequency of occurrence.

## 2.2 County Enabling Legal And Policy Framework

**Nyandarua County Climate Change Act, 2021**

This is the main legislature guiding climate change response actions at County level. Section 50 of the Act provides for the establishment of the County Climate Change Fund which is mainly 2% of the County development budget in addition to other funds dedicated to climate change. It provides for the formation of climate change units and committees to run all the climate change functions within the County.

Section 36–39 of the climate change act gives the contents, approval and publication, as well as review of the climate change action plan. Climate change action plan runs for a period of 5 years, must run concurrently with the current NCCAP, and CIDP and provides for the specific measures and actions to respond to climate change within the County.

**County integrated development plans (CIDPs)**

The County Integrated Development Plans guide the County on the project and programmes for implementation in the five years span. In the CIDP, the projects aimed at addressing the issues related to climate change are domiciled in the climate change directorate. However, since climate change is a cross cutting issue, the other departments have identified programmes and projects that would address effects of climate change as well as mitigation strategies.

# CHAPTER 3

# PRIORITY CLIMATE CHANGE ACTIONS

## 3.1 Identification of Strategic Climate action priorities in the PCRA

From the participant engagements, priority adaptation strategies were proposed to respond to the main climate change hazards in order to promote community resilience. These priority projects and programmes reflects the needs of communities and are anchored on ecosystem conservation, food and nutrition, soil and water conservation thematic areas. Soil and water conservation projects were the most prioritized by the residents mainly due to the fact that drought and floods were identified as the major climatic risk occurring across all the twenty-five (25 wards).

The plan takes note of impacts of climate change on socio-economic sectors. It identifies key areas where climate action over the next five years is linked to Kenya's Vision 2030 and the Sustainable Development Goals (SDGs) recognising that climate change is likely to limit their realisation. It prioritises adaptation actions because of the devastating impacts of droughts and floods and on the vulnerable society groups which mainly impact the agriculture sector affecting food security. The adaptation actions will be undertaken in a way to limit GHGs emissions, where possible, to ensure that the County meets its mitigation objects and at the same time ensuring that the country achieves its NDCs under the Paris Agreement to reduce GHG emissions by 32% by 2030 relative to the business-as usual scenario of 143 MtCO2e (Government of Kenya, 2018).

Based on the SDGs, the Action plan will contribute to sustainable development achievement as well as increased agricultural productivity and improved water accessibility. Nyandarua County Climate Action Plan 2022–2027 adaptation actions will provide benefits for women through access to clean cooking, forest restoration and agroforestry actions that provide energy and water sources (Government of Kenya, 2018).

There is an alignment and synergies in terms of impacts of climate change mitigation and adaptation actions on the SDGs and Vision 2030. Particular attention was given to the way climate actions address the overriding objective of the vision 2030 Agenda for inclusivity. This objective involved prioritising the poorest and most vulnerable in the pursuit of sustainable development to end extreme poverty and curb inequalities by 2030. The analysis systematically assessed the impact of all climate actions on SDG 1 on poverty eradication, SDG 5 on gender equality, and SDG 10 on reducing inequalities (Government of Kenya, 2018).

The adaptation and mitigation actions in this plan directly address or provide likely benefits for all the SDGs. The greatest potential benefits are related to:

- Knowledge Management and Capacity Building of Community, Stakeholders, Climate Change Committees and County officials (SDG 13).
- Sustainable agriculture and food security (SDG 2 and Economic & Macro pillar of the vision 2030).
- Sustainable and renewable energy (SDG 7 and Economic and Macro & Social pillars of the vision 2030).
- Ecosystem restoration and preservation (SDG 15 and Social pillar - Environment, Water and Sanitation of the Vision 2030).
- Water availability (SDG 6 and Environment, Water and Sanitation -Social pillar of the Vision 2030).

- Sustainable growth and industry (SDG 8 and Economic and Macro pillar – infrastructure and Manufacturing).
- Sustainable transport (SDG 9 and Economic and macro & social pillars of the vision 2030).
- Sustainable waste management (SDG 11 and Social (Environment water and sanitation) pillar of the Vision 2030).
- Human health (SDG 3 and Social-health Pillar of the vision 2030).

Low-carbon energy sources; ecosystem-based solutions such as climate smart agriculture, rangeland restoration and agroforestry; and the development of sustainable public transport systems have sizeable win-win benefits for boosting employment and manufacturing capacity, protecting the environment, and narrowing inequalities (Government of Kenya, 2018).

## 3.2 Priority County Climate Change Actions

Nyandarua County Climate Change Action Plan 2023–2027 outlines the programmes and strategies for adaptation and mitigation. It is a comprehensive plan that:

- Enables all sectors within the County to act to achieve climate change adaptation and mitigation objectives.
- Supports achievement of the Vision 2030 agenda and the SDGs.
- Enhances the adaptive capacity and resilience of communities, with an emphasis on the marginalised and vulnerable groups within society.
- Undertakes actions that limit GHGs emissions, where possible, to help Kenya achieve the mitigation NDC under the Paris Agreement; and
- Enables actions to be undertaken in an integrated manner that address several priorities. E.g., actions to plant trees also contribute to disaster risk management, water and food security objectives.

*Table 2: Summary of Priorities and their Objectives*

| Priority | Objective |
|---|---|
| Disaster Risk (Floods and Drought) Management | Reduce risks to communities and infrastructure resulting from climate-related disasters such as droughts and floods |
| Food and Nutrition Security | Increase food and nutrition security through enhanced productivity and resilience of the agricultural sector in as low-carbon a manner as possible |
| Green and Renewable Energy | Reduce reliance on wood (charcoal, firewood) energy by 30% through increased uptake of green and sustainable energy in households and institutions |
| Forestry, Wildlife and Biodiversity Conservation | Increase forest cover to 30% of total land area; rehabilitate degraded lands, including rangelands; conserve fragile ecosystems; increase resilience of the wildlife and reduce loss of biodiversity |
| Enhanced Water Security and the Blue Economy | Enhance resilience of the water sector by ensuring access to and efficient use of water for agriculture, manufacturing, domestic, wildlife and other uses |
| Health, Sanitation and Human Settlements | Reduce incidence of malaria and other diseases expected to increase because of climate change; promote climate resilient buildings and settlements including urban centres; and encourage climate-resilient solid waste management |

| | |
|---|---|
| Energy and Transport | Climate-proof energy and transport infrastructure; promote renewable energy development; increase uptake of clean cooking solutions; and develop sustainable transport systems |
| Sustainable Manufacturing | Promote local value chains and cottage industry and resource efficiency in the manufacturing sector |
| Environment and Social Performance | To reduce degradation, damage and loss of environmental and social resources |

Nyandarua County Climate Change Action Plan 2023–27 recognises that certain enabling activities cut across the strategic priorities, such as increasing access to climate finance, measuring and reporting on climate actions, improving the legal and policy framework, building capacity, enhancing knowledge management and promoting technology and innovation.

# CHAPTER 4

# DELIVERY MECHANISMS FOR CCAP

## 4.1 Enabling Factors

### 4.1.1 Enabling Policy and Regulation

The County has put in place relevant policy and regulatory frameworks towards actualization of this plan. This among others Nyandarua County Climate Change policy, Nyandarua County Climate Change Act 2021, Public Finance (Climate Change Fund) Regulations, 2021. The County is in the process of preparing an energy plan that will complement the CCAP. Provisions in the County frameworks will be complemented with those in international, national, and regional level to ensure delivery of this CCAP. Synergy between actors in the various levels is critical.

### 4.1.2 Mainstreaming in the CIDP

The CIDP is a statutory document that captures the County priority projects and programmes to be implemented in five years. Actions emanating from the CIDP guides annual development plans, sector plans and budgets. Adherence to provision in the CIDP and ensuring documents is basic to achievement of the CCAP. The CCAP priorities have been linked with the County priorities as captured in CIDP3.

### 4.1.3 Multi-stakeholder Participation Processes

Active and informed participation of all stakeholders is critical in the development and implementation of CCAP. Stakeholder engagement enhances ownership and success of initiatives. Stakeholder at all levels, particularly local, were actively engaged in the priority projects and cycles in this plan. The CCU is assessing and developing the capacity of various stakeholders to deliver on the climate change agenda. This will enhance the ability of the stakeholders to report on lived experiences and positive impacts ensuing from actualization of CCAP.

### 4.1.4 Nyandarua County Climate Change Fund Regulation 2021

The County is committed to allocating 2% of its development budget to the fund. Functioning of the CCCF has and will continue to enable other donors to contribute and enhance its performance.

### 4.1.5 Governance–County Government Structure

Synergy between the County Executive and Assembly has proved critical in delivery of services and positive development impacts. The two arms are working and will continue to work in synergy to actualise the CCAP. Allocation and approval of adequate funding for the actions in this plan is paramount.

### 4.1.6 Governance–Climate Change Planning Committees

The various committees established under the climate change Act 2021 have distinct but complementary roles in climate interventions in the County. Timely screening, vetting and forwarding of the priority high impact adaptation projects to the planning and steering committees will ensure they are funded and implemented effectively.

### 4.1.7 Climate Information Services And Climate Data Access

The CCCU is setting up the County climate information services to collate, synthesise and disseminate information and data for early warning preventive and remedial measures to climate change. The climate change information centre equipped with appropriate technology will function as a banking, clearing and disseminating channel of requisite information and data. This will enable stakeholders at various levels to respond and act on hazards, risks and also report on best practices and impacts.

### 4.1.8 Resilience Planning Tools

A number of planning tools exist at various levels and the relevant ones were applied in the development of the CCAP and will guide in its implementation. These tools include among others, the, NCCAP 2018-2022, the National Climate Change Response Strategy 2010, the National Adaptation Plan (NAP), the National Determined Contributions (NDCs), Measurement, reporting and verification framework, the CIDP and NCCCA, 2021. Relevant provisions in these tools have been contextualized in the County through development of the County PCRA and will be critical in implementation of this CCAP.

### 4.1.9 Measurement, Reporting and Verification

Nyandarua County will use the existing national measurement, reporting and verification framework and contextualise it to actions in this Plan. The plan stipulates indicators of progress in adaptation and resilience building in the County. The County is developing a context specific system to compile, analyse and report on progress and challenges and share with stakeholders and lead agencies. Progress will be reported annually by the CCU and the CECM in charge of climate affairs.

### 4.1.10 Institutional Roles and Responsibilities

The roles and responsibility of key institutions is summarised in the table below.

| Institution | Roles and Responsibilities |
|---|---|
| County Government | • Integrate the CCAP into sectoral strategies, action plans and other implementation projects<br>• Mainstream climate change actions, interventions and duties into County Integrated Development Plan III<br>• Prepare report on the implementation progress of climate change actions |
| County Assembly | • Legislate on Climate Change issues<br>• Ensure mainstreaming of climate change on development |
| National Government Sectoral Agencies | Integrate the CCAP into sectoral strategies, action plans and other implementation projects |
| Donors and Multi-agencies | Provide financial and technical support |
| Ministry of Environment, Climate Change and Forestry | Provide technical support and linkage with the National Climate Action Plan |
| Kenya Wildlife Service | Support on wildlife interventions |
| Kenya Forest Service | Support interventions on gazetted forest |

| | |
|---|---|
| National Environment Management Authority | Monitor and Enforce compliance of climate change interventions. |
| Civil Society Organisations | Public awareness creation, policy research and analysis, and advocacy on key socio-economic issues |
| Private Sector | Awareness raising and information building |
| Public | Planning, implementation and monitoring of adaptation interventions |

## 4.2 Implementation and Coordination Mechanisms

This section provides actors involved in the implementation and coordination of activities in this plan.

### 4.2.1 Directorate of Climate Change

As envisioned by the Nyandarua County Climate Change Act (2021), the Directorate of Climate Change shall:

- Advise the Executive Committee Member in charge of Climate Change on policy, strategic planning and all matters related to Climate Change in the County.
- Provide secretariat services to steering and planning committees.
- Coordinate, mainstream and integrate climate change programs into sectoral strategic plans to ensure synergy among other key sectors.
- Establish and maintaining relationships with the counties with shared natural resources, regional and international organisations, institutions and agencies with interest on the said ecosystems and natural resources as may be appropriate for the implementation of the climate change policy and recommendations.

### 4.2.2 County Climate Change Planning Committee

The Nyandarua County Climate Change Planning Committee shall:

- Coordinate planning and implementation of projects and activities for climate change responses in the County.
- Provide leadership for the implementation of this Climate Change Action Plan as well as the County Climate Finance Framework.
- Promote informed designing of projects and programmes at local levels, the committee shall establish guidelines to be used by the Ward Climate Change Committees in formulating climate response projects for funding by the County Climate Change Fund.
- Support Ward Committees in development and implementation of climate response projects
- Advise the Steering Committee on strategies, priority programmes, projects and activities for climate change responses in the County.

### 4.2.3 Steering Committee

As envisioned in the Nyandarua County Climate Change Act, the Steering Committee shall among others

- Coordinate and oversee climate change responses in the County.
- Mobilise funds into the County Climate Change Fund established under Climate Change Act.

- Review, approve and monitor implementation of Regulations for administration and management of the County Climate Change Fund.
- Review and make recommendations on the biennial report on implementation of the County Climate Change Action Plan and any other reports on climate change response interventions in the County.

### 4.2.4 Climate Change Unit (CCU)

As outlined in the Climate Change Act 2021, the Climate Change Unit (CCU) shall:

- Be responsible in coordinating and overseeing climate change responses in the County.
- Set County-specific targets for climate change actions, and develop strategies to achieve them
- Mainstream climate change issues in the implementation of the County Integrated Development Plans III (CIDP III).
- Capture activity data and coordinate analysis, documentation and dissemination.
- Mainstream disaster risk reduction in development projects and spatial plans.
- Approve and oversee implementation of the County climate change actions.
- Advise departments and the County assembly on legislative and policy measures necessary for climate change response and attaining low-carbon climate-resilient development pathways.
- Develop public education, awareness strategies and implementation programmes.

### 4.2.4 Ward Climate Change Committee (WCCC)

As actioned in the Climate Change Act 2021, the Ward Climate Change Committees shall coordinate and mobilize communities and other stakeholders at the ward level to design and implement local climate change response activities.

With the support of Climate Change Unit, the respective Ward Committees shall also facilitate research and knowledge management at the ward level on climate change, its impacts and strategies for responding thereto.

To promote stewardship and promote sustainability, the committees shall facilitate public education, awareness creation, and capacity building at the ward level on climate change, its impacts and adaptation strategies.

## 4.3 Implementation Matrix

**Summary of Priority Climate actions**

***Priority 1: Knowledge Management and Capacity Building of Community, Stakeholders and County Officials***

| **Priority 1: Capacity Building, Research and Knowledge Management of Community, Stakeholders, Climate Change Committees and County Officials** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Enhance capacity building, knowledge management and information sharing** | | | | | | | | | | | |
| **Major Challenge: Limited technical capacity on climate change among stakeholders; Lack of timely information on climate Change and limited mainstreaming of climate change in County and stakeholder planning processes.** | | | | | | | | | | | |
| **Vision 2030 Pillars: Social Pillar (Education and Training)** | | | | | | | | | | | |
| **SDGs: 13: Climate Action, 4: Quality Education; 5: Gender Equality; 10: Reducing Inequalities; 16: Peace, Justice and Strong Institutions and 17: Partnerships for the Goals** | | | | | | | | | | | |
| **Sub-sector** | **Proposed Action** | **Adaptation/Mitigation Action** | **Indicators** | **Target** | **Actors** | **Budget in KES** | **Time Frame** | | | | |
| Capacity Building | Assess the capacity of stakeholders in dealing with climate change | Enabling Action | Assessment report on stakeholders' capacity | 1 report | GoK, CGoN, CBOs, Research Institutions | 1,000,000 | X | | | | |
| | Build the capacity of the County climate change committees:<br>• Steering Committee<br>• Planning Committee<br>• County Assembly House Water Committee<br>• Ward Climate Change Committee<br>• County Environment Commitee | Enabling action | No. of committee members trained<br>No. of the successful training meetings organised | 1 Steering committee (13 Members) per year<br>1 Planning Committee (16 members) per year<br>25 Ward Climate Change Committees (225 members)<br>One-16-member County assembly committee<br>One- 33member county environment committee | GoK, CGoN, Academic/Research Institutions, Community, Private Sector | 25,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Provide capacity support to address identified gaps in the County departments among other stakeholders:<br>• Climate Change Unit and Government departments | Enabling action | No. of stakeholders trained<br>No. of stakeholder's meetings or trainings organised | Departments and stakeholders trained on need basis<br>Annual meetings for the Government departments and their staff<br>Quarterly meetings in each of the ward | GoK, CGoN, CBOs, Research institutions, | 10,000,000 | X | X | X | X | X |
| | Develop and implement a robust public awareness programme on climate change. | Enabling action | No. of climate change awareness events organised.<br>No. of participants engaged | 25 annual awareness meetings 1 per ward<br>National celebrations - international days for Climate Actions & to combat desertification | GoK, CGoN, CBOs, NGOs, Research institutions, Schools, Private sector, Community | 5,000,000 | X | X | X | X | X |
| | Engage students and pupils in climate change actions:<br>• Establish CC mentorship program<br>• train teachers as ToTs,<br>• Engage learners and establish CC Action clubs | Enabling Action | No. of schools (students) engaged<br>No. of mentorship meetings organised<br>No. of teachers trained as TOTs or engaged<br>No. of School clubs engaged | 250 schools across the County (to attract more schools) annually<br>Quarterly meetings per ward<br>2 teachers per school | GoK, CGoN, Schools, CBOs, NGOs, KFS, Community | 20,000,000 | X | X | X | X | X |
| | Mainstream climate change education in institutions. | Enabling action | No. of institutions incorporating climate change programs | 250 institutions across the county. | GoK, CGoN, National Government, Institutions/ schools, NGOs, CBOs | 6,250,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Develop an integrated County Climate Change Information Management System (CCCIMS) | Enabling action | Fully operational CCCIMS | 1 CCCIMS | GoK, CGoN, Private Sector | 100,000,000 | X | X | | | |
| | Provide early warning information on climate change disasters:<br>• Increase community disaster preparedness and response | Adaptation:<br>deals with climate risks such as floods and droughts to reduce their effects | No. of effective and reliable early warnings released<br>No. of recipients or beneficiaries of the early warning<br>No. of print, radio, tv and social media announcements made on early warning | 10 print, 10 radio, 5 tv and 100 social media announcements per year | GoK, MET department, CGoN, Media houses, CBOs,NGOs, Private sector, Community | 5,000,000 | X | X | X | X | X |
| Research and Knowledge Management | Climate Change Research of appropriate climate innovative technologies and strategies | Enabling Action | No. of researches conducted<br>No.of dissemination fora organised<br>No. of Reports published | 5 researches conducted<br>1 meeting per ward for each research<br>5 reports published | GoK, MoALF, CGoN, Research Institutions, Farmers,<br>KALRO, KMFRI | 20,000,000 | X | X | X | X | X |
| | Establish a County climate change resource Centres in every sub-County. | Enabling action<br>Adaptation: help deal with climate change resultant disasters | Operational and fully equipped resource Centre established | 5 fully functional and equipped Resource Centres | CGoN, Research institutions, Community, CBOs, Civil Society | 25,000,000 | X | X | X | X | X |
| | Develop and maintain an electronic and print climate change database. | Enabling Action | Set up a functional and effective database | One Effective and functional database | CGoN, Research institutions, CBOs, NGOs, Civil society | 5,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Preservation, management and utilisation of indigenous and local knowledge | Enabling Action | No. of indigenous strategies identified, enhanced and preserved (community indigenous structures) | 5 indigenous strategies enhanced and preserved (community indigenous structures) | GoK, CGoN, Local Community | 10, 000,000 | X | X | X | X | X |
| | Input and maintain Clim ate Information in the County GIS System | Enabling action | No. of GIS maps produced informing forest cover progress | 5 annual reports produced | GoK, CGoN, KFS, MoEF, Min of Lands and Physical Planning, Survey of Kenya, Research Institutions, | 5,000,000 | X | X | X | X | X |
| Governance and coordination of Climate Actions | Prepare annual work plans incorporating Climate actions | Enabling action | Departmental work plans with climate change actions | 5 annual work plans | CGoN, relevant Stakeholders | 1,250,000 | X | X | X | X | X |
| | Prepare Annual Reports on implementation of actions and plans and present them to County Assembly | Enabling action | Annual reports on implementation of the action plan | 5 Annual reports | CGoN, County Assembly, CECM incharge of Climate Change | 1,250,000 | X | X | X | X | X |
| | Enact appropriate County Regulations for climate action | Enabling action<br><br>Mitigation: promote GHGS emissions reduction<br>Adaptation: promote climate change resilience | No. of effective laws and policies enacted | As need may arise | County Assembly, Civil society, Community, CGoN | 10,000,000 | X | X | X | X | X |

| **Priority 2: Food and Nutrition Security** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Increase food and nutrition security through enhanced productivity and resilience of the agricultural sector in as low-carbon manner as possible** | | | | | | | | | | | |
| **Major Challenge: Unpredictable weather patterns (delayed rains, prolonged cases of moisture stress and storms), extreme weather events (floods & droughts), environmental degradation, food scarcity, increased disease incidences, loss of climate resilient crop and animal breeds, increased levels of poverty.** | | | | | | | | | | | |
| **Vision 2030 Pillars: Economic and macro (agriculture and rural development), Social (Water and sanitation, gender, youth and vulnerable groups, health) Foundation (disaster risk reduction and ending drought)** | | | | | | | | | | | |
| **SDGs: 2: Zero hunger; 1: No poverty; 13: Climate action; 3. Good health 5: Gender equality; 8: Decent Work and Economic Growth; 9: Industry, Innovation, and Infrastructure; 10: Inequality reduction; 12: Sustainable consumption and production; 15: Life on Land** | | | | | | | | | | | |
| **Sub-sector** | **Proposed Action** | **Adaptation/ Mitigation Action** | **Indicators** | **Target** | **Actors** | **Budget** | **Time Frame** | | | | |
| Crop Production | Promote production of drought-tolerant crop varieties | Adaptation: Addresses climate risk of increased temperatures and changes in precipitation patterns leading to declines in crop production and yields<br>Mitigation:<br>Crops to act as carbon sinks | No. of households/ farmers/ beneficiaries of the drought-tolerant crops;<br>Acreages of Agricultural land where drought-resistant crops are grown | At least 2 per ward per year | CGoN- Crop production officers, NGOs, CBOs & Farmers | 10,000,000 | X | X | X | X | X |
| | Promote Organic Farming within the County | Mitigation:<br>Reduce emissions from continued use of inorganic fertilizers | Number of farmers engaged;<br>Size of land where practiced | 10 farmers per ward per year<br>5 acres per ward annually | CGoN – Crop Production officers, Livestock Production officers, CBOs, NGOs & Farmers | 10,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crop Diversification:<br>• Promote high yield crops;<br>• Promote Agroforestry through fruits trees; | Adaptation:<br>Promote high yielding crops even in times of drought promoting food and nutrition security<br>Mitigation:<br>Deal with GHG emissions by increasing carbon sequestration especially through agroforestry | No. of high value crops introduced<br>No. of fora organized to promote high yielding crops<br>No. of fruit trees grown | At least 2 high yield Crops<br>2 fora per ward organized annually<br>500 fruit trees per ward per year | CGoN- Crop Production Officers, CBOs, NGOs & Farmers, Kenya Seed Co., KALRO, Research Institutions | 20,000,000 | X | X | X | X | X |
| | Research on crop varieties, Animal breeds, Aquaculture, disease and pests | Adaptation:<br>Addresses climate risk of increased temperatures resulting in emergence of new crop pests and diseases hence declines in crop production and yields | . No. of research undertaken | 2 research per year | CGoN- Crop Production Officers, Research institutions, KALRO, KEFRI, KEPHIS | 10,000,000 | X | X | X | X | X |
| | Promote small-scale irrigation<br>• Desilt existing pans and reticulate water for irrigation<br>• Promote sustainable utilizations of the already dug pans including the private-owned | Adaptation:<br>Increase water storage to increase crop yield and reduce dependence on rain-fed crop production<br>Deal with climate risk- land degradation | Number of farmers utilizing Climate Smart irrigation to promote crop yields;<br>Size of cultivated land under irrigation<br>Number of Water pans desilted | -2 pan desilted and reticulated annually<br>-100 farmers per ward annually<br>-100 acres of land per ward annually | CGoN - Water Officers, CBOs, Civil Society, NGOs, | 50,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Promote Value addition (harvested crops through cold storage, milk coolers, solar drying, processing etc. and Livestock and fisheries products) | Adaptation: Improved livelihoods and income due to minimal post-harvest losses | Number of farmers benefiting from value addition projects<br>Number of value addition projects initiated | 5,000 farmers annually<br>-3 value addition project initiated | GoK, MoALF, CGoN, Farmers, NGOs, CBOs, Private Sector | 10,000,000 | X | X | X | X | X |
| | Promotion of adoption and use of certified seeds | Adaptation: Ensure food security even in times of drought<br>Mitigation: Reduce GHGs emission | No. of sensitization meetings organized to promote use of certified seeds<br>No. of farmers accessing the certified seeds | 2 meetings organized annually per ward<br>100,000 farmers | GoK, CGoN, Research institutions, KALRO, Kenya Seed Co., NGOs, CBOs, Farmers | 5,000,000 | X | X | X | X | X |
| | Support youth, women, elderly, and PLWDs in nature-based enterprises and climate smart farming technologies | Adaptation: Ensure food security through improved livelihoods even in times of climatic risks and extreme weather conditions | Number of individuals of vulnerable groups supported<br>No. of community groups supported<br>No. of technologies initiated | 100 individuals per ward annually<br>10 groups per ward annually<br>2 Technologies initiated | GoK, CGoN, NGOs, CBOs and Farmers | 10,000,000 | X | X | X | X | X |
| Livestock Production | Promoting zero grazing as opposed to range rearing | Adaptation: Ensure food security despite the extreme weather conditions by minimising overreliance in natural vegetation for feeds<br>Mitigation: Minimise GHGs emissions especially methane production | No. of sensitization meetings organized to promote zero grazing<br>Number of groups supported in establishing zero grazing unit | 1 meeting per ward organised annually<br>5 groups supported annually | GoK, CGoN, MoALF, NGOs, CBOs, Farmers, Research institutions | 25,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Promotion of production and storage of drought-tolerant (high quality) fodder crops | Adaptation:<br>Reduce the effects of drought ensuring food security;<br>Address land degradation<br><br>Mitigation:<br>Reduce GHGs (methane) emissions by avoiding wet fresh fodder | No. of sensitization meetings organised to promote production of drought resistant fodder crops<br>Number of farmers relying on drought-tolerant fodder | 6 trainings organised annually<br>100 farmers per ward annually | GoK, CGoN, NGOs, CBOs, Farmers, Research Institutions | 10,000,000 | X | X | X | X | X |
| | Promotion of appropriate, high quality livestock breeds | Adaptation:<br>Improve livelihoods, ensure food security and minimize losses despite the frequent instances of extreme weather conditions | No. of farmers embracing the high-quality livestock breeds | 100 farmers annually | GoK, CGoN, Farmers, Research institutions, CBOs, KALRO, AHITI | 5,000,000 | X | X | X | X | X |
| | Promotion of appropriate technologies in livestock husbandry | Adaptation:<br>Promote food security, improve production, improved livelihoods<br>Mitigation:<br>Reduce GHG emissions | No. of sensitization trainings organised to promote appropriate livestock husbandry strategies<br>No. of farmers up taking livestock production technologies within the County | 1 training per ward annually<br>100 farmers per ward per year | GoK, CGoN-livestock production officers, Veterinary Officers, Farmers, NGOs, CBOs, Research institutions, KALRO, AHITI | 8,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Promoting insurance schemes (livestock, crops and fisheries) | Adaptation:<br>Protect farmers from losses during extreme weather conditions promoting food security | No. of sensitization trainings organised to promote uptake of insurance scheme | 1 training per ward annually | GoK, CGoN. Insurance companies, farmers | 5,000,000 | X | X | X | X | X |
| Fisheries | Promotion of sustainable modern fish farming technologies (eFishery, sensors) | Adaptation:<br>Promote food security, improve livelihoods in emergence of new pests and diseases and climate risks | No. of sustainable fish farming technologies enhanced | 2 modern technologies enhanced | GoK, MoALF, CGoN, Fish farmers, | 5,000,000 | X | | X | | |
| | Promote and enhance fish farming through ponds | Adaptation:<br>Promote food security and alternative income source | No. of groups practising pond fish farming in their farms | 5 groups annually trained | GoK, CGoN, Community, Private sector, MoALF | 5,000,000 | X | X | X | X | X |
| | Promote and enhance fish farming in community dams | Adaptation:<br>Promote food security and nutrition, improve livelihoods | No. of community dams where fish farming is practised | 1 dam per ward stocked annually | GoK, CGoN - Dept of Fisheries, Community, Private sector, MoALF | 15,000,000 | X | X | X | X | X |
| | Enhance Lake Ol' Bolossat fishery and nature-based enterprises | Adaptation:<br>Promote food security, improve livelihoods | No. of mudfish fingerlings introduced into the lake<br>No. of micro enterprises supported | -50,000 fingerlings<br>-2 youth micro enterprises | GoK, CGoN Community, KWS, LOCCOG, KMFRI | 12,000,000 | X | X | X | X | X |

### *Priority 3: Disaster Risk Reduction and Management; Droughts and Floods*

| **Priority 3: Disaster and Risk Management (Floods and Droughts)** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Reduce risks to communities and infrastructure resulting from climate related-disasters such as droughts and floods** | | | | | | | | | | | |
| **Major Challenge: Disasters such as floods and droughts have an adverse effect on the economy, infrastructure and communities especially the marginalised, women, children, youth, PWDs and the vulnerable groups** | | | | | | | | | | | |
| **Vision 2030 Pillars: Foundations (disaster risk reduction and ending drought emergencies, infrastructure), Economic and Macro pillar (Agriculture and rural development, infrastructure), Social pillar (marginalised communities, gender, youth and vulnerable groups)** | | | | | | | | | | | |
| **SDGs: 13: Climate action; 1: No poverty; 2: Zero hunger; 3: Healthy lives; 4: Education; 5: Gender equality; 6: Sustainable water management; 8: Sustained economic growth; 9: Resilient Infrastructure; 10: Reduced inequalities; 11: Sustainable communities** | | | | | | | | | | | |
| **Sub-sector** | **Proposed Action** | **Adaptation/ Mitigation** | **Indicators** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Drought | Improve people's ability to deal with drought through:<br>• Improve on drought early warning systems<br>• Develop expertise to customise and manage satellite-generated vegetation condition index used for drought early warning and response<br>• Invest on water harvesting and storage strategies; tanks, pans and dams<br>• Promote drought resistant crops | Adaptation<br>Dealing with high temperatures, water scarcity, prolonged water/ moisture stress leading to crop failure, loss of livelihoods, malnutrition, hygiene issues and school dropouts. | No. of recipients benefiting from climatic early warning information<br>Capacity of water storage facilities to deal drought<br>No. of public fora organised to promote drought resistant crops | Targeted population<br>1 NDVI Map<br>1,000,000 litres per year<br>2 public meetings per ward per year | GoK, CGoN, farmers/ community, MET department, CBOs, NGOs, Civil societies | 60,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Floods | Improve ability of the people to deal with floods – including infrastructure:<br>• Map and develop storm water drains to channel flood water to the main water ways information)<br>• Construct dams and pans for water and flood control | Adaptation<br>Dealing with heavy rainfall and floods leading to damage and loss of infrastructure (roads, houses, health facilities, schools); loss of property and livelihoods; increase in water-borne diseases such as cholera | Area mapped countywide<br>No. of water harvesting and flood control structures built<br>Length of drains constructed | One report on mapping generated<br>1 flood control structure per year | GoK, CGoN, Farmers/ Community, MET department, CBOs, NGOs, Civil society | 50,000,000 | X | X | X | X | X |
| Landslides, mudslides and rockfalls. | Improve ability of the people to deal with landslides:<br>• Reduce impacts of the landslides<br>• Rehabilitate degraded sites<br>• Gabion and terraces construction | Adaptation:<br>Deal with landslides risks; minimise landslides-resultant losses | No. of degraded sites rehabilitated<br>Length of Gabions and terraces constructed | Targeted sites | GoK, CGoN, MET Department, Community | 5,000,000 | X | X | X | X | X |
| Pests, parasites and disease outbreak | Livestock parasites and diseases and crop pests and diseases:<br>• Surveillance and monitoring of outbreaks<br>• Prevention and control of the outbreaks | Adaptation:<br>Minimise losses on climate resultant disasters | No. of surveillance and monitoring reports conducted<br>No. of outbreaks controlled | As per the outbreaks<br>As per the outbreaks | GoK, CGoN, KARLO, Research Institutions, Community, | 5,000,000 | X | X | X | X | X |

*Priority 4: Forestry, Wildlife and Biodiversity Conservation.*

| **Priority 4: Forestry, Wildlife and Biodiversity Conservation** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Attain a 30% forest cover of the total land area by 2027, Improve Wildlife Resilience, and rehabilitate Degraded sites to promote sustainable tourism** | | | | | | | | | | | |
| **Major Challenge: Overexploitation and loss of biodiversity resulting from unplanned developments mainly encroachments for agriculture, settlement and infrastructural development, overreliance on wood fuel resulting in deforestation and degradation resulting in increased GHGs emissions further impacting on wildlife negatively.** | | | | | | | | | | | |
| **Vision 2030 pillars: Economic and Macro pillar (Tourism), Social Pillar (Environment)** | | | | | | | | | | | |
| **SDGs: 15: Life on land; 13: Climate Action; 5: Gender Equality; 6: Sustainable Water; 7: Sustainable Energy;** | | | | | | | | | | | |
| **Sub-sector** | **Proposed Action** | **Adaptation/ Mitigation** | **Indicators** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Forestry | Afforestation and reforestation through:<br>• Promote tree planting capitalising on indigenous tree species<br>• Increase tree nurseries to cater for seedlings production and availability | Adaptation:<br>Reduces exposure by increasing surface cover preventing degradation<br>Mitigation:<br>Improve carbon sequestration hence reduce GHGs emissions | No. of trees planted and adopted to maturity/survival<br>Number of operational trees nurseries<br>Percentage forest cover increased<br>Total land area in hectares planted with trees both under private and public ownership<br>Proportion of land in hectares rehabilitated | 2.5 million trees planted and nurtured to survival<br>3 tree nurseries producing 500,000 seedlings per year each<br>3% increase forest cover from current 26.2%<br>1428 Hectares planted with trees | GoK, MEF CGoN, CBOs, NGOs, Farmers, Schools & Institutions, Private Sector, KFS | 100,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Adapt and Nature a Tree (ANAT) Program<br>• Promote green parks in schools by ensuring that at least 10% of the school land is planted with trees - ANAT and rebranded 4K clubs | Mitigation: Improve carbon sequestration hence reduce GHGs emissions | No. of green parks established<br>No. of environmental clubs engaged | 2 green parks per ward annually<br>2 environmental clubs per ward | GoK, MEF CGoN, CBOs, NGOs,, Schools, Private Sector, KFS, School Environmental Clubs | 50,000,000 | X | X | X | X | X |
| | Restore Fragile Ecosystems through:<br>• Identification of fragile ecosystems<br>• Restoration of the identified ecosystems | Adaptation<br>Reduces exposure by increasing surface cover preventing degradation<br>Mitigation: Improve carbon sequestration hence reduce GHGs emissions | No. of fragile ecosystems successfully restored<br>Area in hectares restored<br>Percentage of land cover restored | 10 sites restored annually<br>10 hectares restored per year<br>As per the need | GoK, CGoN, KFS, CBOs, NGOs, KWTA, CFAs, WRUA, Community, WRA | 50,000,000 | X | X | X | X | X |
| | Promote sustainable timber production on private lands through:<br>• Increase in private plantations for commercial and industrial purposes | Mitigation:<br>Increase carbon sequestration hence reduce GHGs emissions | Total land area in hectares under private plantations<br>No. of sensitisation meetings organised to promote sustainable timber production | 200 hectares for 5 years<br>2 meetings per ward | GoK, CGoN, CBOs, NGOs, Community, CFAs, KEFRI, KFS | 15,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wildlife | Reduce human-wildlife conflict cases through:<br>Development and implementation of HWC resolution mechanisms<br>Gazettement of Lake Ol' Bolossat as a National Reserve<br>Establish community wildlife conservation groups<br>Conserve Lake Ol' Bolossat and Aberdare ecosystems to support diverse plant and animal species under the changing conditions<br>Identify and protect habitats for endangered wildlife species | Adaptation<br>Deals with climate risk resulting to increased likelihood of HWC<br>Build community resilience by increasing the wildlife area | Number of HWC cases reported<br>No. of people affected by HWC<br>Abundance of endangered animal species<br>Total land area in hectares under PAs | 20% annual reduction in reported HWC cases | GoK, CGoN, KWS, KFS, CBOs, NGOs, Community | 20,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Control of invasive species:<br>Conduct surveys to determine the prevalent invasive species, their effect on endangered wildlife species and device mechanisms to control them<br>Devise mechanisms for alternative use of the invasive species. | Adaptation:<br>Build resilience by protecting critical and endangered habitats | Total area in hectares where invasive species have been controlled<br>No. of endangered wildlife species by the invasive species<br>No. critical habitats threatened by invasive species | 100 hectares annually | CGoN, KWS, KFS, KEFRI, NGOs, NEMA, community, Civil societies | 5,000,000 | X | X | X | X | X |
| | Protection of springs | Adaptation:<br>Deal with climate risk of water shortage | No. of springs protected | 10 protected springs | GoK, CGoN, KFS | 50,000,000 | X | X | X | X | X |
| | Monitor and control forest fires, including maintenance of fire breaks | Adaptation;<br>Deal with climate risk of forest fires<br>Mitigation: reduce GHGs emissions | No of forest fires cases reported and controlled<br>Extent in hectares damaged by forest fires | Dependent on Frequency and intensity of the fires | GoK, CGoN, KFS, CFAs, CBOs, NGOs, Donors | 10,000,000 | X | X | X | X | X |
| | Protection open green spaces | Mitigation:<br>Reduce GHGs emissions | Area in hectares under urban forestry | 100 hectares | GoK, CGoN, KFS, NGOs, CBOs, Institutions, private sector, civil society | 10,000,000 | X | X | X | X | X |
| | Enhance community involvement in wildlife conservation | Enabling action | No of community groups successfully involved in wildlife conservation<br>No. of engagement meeting organised | At least 2 CBOs per ward<br>at least 2 Engagement meeting per ward annually | CGoN, KWS, KFS, CBOs, NGOs, Civil Society | 10,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Support biodiversity monitoring and mapping of natural resources | Enabling Action | No. of mapping and monitoring reports | -Report | KWS, research Institutions, CGoN, KEFRI, CBOs, NGOs | 5,000,000 | X | X | X | X | X |
| | Engaging vulnerable groups (including youth, women and PWDs) in habitat restoration. | Enabling Action | No. of individuals of vulnerable groups engaged<br>No. of groups engaged | 50 people engaged per ward annually<br>2 groups per ward | CGoN, KWS, KFS, CBOs, NGOs | 25,000,000 | X | X | X | X | X |
| Eco-tourism | Promote eco-tourism through:<br>Identify key tourist attraction sites to promote sustainable tourism<br>Promote implementation of LOIMP:<br>Promote eco-tourism | Adaptation:<br>Build resilience by promoting protection of endangered species and offering communities with alternative source of income | No of individuals benefiting from ecotourism initiatives<br>No. of sustainable initiatives introduced | 100 people per ward | CGoN, KTB, NGOs, CBOs, Community, Civil Society, MoWT, KWS, KFS | 5,000,000 | X | X | X | X | X |
| | Identify and protect cultural sites | Enabling Action | No. of cultural sites protected | 5 cultural sites | CGoN, MoWT, NMK | 6,000,000 | X | X | | | |
| | Engaging vulnerable groups (youth, women and PWDs) in ecotourism activities | Enabling Action | No of people engaged | 50 individuals per ward | KWS, CGoN, KFS, CBOs, Civil society | 25,000,000 | X | X | X | X | X |

*Priority 5: Enhanced Water Security*

| **Priority 5: Enhanced Water Security** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective 4: Enhance resilience of the water sector by ensuring safe and adequate water access and efficient use of water for agriculture, manufacturing, domestic, wildlife, and other uses** | | | | | | | | | | | |
| **Major Challenge: Water catchment degradation, drought and water scarcity, pollution, fragmented jurisdiction** | | | | | | | | | | | |
| **Vision 2030 Pillars: Social pillar (Environment, water and sanitation, gender, youth and vulnerable groups, health), Economic and macro pillar** | | | | | | | | | | | |
| **SDGs 6: Clean Water and Sanitation; 13: Climate Action; 1: No Poverty; 2: Zero Hunger; 3: Good Health and Well-Being for People; 5: Gender Equality; 9: Industry, Innovation, and Infrastructure; 11: Sustainable Cities and Communities; 15: Life on Land; 17: Partnerships for the Goals** | | | | | | | | | | | |
| **Sub-sector** | **Proposed Action** | **Adaptation/ Mitigation** | **Indicators** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Water Security | Promote access to safe and clean water for all the County residents<br>Promote last-mile water connectivity<br>Large-scale installation of water meters<br>Reduce non-revenue water | Adaptation<br>Increase water availability and promote resilience | No. of people accessing clean and safe water for domestic, agricultural and industrial use;<br>No. of water meters installed within the County<br>Percentage of non-revenue water reduced | 125 households per ward annually<br>125 meters installed per ward annually<br>25% reduction in non-revenue water | GoK, CGoN, CBOs, Private Sector, Community, Donors, WRA | 100,000,000 | X | X | X | X | X |
| | Promote water catchment conservation:<br>Construction of gabions, cut-off drains, Strip cropping, | Adaptation: deal with the climate risk of water shortage<br>Mitigation:<br>Increase carbon sequestration reducing GHGs emissions | No. of catchment areas conserved<br>Length of cut-off drains done<br>Length of strip cropping done | 5 catchment areas conserved<br>10km of cut-off drains<br>10km of strip cropping | GoK, KFS, CGoN, CBOs, NGOs, Civil society, Community | 50,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Restoration and protection of Wetland zones and Riparian areas:<br>Identification of sites<br>Bamboo planting along the riparian<br>Fencing of riparian areas.<br>Indigenous tree planting | Adaptation: deal with the climate risk of water shortage<br>Mitigation:<br>Increase carbon sequestration reducing GHGs emissions | Length in Km of riparian rehabilitated<br>No. of riparian areas protected | 25 km of riparian rehabilitated annually<br>2 riparian areas protected annually | GoK, CGoN, KWS, KFS, CBOs, NGOs, Private sectors, Community, WRA | 40,000,000 | X | X | X | X | X |
| | Promote water efficiency to minimize wastage (monitor, reduce, re-use, recycle and modelling) through;<br>Raise awareness on water efficiency<br>Improve on innovations to track the water, identify leakages and report on the same | Adaptation<br>Deal with risk of water shortage | No of awareness meetings/ programs organized<br>No. of residents reached in awareness programs<br>No. of innovative strategies employed to promote water efficiency<br>Reduction in water loss from leakages | 50 awareness meeting; 2 per ward annually | GoK, CGoN, Community, Private Sectors | 10,000,000 | X | X | X | X | X |
| | Increase gender-responsive, affordable water harvesting-based livelihood resilience programmes<br>Increase the water pans (target) | Adaptation: Addresses climate risk of water shortages | No of individuals in the vulnerable groups accessing clean water/ Safe water for various purposes<br>Number of programs initiated | 200 per ward annually<br>As per the target location | GoK, CGoN, Community, private sector, NGOs, CBOs | 25,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Increase annual per capita water availability through development of water infrastructure:<br>Increasing the number of dams, Weirs, Water pans and storage Tanks<br>Map groundwater resources availability in the County<br>Drilling of boreholes | Adaptation<br>Ensure water security, deal with climate risk of drought, floods, food shortages in rain-fed crop production | No of functional dams, water pans, weirs, storage tanks constructed<br>No. of identified sites for borehole drilling<br>No. of boreholes drilled | 500,000 Cubic metres storage infrastructure constructed<br>-5 sites identified annually<br>-5 boreholes drilled and equipped annually | GoK, CGoN, Private developers, Research institutions, WRA, Community | 500,000,000 | X | X | X | X | X |
| Conservation of Lake Ol'Bolossat | Feasibility studies and evaluation of environmental resources in the Lake Ol'Bolossat and its Ecosystem | Adaptation | No. of reports | 1 report | CGN, KFS, KWS and NEMA | 50,000,000 | X | X | | | |

*Priority 6: Health*

| **Priority 6: Health** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Mainstream climate change adaptation into the health sector; and increase the resilience of human settlements, including improved solid waste management in urban areas** | | | | | | | | | | | | |
| **Major Challenge: Climate change frustrating fight against malaria, water-borne diseases, malnutrition, infant mortality among others. At the same time inappropriate management of waste results in negative effects on health and emit GHGs** | | | | | | | | | | | | |
| **Vision 2030 pillars: Social pillar (health, sanitation)** | | | | | | | | | | | | |
| **SDGs: 3: Good Health; 13: Climate Action; 5: Gender Equality; 6: Clean water and sanitation; 9: Sustainable Infrastructure; 11: Sustainable Cities; 12: Sustainable consumption and production** | | | | | | | | | | | | |
| **Sub-sector** | **Proposed Action** | **Adaptation/ Mitigation** | **Indicators** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | | |
| Health | Adaptation of one health approach in disease outbreak response. | Enabling action<br>Adaptation:<br>deal with risks arising from climate change | Number of diseases incidences resolved | 2 per ward annually | GoK, CGoN, Private sector, Donors | 20,000,000 | X | | | | X | X | X | X |
| | Reduce the incidence of vector-borne diseases | Adaptation Addresses climate risk of increases in disease | Infection rate per 1000 persons | | CGoN, MoH, NGOs, CBOs, Community, Civil society | 5,000,000 | X | X | X | X | X | | | |
| | Control flooding in human settlements:<br>Improve drainage and sewerage system | Adaptation:<br>Address the climate risk of flooding and environmental health | Length in Km of operational drainage and sewerage system constructed | 10km of drainage system per ward. | CGoN, Community, CBOs, developers | 50,000,000 | X | X | X | X | X | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Promote recycling to divert collected waste away from disposal sites:<br>Explore options for methane capture and power generation at landfill sites<br>Explore options for waste incineration for energy generation<br>Promote circular economy to divert majority of solid waste from landfills in major towns within the County | Mitigation:<br>GHG emission reductions | Number of facilities producing methane from waste<br>Amount of waste converted into energy<br>Proportion of solid waste reaching the landfills<br>No. of material recovery facilities | 1 material recovery facility | CGoN, NGOs, developers, CBOs, NGOs, community, private sector | 50,000,000 | X | X | X | X | X | | | |
| | Capacity building:<br>Improve the surveillance and monitoring of climate-related diseases<br>Strengthen the awareness of community health workers and volunteers by developing materials on climate-related health risks, including disaster risk management and the impacts on vulnerable groups (women, children and PWDs) | Adaptation;<br>Dealing with climate risk of climate-related diseases<br><br>Enabling action | No. of monitoring reports<br>No. of awareness materials produced<br>No. of health workers and volunteers impacted | 1 report annually<br>1000 materials<br>500 health workers and volunteers annually | CGoN, Community, CBOs, Research institutions | 5,000,000 | X | X | X | X | X | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Policy Regulation:<br>Develop and implement a County framework for waste water management | Adaptation<br><br>Enabling Action | No. of laws/ policies formulated and enforced<br>No of law enforcement officers employed<br>Area in hectares protected by enforcing the law<br>Fully operational framework on waste management | A fully Operational waste management framework | CGoN, GoK, County Assembly, Community, | 3,000,000 | X | X | X | X | X | | | | |

| **Priority 7: Sustainable Manufacturing and cottage industries** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Promote energy and resource efficiency in the manufacturing sector** | | | | | | | | | | | |
| **Major Challenge: Resource (including water, electricity, and other inputs) scarcity because of climate change; and inefficient energy use in the manufacturing sector (such as charcoal production and cement production) increases GHG emissions** | | | | | | | | | | | |
| **Vision 2030: Economic and Macro pillar (Manufacturing)** | | | | | | | | | | | |
| **SDGs 9: Industry, innovation and infrastructure; 13: Climate action; 1: Zero poverty; 3: Good health; 5: Gender equality; 6: Clean water and sanitation; 7: Affordable and clean energy; 10: Reduce inequalities; 12: Responsible consumption and production; 15: Life on land** | | | | | | | | | | | |
| **Sector** | **Proposed Action** | **Adaptation/ Mitigation** | **Indicators** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Manufacturing | Improve water use and resource efficiency | Adaptation Addresses climate risk: Water scarcity water scarcity caused by increased temperature and changing precipitation patterns | No. of companies participating in water efficiency initiatives | 5 companies | GoK, CGoN, Community, CBOs, NGOs, private sector | 5,000,000 | X | X | X | X | X |
| | Increase energy efficiency | Mitigation GHG emission reductions | No of companies participating in energy efficiency initiatives | 5 Companies | GoK, CGoN, Private Sector, community | 5,000,000 | X | X | X | X | X |
| | Promote local value chains and cottage industries | Increase economic | No. of local value chains and cottage industries | Per Sub- County | GoK, CGoN, CBOs, Community, Developers | 5,000,000 | X | X | X | X | X |
| | Optimise manufacturing and production processes:<br>Promote a sustainable charcoal system<br>Promote optimisation of manufacturing processes | Mitigation<br>Reduce GHGs emissions | No. of effective optimisation strategies introduced | As per the need | GoK, CGoN, CBOs, Community, Developers | 10,000,000 | X | X | X | X | X |

*Priority 8: Green and Sustainable Energy*

| **Priority 8: Green and Sustainable Energy** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Clean, sustainable and affordable energy: Climate-proof energy and transport infrastructure; promote renewable energy development; increase uptake of clean cooking solutions; and develop sustainable transport systems** | | | | | | | | | | | |
| **Major Challenge: Renewable and affordable electricity supply with low GHG emissions needs to increase to meet the demands of a growing population and the increasing industrialisation. The County is highly dependent on non-renewable biomass for primary energy leading to indoor air pollution, deforestation, and GHG emissions** | | | | | | | | | | | |
| **Vision 2030 Pillars: Economic and macro pillar (Oil and other mineral resources, infrastructure)** | | | | | | | | | | | |
| **SDGs: 7 – Affordable and clean energy, 13 – Climate action; 1 – End poverty; 2 – Food security; 3 – Health; 5 – Gender equality; 8 – Sustainable growth; 9 – Resilient infrastructure; 11 – Sustainable cities; 15 – Sustainable forests** | | | | | | | | | | | |
| **Sub-sector** | **Action** | **Adaptation/ Mitigation** | **Indicator** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Energy | Improve energy efficiency and energy conservation:<br>• Promote energy efficiency and conservation projects/initiatives including<br>• Efficient lighting<br>• Energy efficiency in buildings<br>• Minimum energy performance standards<br>• Distribution of clean lighting<br>• Raise awareness on use of LED energy saving bulbs within the County. | Mitigation;<br>Reduce GHGs emissions<br>Adaptation<br>Deal with climate risk of water shortage to produce HEP | • No. of successful energy efficiency initiatives employed<br>• No. of households and offices utilizing energy efficiently<br>• No. of households and offices utilizing LED energy saving bulbs | As per the need 100 households and offices per ward utilizing energy efficiently annually<br>1000 households and offices using LED bulbs per ward | CGoN, KPLC, NGOs, Private sector, Civil society, Communities | 10,000,000 | X | X | X | X | X |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Increase renewable energy for energy generation that is climate resilient mainly in the rural areas: solar and wind | Mitigation<br>Reduce GHGs emissions<br><br>Adaptation<br>Increases resilience of energy system to drought | • Number of households benefiting from the renewable energy | 100 households per ward | CGoN, Private Sector, Civil Society, NGOs | 25,000,000 | X | X | X | X | X |
| | Promote use of alternative fuels, such as LPG, ethanol and other clean fuels as a way of transitioning to clean cooking:<br>• Equip women, youth, elderly and PLWDs groups with lighting and cooking gas<br>• Increased production of non-forest biomass fuel briquettes (such as agricultural waste, sawdust and human waste) with an emphasis on women, elderly, PLWD and youths<br>• Introduction of incentives to promote use of clean energy | Mitigation:<br><br>Reduce GHGs emissions | • No. of households utilizing LPGs among other clean fuels within the County especially in rural areas | 100 households per ward | CGoN, Private sector, Civil Society, NGOs, CBOs | 25,000,000 | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Encourage the uptake of clean biomass cookstoves, innovative and alternatives in rural area:<br>• Increase the number of households using improved biomass cookstoves through; providing incentives to manufacturers to increase production, and issuing loans to aid uptake of the cookstoves<br>• Biogas technology scaled up to increase access to clean energy by constructing digesters for domestic use, schools and public facilities | Adaptation<br>Reduce GHGs emissions | • No. of households utilizing clean biomass cookstoves among other alternatives within the County<br>• No. of biogas digesters constructed within the County | 100 households<br><br>50 biogas digesters | CGoN, Civil Society, NGOs, CBOs, | 125,000,000 | X | X | X | X | X |
| | Construct climate-proofed sanitary landfills with methane capture technology for solid waste disposal in the County | Mitigation: reducing GHGs emissions | • Amount of methane produced/ captured<br>• Amount of solid waste discharged<br>• Cases of health complications resulting from waste | | CGoN, NEMA, CBOs, Development partners | 40,000,000 | X | X | X | X | X |
| Climate resilient transport | Create incentives for car-pooling and use of alternative means of transport such as bicycles, public transport, train | Mitigation:<br>Reduce GHGs emissions | • No. of people utilizing transport methods<br>• No. of effective incentives introduced | | CGoN, Private sector, | 5,000,000 | X | X | X | X | X |

*Priority 9: Climate Resilient Infrastructure*

| **Priority 9: Climate Resilient Infrastructure** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Promote climate resilient infrastructure to reduce injuries, loss of lives and property destruction** | | | | | | | | | | | |
| **Major Challenge: Limited climate proofing of infrastructure/loss of human life, injuries and loss of property** | | | | | | | | | | | |
| **Vision 2030 pillars: Economic and macro pillar (Infrastructure)** | | | | | | | | | | | |
| **SDGs: 13: Climate Action; 3: Good Health and Well-Being for People, 1: No Poverty; 2: Zero Hunger; 7: Affordable and Clean Energy 9: Industry, Innovation, and 11: Sustainable Cities and Communities** | | | | | | | | | | | |
| **Sector** | **Action** | **Mitigation/ Adaptation** | **Indicator** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Climate resilient infrastructure | Conduct Strategic Environmental Assessments (SEA) for infrastructural programmes and EIAs Environmental audits for projects | Enabling Action to prevent/ mitigate damages and loss | Number SEA, EIA and EA reports made | -Dependent on no of programs and projects done | GoK, NEMA, CGoN | 5,000,000 | X | X | X | X | X |
| | Zero rate solar panels and other energy saving construction materials at County level | Mitigation: reduce GHGs emissions | No. of gazetted regulations<br>No. of materials that are zero rated in tax | -One gazetted regulation<br>-As Need arises | GoK, CGoN, National Treasury | 5,000,000 | X | X | X | X | X |
| | Climate-proof infrastructure using ecosystem-based approaches (EbA) | Adaptation:<br>Deal with climate risk of climate disaster | No. of infrastructures that are climate proof | Dependent on no. of infrastructures constructed. | CGoN, KFS, NEMA, Developers | 25,000,000 | X | X | X | X | X |

### *Priority 10: Carbon Emission Trading*

| **Priority 10: Carbon Emission Trading** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: Reduce greenhouse gas emissions, promote climate-smart agriculture ensuring food security** | | | | | | | | | | | |
| **Major Challenge: Increased GHGs emission leading to global warming hence unpredictable weather patterns** | | | | | | | | | | | |
| **Vision 2030 pillars: Economic and macro pillar, social pillar** | | | | | | | | | | | |
| **SDGs: 13: Climate Action; 3: Good Health and Well-Being for People, 1: No Poverty; 2: Zero Hunger; 7: Affordable and Clean Energy 9: Industry, Innovation, 11: Sustainable Cities and Communities, 12: Responsible Production and Consumption, 17: Partnerships for the goals** | | | | | | | | | | | |
| **Sector** | **Action** | **Mitigation / Adaptation** | **Indicator** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Carbon Emission Trading | Carbon assets sequestered in the biomass:<br>Undertake a County GreenHouse gas emission inventory<br>Develop a platform for trading carbon credits for sustainable community benefits. | Enabling Action | GreenHouse Gas emissions inventory report<br>No. of carbon trading platforms developed | 1 GHGE inventory report<br>1 carbon trading platform developed | GoK, CGoN, Private Sector, Donors, Community, NEMA, Farmers, CBOs, NGOs, Research institutions | 50,000,000 | X | X | X | X | X |
| | Soil amelioration to increase soil carbon, mitigate nitrous oxide (N2O) emissions and achieve food and nutrition security:<br>Conduct an ER-PIN on soil Carbon to assess current baselines and establish methodologies for monitoring, reporting and validation (MRV) procedures based at ward levels<br>Promote Climate-Smart Agriculture and Sustainable Agricultural Lands Management (SALM) | Mitigation:<br>Reduce GHGs emissions<br>Adaptation:<br>Promote food security and improve livelihoods | No. of ER-PIN conducted on soil Carbon<br>No. of methodologies for Monitoring Reporting and Validation procedures established<br>No. of households practising climate smart- technologies | 1 ER-PIN conducted<br>1 guideline on monitoring, reporting and validation<br>100 households per ward annually | GoK, CGoN, Private Sector, Donors, Community, NEMA, Farmers, CBOs, NGOs, Research institutions | 50,000,000 | X | X | X | X | X |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Roof-top solar energy harvesting and other Energy Efficiencies:<br>Conduct an ER-PIN to assess the energy demand at envisaged agricultural processing industries to address energy efficiencies and use of renewable energies<br>Solarisation of boreholes, flood and street lights<br>Explore potentials of wind power project in the County<br>Promote use of solar power within households and institutions<br>Promote Carbon Offset through Biogas installation in institutions and households | Mitigation:<br>Reduce GHGs emissions<br>Adaptation:<br>Improve livelihoods and reduce energy consumption; derive alternative energy sources | No. of ER-PIN conducted on soil Carbon | 1 ER-PIN conducted | CGoN, GoK, Donors, Community, NEMA, Private Sector, | 50,000,000 | X | X | X | X | X |

### *Priority 11: Environment and Social Performance*

| **Priority 11: Environment and Social Performance** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Objective: To reduce degradation, damage and loss of environmental and social resources** | | | | | | | | | | | |
| **Major Challenge: Decreased productivity and climate vulnerability from degradation, damage and loss of environmental and social resources** | | | | | | | | | | | |
| **Vision 2030 pillars: Economic and Macro pillar, Social Pillar** | | | | | | | | | | | |
| **SDGs: 13: Climate Action; 3: Good Health and Well-Being for People, 1: No Poverty; 2: Zero Hunger; 7: Affordable and Clean Energy 9: Industry, Innovation, 11: Sustainable Cities and Communities, 12: Responsible Production and Consumption, 17: Partnerships for the goals** | | | | | | | | | | | |
| **Sector** | **Action** | **Mitigation / Adaptation** | **Indicator** | **Target** | **Actors** | **Budget** | **Timeframe** | | | | |
| Environment | Development and implementation of County Environment Action Plan and County State of Environment Report | Enabling Action | Complete action plan<br>No of actions implemented | Approved and implementable plans | GoK, CGoN, Private Sector, Donors, Community, NEMA, Farmers, CBOs, NGOs, Research institutions | 20,000,000 | X | X | X | X | X |
| | Enhancing monitoring of Environmental and social safeguard for plans and programmes in all sectors. | Enabling Action to prevent/ mitigate damages and loss<br>Avoiding, minimizing and reducing environmental and social impacts of development program and projects | No of environmental and social management plans reported<br>No of social safeguards and initiatives<br>No of grievances reported and resolved | -Dependent on no of programs, plan and projects done | GoK, NEMA, CGoN<br>County Environment Committee-CEC | 5,000,000 | X | X | X | X | X |
| | Environmental degradation and pollution surveillance, control and management in all sectors | Mitigation/ adaptation action<br>Proactive action and reduction of pollution of land, water and air | No. of restorations, pollution incidences reported and resolved | No of incidence reported and resolved | CGoN, GoK, Donors, Community, NEMA, CEC, Private Sector, | 10,000,000 | X | X | X | X | X |

# CHAPTER 5

# REVIEW AND MONITORING

## 5.1. Introduction

Monitoring and Evaluation (M&E) of the planned activities will inform the County Government and other stakeholders on whether outcomes desired have been achieved. It will also inform on whether the issues identified at the planning stage are being addressed, have been resolved, or worsening. Project monitoring will be an on-going process throughout the plan period and will be co-ordinated by the Department of Water, Environment, Climate Change, Tourism and Natural Resources. The monitoring will involve other key stakeholders cutting across major national Government agencies including NEMA, KWS, and KFS with mandates in climate change and environmental conservation. Conservation NGOs operating in the area can also contribute significantly to this process.

The implementation of this action plan is linked with other plans and strategies, action plans, and other policies both at the County and national levels. These include the national planning process as captured by Vision 2030, County planning processes, and the national climate change policy processes among others.

## 5.2 Plan Review and monitoring

### 5.2.1 Monitoring Issues

This plan will need to be revised at five-year intervals in accordance with the Nyandarua County Climate Change Act, 2021. Key issues that will need to be monitored and evaluated to inform the review process include:

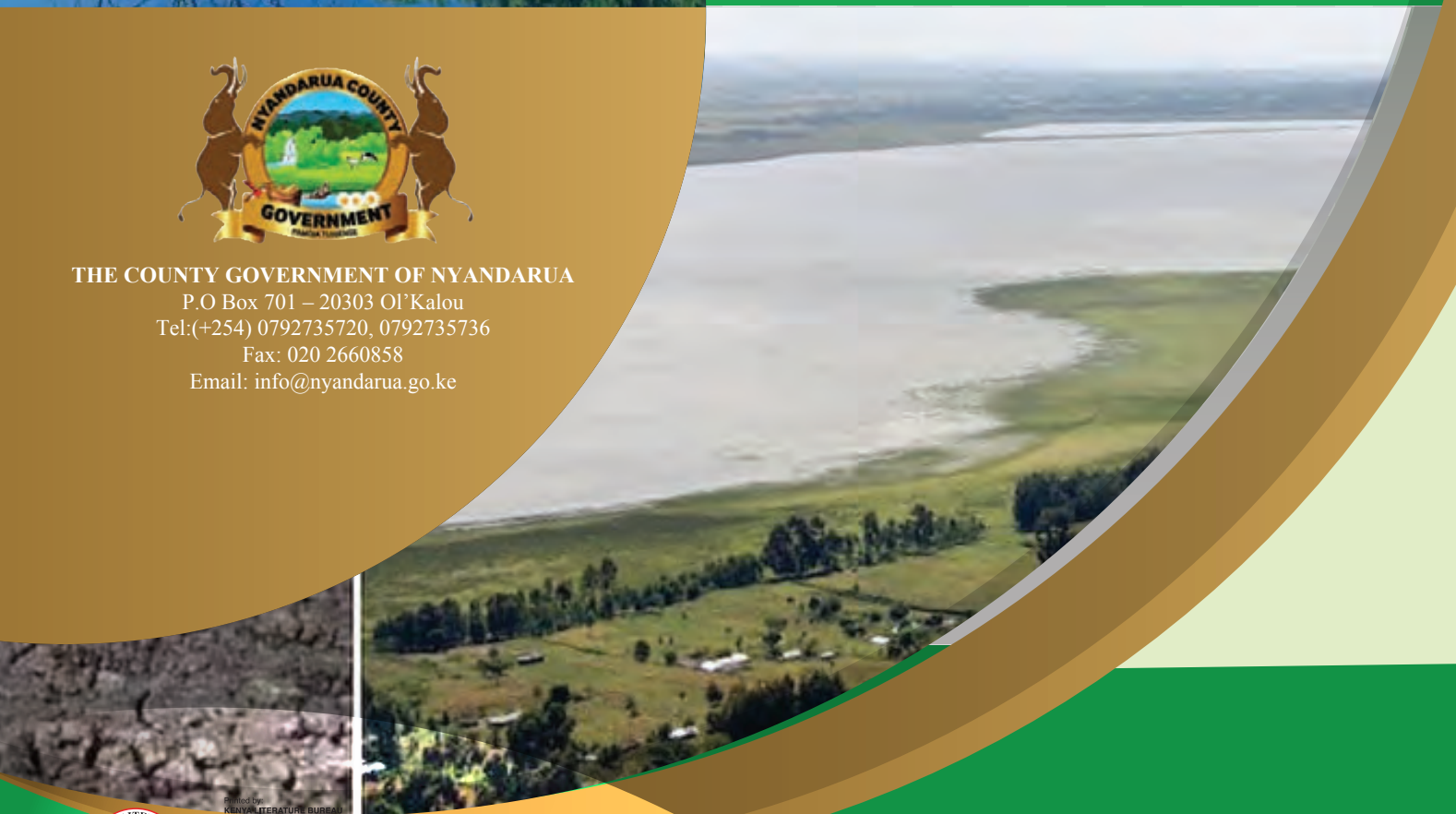
i. Ecosystem conservation including forest cover and habitat restoration.
ii. Level of adoption of green energy and energy efficiency.
iii. Carbon and other greenhouse gas emissions.
iv. Agricultural and industrial production.
v. Biodiversity status.
vi. Water quality in key water sources and Lake Ol' Bolossat.
vii. Habitat condition.
viii. Poverty levels.
ix. Level of engagement of women, youth, and vulnerable groups in climate issues.

### 5.2.2 Forms of Evaluation and Review

Two forms of evaluation will take place:

1. **Biennial reviews** – To be undertaken by the Planning Committee do determine the implementation of the County Climate Change Action Plan (and the activities proposed therein) and report to the Steering Committee.
2. **A 5-year evaluation and review:** This will be carried out at the end of 5 years of implementation of this plan. This evaluation will inform the revision of activities and objectives for the following five -year implementation period. There will be a need to revise the plan every five years to

ensure conformity with the County and national development priorities, and ensure relevance to the CIDPs. In addition, the revision will provide an opportunity to capitalize on emerging opportunities.




**THE COUNTY GOVERNMENT OF NYANDARUA**

P.O Box 701 – 20303 Ol'Kalou

Tel:(+254) 0792735720, 0792735736

Fax: 020 2660858

Email: info@nyandarua.go.ke



Printed by:
KENYA LITERATURE BUREAU
Bellevue Area, Popo Road off Mombasa Road
P.O. Box 30022-00100 GPO, Nairobi
Tel: 020 35411967/ Mobile: 0711 318 188, 0732 344 599
Email: info@klb.co.ke

**Customer Service Centre - Kijabe street**
Tel: (020) 2684941/2/3
Mobile: 0724 256 629, 0733 666 055
Fax: 020 2692220
Email: customer@klb.co.ke

**www.klb.co.ke**

*Publishing and Printing for YOU*