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2023–2027

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ABBREVIATIONS AND ACRONYMS

CBO	Community Based Organisation
CDM	Clean Development Mechanism
CECM	County Executive Committee Member
CFA	Community Forest Association
CGoN	County Government of Nyandarua
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 & 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 & 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).

Vulnerability 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 Plans (CIDPs), 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

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 PCRU 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, C LIMATE CHANGE AND NATURAL RESOURCES

NYANDARUA COUNTY CLIMATE CHANGE 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.	Hellen Njeri	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.	Teresia 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.

During development of the PCRA report, extreme temperatures as compared to the past was found in almost all the 25 wards of Nyandarua County. This was found to have a huge impact on the agricultural sector with lowered production while in some instances it was found to have increased production of beans in various areas including Kinangop where beans did poorly previously. It was found to have increased instances of diseases including malaria as well.

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).

From the ward-level PCRA engagements, instances and extents of drought were noted to have increased in all the wards. This has resulted in water scarcity and food insecurity from reduced production and crop failure. This was associated with malnutrition and loss of livestock hence loss of livelihoods.

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).

During the ward-level PCRA engagements, floods were noted to be common in areas around the Aberdares. Their effect was noted to adverse in various sectors ranging from agriculture to transport. For example, 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. Floods were noted to cause pre- and post-harvest loss as well as health issues such as water-borne diseases.

Other climate hazards:

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:

- ❖ Incorporates the public views on climate hazards and risks as assessed in the PCRA report and provides priority climate investment areas foe effective adaptation
- ❖ Will Provide a roadmap for implementation of climate change actions in the County.
- ❖ Will Provide a framework for mainstreaming climate change into sector functions.
- ❖ Aligns County development plans with those of national Government
- ❖ Enables participation and inclusivity of vulnerable groups within the County; elderly, youth, women, children, persons living with disability, marginalized and resource poor households as well as providing adaption measures to help build their resilience and adaptive capacity

- ❖ Brings on board other county policies and legal frameworks that enhances community engagement for effective locally-led clime action such as Grievance redress mechanism and public participation policies

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.

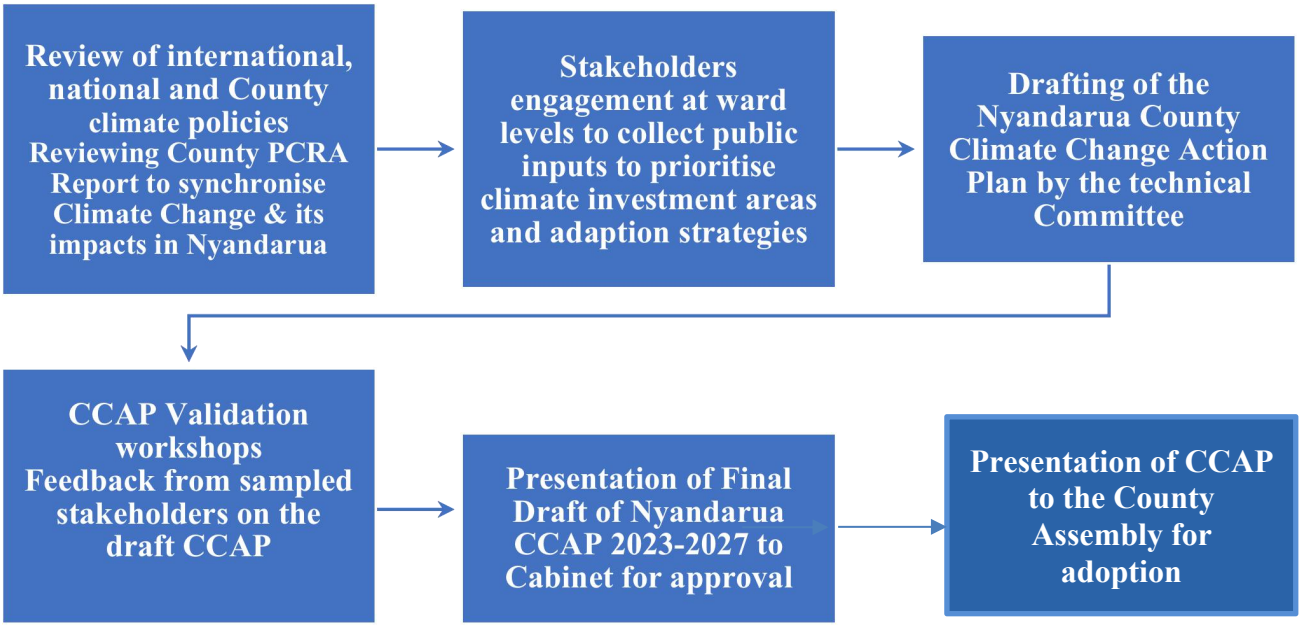


Fig 1: Schematic Diagram summarising Nyandarua County Climate Change Action Plan Formulation Process

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 including NEMA, KWS and KFS, County Government departments, private sector players including local CBOs with responsibilities in sectors that are vulnerable to climate change.

The draft Action plan was then subjected to validation by selected stakeholders who attended the ward level engagements. The TWG then retreated to draft the second draft of the CCAP and incorporate the views of the agencies as well as those from the validation workshop.
The CCAP was then tabled at the County Executive Committee for approval. This was done on 28th may 2023 where it was approved. The Action plan was further submitted to the County Assembly for review and adoption. The County Assembly enacted the CCAP on 29th May 2023 and adopted for implementation.

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).

Figure 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 destroy 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 were 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 1.1: Summary of climate change impacts by sector in Nyandarua County

Sector	Likely Impacts of Climate Change

Crops	• Increased food insecurity • Decline in overall crop yields due to insufficient availability of water, excessive moisture conditions, more pests, diseases and weeds • Lower production due to temperature increases and lower precipitation leading to reduced soil moisture • 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 • 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 • Greater reliance on irrigation due to reduced precipitation
Livestock	• Livestock deaths caused by drought • Decline in production due to lack of pasture, reduced access to water, and heat stress • 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 • Increase in stagnant air days leading to worse air pollution • Increased likelihood of contestation and conflict over diminishing natural resources
Forestry	• Reduced provision of environmental resources and economic activity • Increased exposure to wild fires, pathogens and invasive species
Health	• Increase in the incidence of Malaria, Rift Valley fever, malnutrition among other diseases • Increase in water-borne diseases such as typhoid and cholera due to flooding
Tourism and Wildlife	• Adverse impacts on ecologically sensitive tourist destinations • Increased instances of human-wildlife conflict especially for hippos around Lake Ol' Bolossat basin during droughts • Potential for species extinction among them many species of birds
Water	• Reduced availability of water for domestic and industrial use • Depletion of groundwater aquifers • Increased water loss from reservoirs (wetlands and rivers and water pans) dues to evaporation • 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 • Interruption of road transport from flooding and heavy rainfall events • Softened and expanded pavement creating rutting and potholes • 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 • 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 • Greater risk of plant, product and infrastructure damage and supply chain disruptions from extreme weather events • Higher costs to companies, including for insurance
Drought and Flood Management	• Increased number of people without access to water • Increased frequency and intensity of droughts, decrease ability to cope • Increased frequency and intensity of flooding decrease adaptive capacity • Increased number of food insecure and malnourished people • Declines in school attendance and rising dropout rates
Blue Economy and Fisheries	• Decline in economic benefits of blue economy investments • Declining fisheries • Damage to tourism industry hence decline in livelihoods • Increased risk of alien invasive species

Resilience adaption strategies

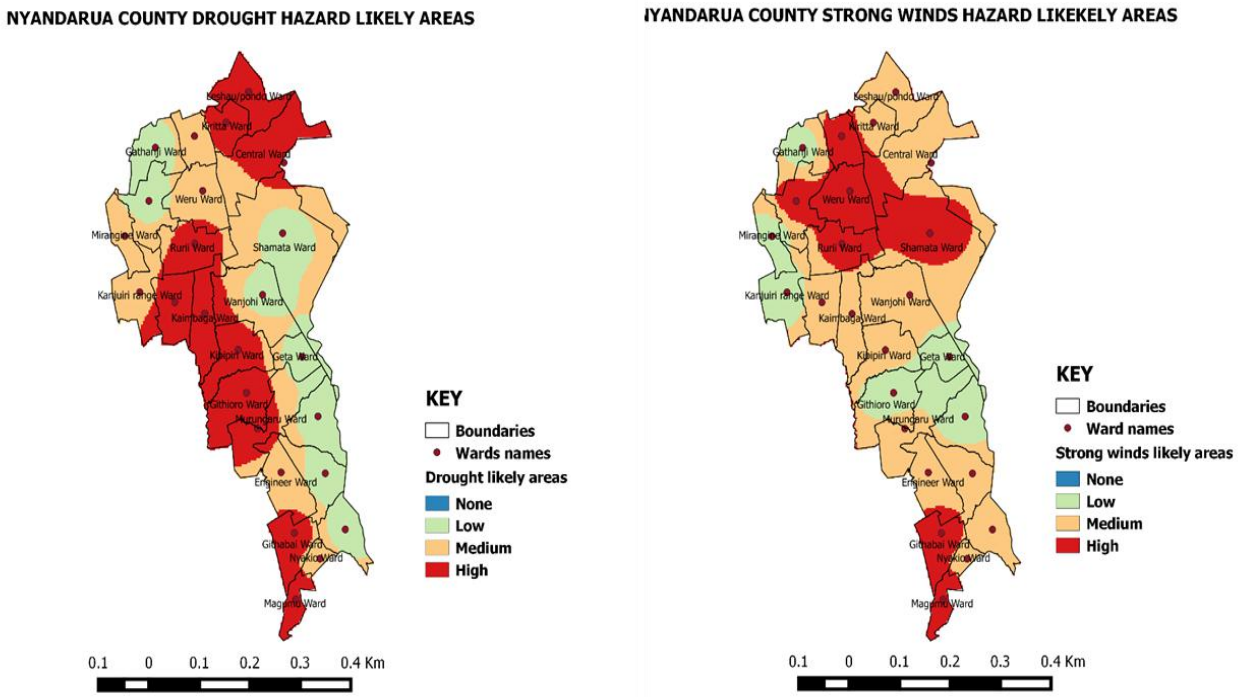
With the increasing impacts of climate change, community within the county have developed strategies to adapt and cope with the impacts. In instances of drought the people have embraced water harvesting and storage strategies including dams and roof catchment. This ensures they have adequate water for use even in times of prolonged drought. The dams also act as structures to regulate floods as they hold storm waters. Others include adoption of climate smart techniques including drought tolerant crops, irrigation, high quality animal breeds and zero grazing have proved to be effective in dealing with drought. Early warning notices from the KMD though not accessed by all, have been used over time by farmers to plan on planting and cropping seasons.

The County Government has embarked on an intentional and conscious rehabilitation of water catchment areas, colonial dams, riparian zones among other sensitive areas. Adapt and Nature a tree is an example of rehabilitation program aimed at climate mitigation and adaption as well as promoting climate resilience. The government through various department has ensured community education and awareness raising on matters climate change as well as enactment and implementation of various laws, policies and strategies hence effective climate action. This has brought partnership and collaborations for locally-led climate financing a notch higher hence building community reliance and adaptive capacity

This calls for proper, effective and well-planned adaption strategies tailored to fit and reflect public interests at the local level to ensure implementation of locally-led climate action.

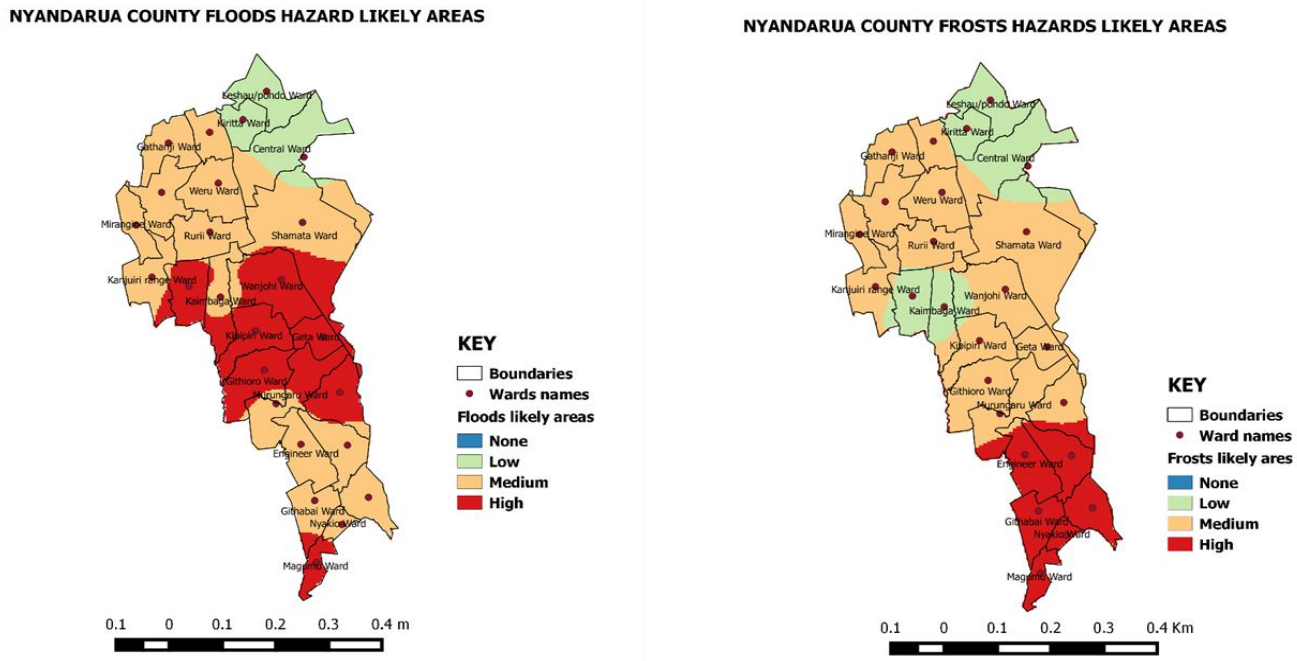
1.2.2 County Climate Hazard Map

The maps below represent the hazards and magnitude at which they impact different wards within Nyandarua County as obtained from ward level engagements.



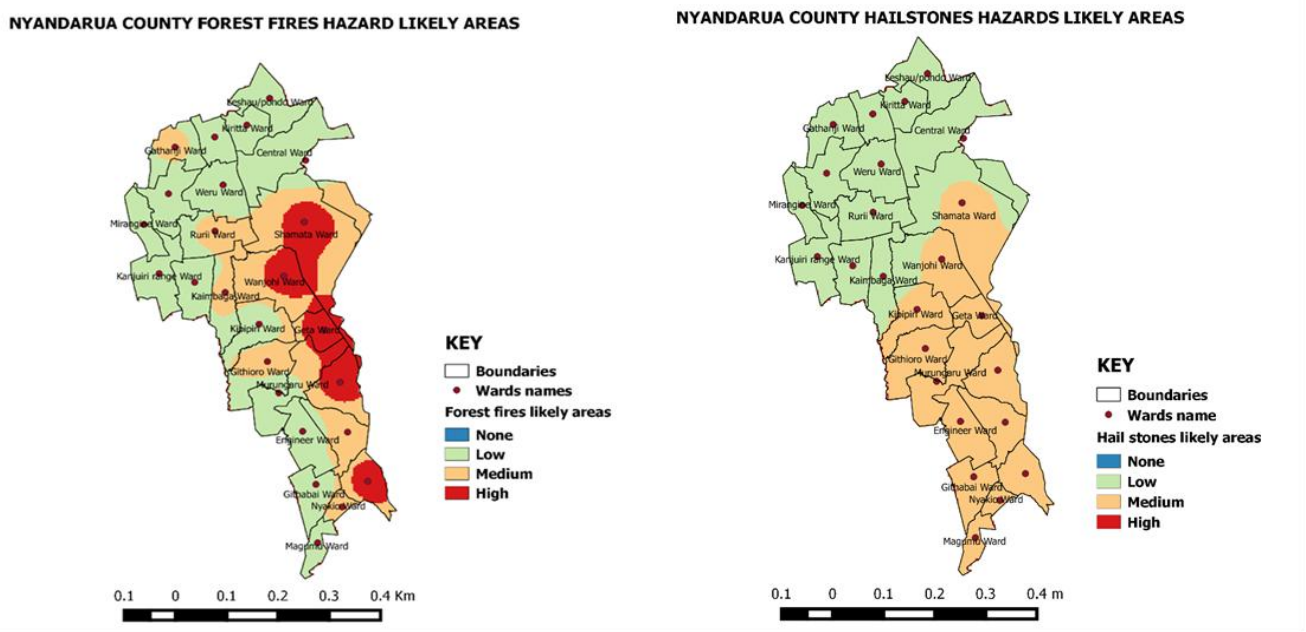
Map 1: Areas likely to be affected by drought (left) and strong winds (right) presented at ward levels

From the ward level engagements, it was noted that drought was prevalent in Magumu, Githabai, Murungaru Githioro, Kipipiri, Kaimbaga, Leshau Pondo, Kiriita and Central Wards. Areas neighbouring Aberdares and Ndundori hills are least faced with drought. Strong winds were noted to very strong in Magumu and Githabai wards as well as wards around lake Ol Bolossat including Rurii, Weru, Gatimu and Central wards as illustrated in the above maps.



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

From the ward level engagements, flood-prone areas included Magumu, Wanjohi, Kipipiri, Geta, Karau, Githioro and part of Shamata. However, areas highly affected by drought including Leshau Pondo recorded the least instances of floods. Frost was prevalent in Kinangop area including Magumu, Njabini-Kiburu, Engineer and Githabai wards. Similarly, areas of Karau and Leshau Pondo that are quite dry were noted to have the least instances of frost as illustrated in the above maps.



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

From the Ward level engagements, forest fires were noted to occur mostly in areas neighbouring Aberdare Forest including Njabini-Kiburu, North Kinangop, Geta, Wanjohi and Shamata. Hailstones moderately affected southern part of Nyandarua and Gathanje ward while the northern part of Nyandarua they were not prevalent as illustrated in the maps above

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 Children Youth Elderly PWLD PRH	• Water scarcity • Deforestation • Crop failure hence food shortage and Malnutrition • Loss of livelihoods • Deaths (people and livestock)
2.	Crop pests and disease infestation	Women Children Youth Elderly PLWD	• Loss of fodder and pasture • Reduced production • Food insecurity hence malnutrition • Increased cost of Production
3.	Floods	Children Women Youth Elderly PLWD	• Soil erosion • Poor water quality • Destruction and loss of property • Water-borne diseases • Seasonal displacement of people
4.	Strong winds	Women Children Youth Elderly PWLD	• Soil erosion • Drying of water pans and wetlands • Destruction of property • Reduced crop production
5.	Frost	Children Women Youth Elderly PLWD	• Increased instances of respiratory diseases • Crop Failure • Small scale trading lowered
6.	Extreme change in temperatures	Women Children Youth Elderly PWLD	• Reduced production due to loss of soil moisture • Diseases (crop, livestock and human including arthritis and respiratory) • Reduced trading/business activities
7.	Fog and mist	Women Children Youth Elderly PWLD	• Poor visibility hence accidents (reduced mobility) • Increased crop diseases • Reduced crop production
8.	Rock falls and mudslides	Women Children Youth	• Loss and destruction of property • Poor water quality • Soil erosion

		Elderly PWLD	• Reduced crop production • 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 including grants and donor funds. 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.

❖ CIDP I (2013-2017)

Nyandarua County Integrated Development Plan (2013-2017) was formulated in a Participatory Process that involved all sectors of both the national and county governments. The County Assembly also played a leading role through the County Assembly Committee on trade and planning. Adequate stakeholder consultation and participation provided an opportunity to articulate and mainstream some Climate Change elements in the CIDP. According to the document, it is evident that climate change in the county is a reality that manifests in a rise in average temperatures, shifts in rainfall pattern and subsequent long-term shift in the normal weather patterns. The document acknowledged the need for mainstreaming environment issues in development planning and identified the following measures/actions for realising this that include the following:

- Ensuring Environmental Impact Assessment (EIA) requirement in the implementation of all projects and programmes that are likely to have effects on the environment, social settings and climate change as envisaged in EMCA 1999 (A) 2015.
- Protection of wetland and forest reserves and ensuring community participation in the management of forest reserves and other ecologically sensitive areas is important.
- Tree planting
- Enforcing both local environmental laws and adherence to internationally agreed regulations on environmental sustainability.

❖ CIDP II 2018-2022

The CIDP 2018-2022 takes the lessons from the 2013-2017. It is premised on the priorities of MTP III 2018-2022 of Kenya's Vision 2030 that, among other areas, has a focus on mainstreaming climate change adaptation and mitigation. Just like its predecessor, this CIDP was developed in a participatory manner. In relation to the climate change action plan, it has taken bold steps to mainstream climate change in the county's development agenda. First, it recognizes that climate change is a key driver of environmental degradation. It negatively affects many sectors in Nyandarua County including agriculture, health, livestock, forestry and water. The plan recognizes climate change mitigation and adaptation activities that were underway by 2018. The CIDP lays a lot of 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. Unlike the 2013-2017 CIDP, this second CIDP has allocated specific budgetary allocation for climate change actions.

❖ CIDP III (2023-2027)

The CIDP 2023-2027 priorities have been linked with the National priorities as captured in the MTP IV, Kenya's Vision 2030 among other plans. In relation to the climate change action plan, it has taken bold steps to mainstream climate change in the county's development agenda. CIDP3 recognizes that climate change is a key driver of environmental degradation hence mainstreaming

climate actions across all county departments and sectors.

Among the major climate actions incorporated within CIDP 3 for implementation include:

- Improving water access through rehabilitation of 300 colonial dams and expansion of water intakes
- Improving community resilience to climate change impacts at household level
- Disaster and risk management
- Development and operationalization of County Climate Change Information Management System to aid in early warning system
- Rehabilitation of degraded catchments
- Restoration of Lake Ol Bolossat
- Reduction of carbon emissions
- In the mainstreaming, some of the prioritized actions include:
- Promotion of Climate smart agriculture
- Mapping and survey public lands among them dams to aid in rehabilitation, restoration and protection of the resources
- Promote and establish of integrated green and circular projects in institutions
- Climate proofing of infrastructure ensuring accessibility and mobility thus community empowerment

Lake Ol Bolossat Integrated Management Plan 2020-2030

This plan was developed through a participatory process with the ultimate vision being, "A well-managed and protected Lake Ol' Bolossat and its catchment area providing a sustainable and ecologically balanced ecosystem for the present and future generations."

The overall objective of this management plan is to "promote environmental conservation of Lake Ol' Bolossat and its catchment for sustainable development while maintaining the values and ecological functions through the involvement and participation of stakeholders".

This plan has identified a number of management programs that indicates what has been achieved and also what needs to be done, these include;

- Biodiversity management
- Governance improvement
- Climate change mitigation and adaptation
- Ecotourism management.
- Water resources management
- Land resource management.
- Socio-economic development

Nyandarua County Forest Landscape Forest Restoration Strategy (2021-2030)

Nyandarua County Forest and Landscape Restoration Strategy 2021-2030 (NCFLR) is a ten-year plan to restore deforested and degraded landscapes for resilient socio-economic development, improved ecological functioning and contribute to the achievement of national aspirations and international obligations. It also provides an action plan including the relevant timelines and budget for various Forest Landscape Restoration sites and interventions.

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).

The matrix below illustrates the strategic priority climate actions for implementation in various sectors as informed by the PCRA report.

S. No	Priority Sector	Priority Climate Investment Areas
1	**Drought management**	Adequate Water provision through: • Drilling and equipping of boreholes in all wards • Dams (Rurii, Kiriita, Kaimbaga wards) Masonry tanks in Kipipiri sub-county, • Roof catchment across all wards and Climate smart agriculture to enhance Agricultural production through: • Irrigation (Ndaragwa sub-county), • greenhouses (county wide), • provision of quality seeds (Countywide), • drought tolerant crops (Ndaragwa and lower Kipipiri sub counties), • government subsidies (countywide), • Construction of cold stores and milk coolers in Kinangop, Kipipiri and Ol Joro Orok sub counties, Early warning systems to advise on timely planting across all wards Awareness raising and trainings on effective farming strategies across ala wards
2	**Flood management**	Construction of drainage system in major towns of Mairo Inya, Engineer and Njabini Early warning systems in all the wards Raise awareness and capacity building on insurance in agriculture in all the wards of the county Construction and maintenance of all-weather roads to allow

		transportation of farm produce to markets
3.	**Frost Management**	Invest on irrigation in frost prone areas especially Kinangop Sub counties Embrace use of green houses in Kinangop Investing on early warning systems in all the wards Agroforestry and establishment of nurseries in all the wards
4	**Forest fires Management**	Enforcement of existing law and policies mainly in North Kinangop, Geta, Wanjohi and Shamata wards Adoption of alternative Renewable energy Sources (Biogas, Solar) in all the wards Reafforestation and protection of catchment areas mainly in North Kinangop, Geta, Wanjohi and Shamata wards Livelihood diversification to curb illegal charcoal burning and honey harvesting in North Kinangop, Geta, Wanjohi and Shamata wards
5	**Landslides, mudslides and Rockfalls Control**	Construction of gabions in Magumu and Njabini wards Practicing tree growing and contour farming in Magumu and Njabini Early warning to warn people in prone areas
6.	**Strong winds management**	Establishment of tree nurseries to women and youth groups mainly in around lake Ol Bolossat and Githabai wards Reafforestation, agroforestry and farm forestry to act as windbreakers in all the wards Promoting adoption of wind power in Heni-Githabai wards and around Lake Ol Bolossat
7.	**Pest and disease control**	Awareness raising, community trainings and education across all the wards Agricultural extension services in all the wards Provision of certified seeds to farmers in all the wards Research to introduce resistant and or tolerant crops in all the wards
8.	**Biodiversity Conservation**	Conservation and protection of fragile ecosystems, degraded sites and water catchment areas. Conservation and protection of Lake Ol Bolossat Adoption of alternative Renewable energy Sources (Biogas, Solar)
9.	**Hailstorms management**	Provision of agroforestry trees to farmers across all the wards Promote adoption of insurance cover against their crops across all the wards

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 Nyandarua County.
- 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. Jointly, they act as the framework and mechanism for mobilization and facilitation of the county government, communities and other stakeholders to respond effectively to climate change through appropriate adaptation and mitigation measures and actions within the County. The Fund regulations are put in place to govern utilization and management of the county climate Change Fund.

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 as outlined earlier in the policy and legal framework 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 and captured in CIDP3 for implementation as follows:

- Improving water access through rehabilitation of 300 colonial dams and expansion of water intakes
- Improving community resilience to climate change impacts at household level
- Disaster and risk management
- Development and operationalization of County Climate Change Information Management System to aid in early warning system
- Rehabilitation of degraded catchments
- Restoration of Lake Ol Bolossat
- Reduction of carbon emissions

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.

After the drafting of the drafting PCRA report and CCAP 2023-2027, a Multistakeholder workshop was organized to engage major stakeholders at the county level who could not be engaged at the ward level. These stakeholders included NEMA, KFS, KWS, County Departments, Tertiary Institutions including Nyandarua National Polytechnic, AHITI, Research institutions including KARLO, CBOs such as COPICAD, Cranes Conservation Volunteers (CCV), Friends of Kinangop Plateau (FoKP) and LOCCOG. Others included County Climate Planning and Steering Committee as well as County Assembly Sectoral Committee.

The various stakeholders engaged, provided their views guided by their scientific expertise and experience in their respective fields of operation for incorporation within the CCAP. This ensured correlation and validation of information provided by the community with scientific knowledge on the same sectors from the active players. This also ensured that the indigenous knowledge was backed by scientific data in cases of scanty sources to produce rich information.

4.1.4 Nyandarua County Climate Change Fund Regulation 2021

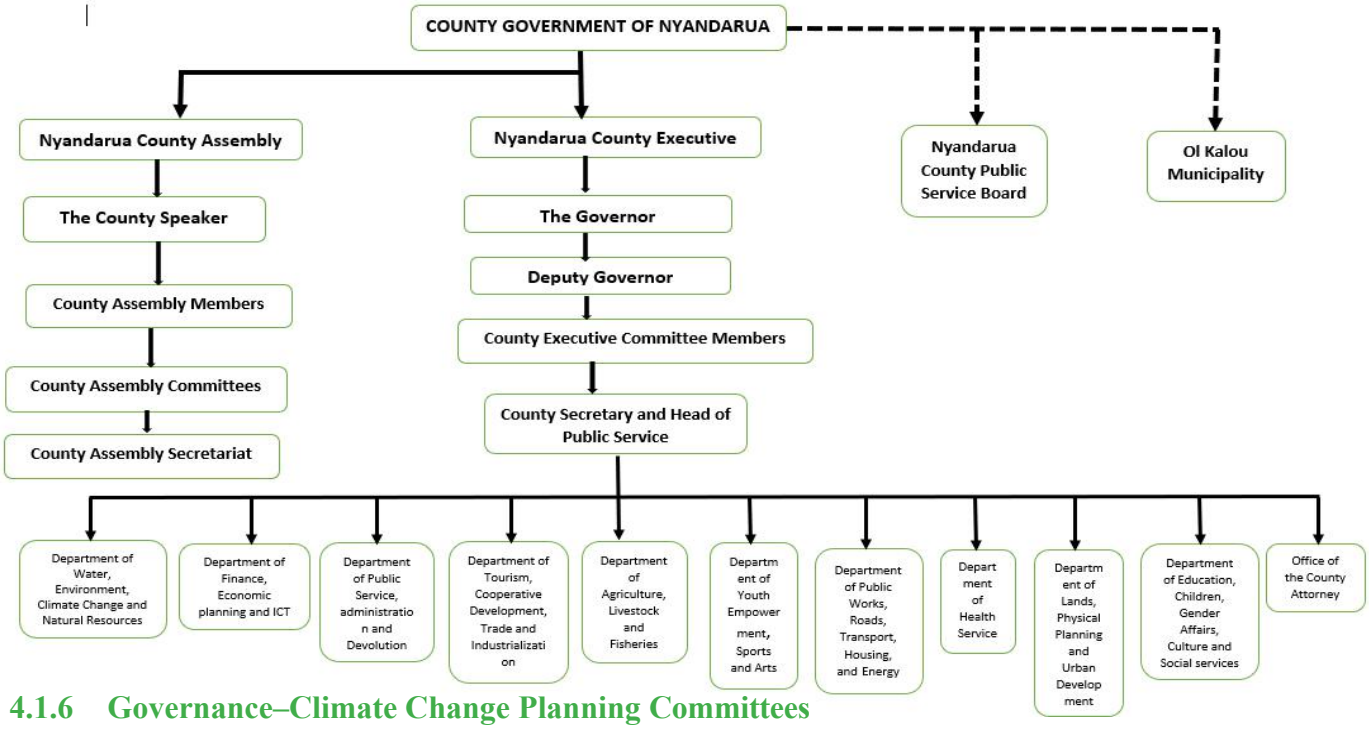
The County is committed to allocating 2% of its development budget to the fund. The Fund is also composed of:

- Money received from the National Climate Change Fund;
- International Climate Finance received by the county directly or through the National Designated Authority, National Implementing Entity or other agency;
- Donations, endowments, bequests, grants and gifts from individuals, public and private entities, either local or foreign;
- Charges, fees, levies or fines received by the county government in connection with activities that adversely impact on climate matters in the county;
- Revenue generated from research, innovations and technology investments that enhance low-carbon climate resilient development;
- Public private partnerships, privately initiated investments programs and technical assistance among others

Effective functioning of the CCCF has and will continue to enable other donors to contribute and enhance its performance in implementing locally-led climate actions.

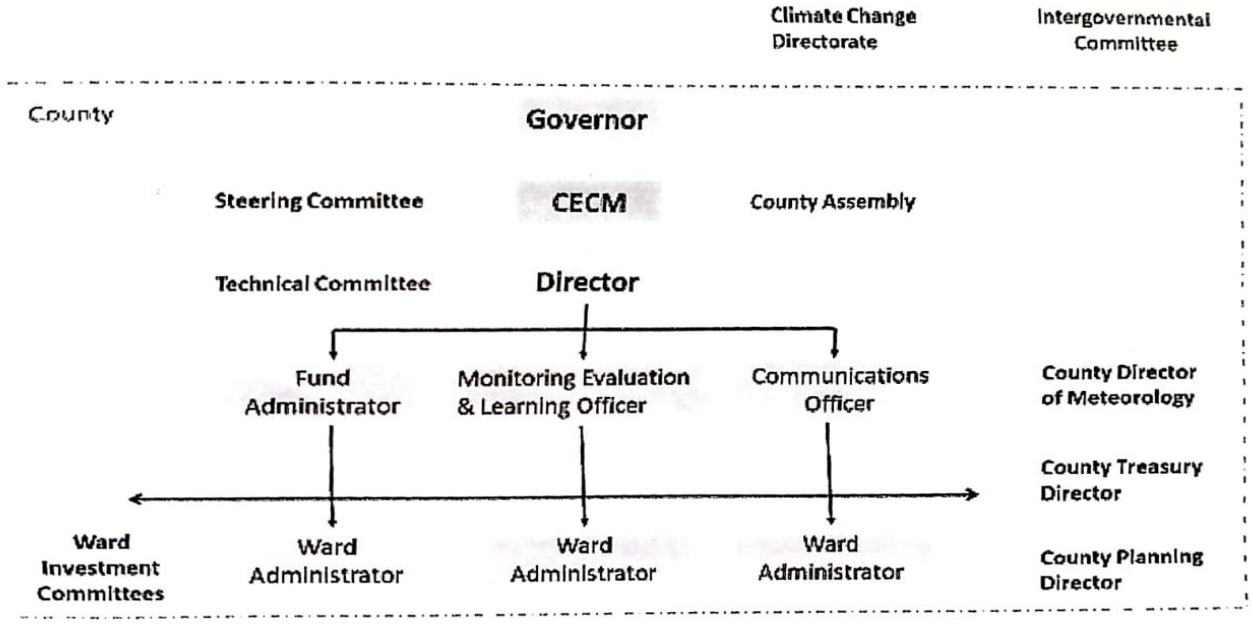
4.1.5 Governance–County Government Structure

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. Below is the county structure of governance



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. These include Steering Committee composed of CECMs, Planning Committee composed of County Directors of key directorates and 25 Ward Committees. Ward committees are vital in implementation of locally-led climate actions at the ward level. 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. Below is the County Climate Change organogram illustrating the CCU administration.



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.

Currently, the County relies on periodic reports from the KMD through the County Director of meteorological services to reach the community. This information is packaged in simple and concise way through maps among other and relayed via WhatsApp platforms and awareness forums. This serves in early warning to the community particularly the farmers advising them on planting seasons. However, this information does not reach high population as intended hence the need to broaden it by enhancing County Climate Change Information services

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 quarterly by the CCU and the CECM in charge of climate affairs. Nyandarua County Climate Change Act, 2021provides for the ward climate change committees to be integral in measurement and reporting on the implementation of locally-led climate actions, programs and projects.

Other tools of monitoring and evaluation will include the use of scientific tools like kobo toolbox in reporting and measuring the extent of implementation of the action plan.

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 • Mainstream climate change actions, interventions and duties into County Integrated Development Plan III • Prepare report on the implementation progress of climate change actions
County Assembly	• Legislate on Climate Change issues • 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

The following is the summary of Priority climate sectors in order of their priority:

Priority Sector 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)											
BETA: Enabler of the 5 key Priorities											
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 (in order of priority)**	**Adaptation/ Mitigation Action**	**Indicators**	**Target**	**Actors**	**Budget in KES**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
County Climate Change Information and awareness strategy	**Develop a robust county public awareness strategy on climate change.**	Enabling action	• One strategy developed	One County climate change Strategy developed	GoK, CGoN, CBOs, NGOs, Research institutions, Schools, Private sector, Community	5,000,000	X				
Capacity Building	**Build the capacity of the County climate change committees;**	Enabling action	• No. of committee members trained • No. of the	1 Steering committee (13 Members) per year 1 Planning Committee	GoK, CGoN, Academic/Research Institutions,	11,000,000	X				

	• Steering Committee • Planning Committee • County Assembly House Water Committee • Ward Climate Change Committee			successful training meetings organised	(16 members) per year 25 Ward Climate Change Committees (225 members) One-16-member County assembly committee	Community, Private Sector						
	Provide capacity support to address identified gaps in the County departments among other stakeholders: • Climate Change Unit and Government departments	Enabling action	• No. of Officers trained • No. of trainings organised	-Departments and stakeholders trained on need basis -Annual meetings for the Government departments and their staff -Quarterly meetings in each of the ward	GoK, CGoN, CBOs, Research institutions,	10,000,000	X	X	X	X	X	
	Engage students and pupils in climate change actions: • Establish CC mentorship program • train teachers as ToTs, • Engage learners and establish CC	Enabling Action	• No. of schools (students) engaged • No. of mentorship meetings organised • No. of teachers trained as TOTs or engaged • No. of School clubs engaged	250 schools across the County (to attract more schools) annually Quarterly meetings per ward 2 teachers per school	GoK, CGoN, Schools, CBOs, NGOs, KFS, Community	20,000,000	X	X	X	X	X	

	Action clubs										
	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
County Climate Change Information Management System (CCCIMS)	**Develop and operationalize an integrated 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: Increase community disaster preparedness and response	Adaptation: deals with climate risks such as floods and droughts to reduce their effects	• No. of effective and reliable early warnings released • No. of recipients or beneficiaries of the early warning • 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 • No.of dissemination fora organised • No. of Reports published	-5 researches conducted -1 meeting per ward for each research -5 reports published	GoK, MoALF, CGoN, Research Institutions, Farmers, KALRO, KMFRI	20,000,000	X	X	X	X	X

	Establish County Climate Change Resource Centres in every Sub-County.	Enabling action Adaptation: help deal with climate change resultant disasters	• Operational and fully equipped resource Centre established	6 fully functional and equipped Resource Centres	CGoN, Research institutions, Community, CBOs, Civil Society	30,000,000	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 utilization 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 Climate 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 Mitigation: promote GHGS emissions reduction 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 Sector 2: Water Security

Priority 2: 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											
BETA: Agriculture., Digital and Creative Economy, Health											
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 (arranged in order of priority)**	**Adaptation/ Mitigation**	**Indicators**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Promoting Clean and Safe water Access	**Promote access to safe and clean water** for all the County residents ● Promote last-mile water connectivity ● Large-scale installation of water meters ● Reduce non-revenue water	Adaptation Increase water availability and promote resilience	● No. of people accessing clean and safe water for domestic, agricultural and industrial use; ● No. of water meters installed within the County ● Percentage of non-revenue water reduced	-125 households per ward annually -125 meters installed per ward annually -25% reduction in non-revenue water	GoK, CGoN, CBOs, Private Sector, Community, Donors, WRA	100,000,000	X	X	X	X	X
Developing new Water Infrastructure	**Increase annual per capita water availability through**: ● Drilling and equipping of boreholes ● Increasing the number of dams, Weirs, Water	Adaptation 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 ● No. of identified sites for borehole drilling ● No. of boreholes	500,000 Cubic metres storage infrastructure constructed -5 sites identified annually -5 boreholes	GoK, CGoN, Private developers, Research institutions, WRA, Community	500,000,000	X	X	X	X	X

	pans and storage Tanks • Map groundwater resources availability in the County		drilled	drilled and equipped annually - County Water Masterplan								
Water Efficiency to minimize Wastage	Promote monitoring, reducing, re-using, recycling and modelling through; ✓ Raise awareness on water efficiency ✓ Improve on innovations to track the water, identify leakages and report on the same	Adaptation Deal with risk of water shortage	● No of awareness meetings/ programs organized ● No. of residents reached in awareness programs ● No. of innovative strategies employed to promote water efficiency ● 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
Water harvesting-based livelihood resilience programs	**Increase gender-responsive, affordable livelihood programs by:** • 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 ● Number of programs initiated	-200 per ward annually -As per the target location	GoK, CGoN, Community, private sector, NGOs, CBOs	25,000,000	X	X	X	X	X

Priority 3: Forestry, Wildlife and Biodiversity Conservation

Priority 3: 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)											
BETA: Agriculture,											
SDGs: 15: Life on land; 13: Climate Action; 5: Gender Equality; 6: Sustainable Water; 7: Sustainable Energy;											
Sub-sector	**Proposed Action (in order of priority)**	**Adaptation/ Mitigation**	**Indicators**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Conservation of Water Catchments	Construction of gabions, cut-off drains, Strip cropping,	Adaptation: deal with the climate risk of water shortage Mitigation: Increase carbon sequestration reducing GHGs emissions	● No. of catchment areas conserved ● Length of cut-off drains done ● Length of strip cropping done	-5 catchment areas conserved -10km of cut-off drains -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	● Identification of sites ● Bamboo planting along the riparian ● Fencing of riparian areas. ● Indigenous tree planting	Adaptation: deal with the climate risk of water shortage Mitigation: Increase carbon sequestration reducing GHGs emissions	● Length in Km of riparian rehabilitated ● No. of riparian areas protected	-25 km of riparian rehabilitated annually 2 riparian areas protected annually	GoK, CGoN, KWS, KFS, CBOs, NGOs, Private sectors, Community, WRA	40,000,000	X	X	X	X	X

Conservation of Lake Ol' Bolossat	• Feasibility studies and evaluation of natural 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			
Forestry	**Afforestation and reforestation** through: • Promote tree planting capitalizing on indigenous tree species • Increase tree nurseries to cater for seedlings production and availability	Adaptation: Reduces exposure by increasing surface cover preventing degradation Mitigation: Improve carbon sequestration hence reduce GHGs emissions	• No. of trees planted and adopted to maturity/survival • Number of operational trees nurseries • Percentage forest cover increased • Total land area in hectares planted with trees both under private and public ownership • Proportion of land in hectares rehabilitated	-2.5 million trees planted and nurtured to survival -3 tree nurseries producing 500,000 seedlings per year each -3% increase forest cover from current 26.2% -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 • 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 • No. of environmental clubs engaged	2 green parks per sub-county annually 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: • Identification of fragile	Adaptation Reduces exposure by increasing	• No. of fragile ecosystems successfully	-10 sites restored annually	GoK, CGoN, KFS, CBOs, NGOs, KWTA,	50,000,000	X	X	X	X	X

	ecosystems ● Restoration of the identified ecosystems	surface cover preventing degradation Mitigation: Improve carbon sequestration hence reduce GHGs emissions	restored ● Area in hectares restored ● Percentage of land cover restored	-10 hectares restored per year -As per the need	CFAs, WRUA, Community, WRA						
Sustainable timber production	**Promote sustainable timber production on private and public lands** through**:** • Increase plantations for commercial and industrial purposes	Mitigation: Increase carbon sequestration hence reduce GHGs emissions	● Total land area in hectares plantations ● No. of sensitization meetings organised to promote sustainable timber production	-200 hectares for 5 years -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: ✓ Development and implementation of HWC resolution mechanisms ✓ Gazettement of Lake Ol' Bolossat as a National Reserve ✓ Establish community wildlife conservation groups ● Conserve Lake Ol' Bolossat and Aberdare	Adaptation Deals with climate risk resulting to increased likelihood of HWC Build community resilience by increasing the wildlife area	● Number of HWC cases reported ● No. of people affected by HWC ● Abundance of endangered animal species ● Total land area in hectares under Pas ● Restoration of Kirima-Muruai catchment ● No. of Springs	-20% annual reduction in reported HWC cases -Restored Kirima-Muruai Catchment -Protected Ngurumo, Makereka, Nduthi Springs -50km of rehabilitated riparian	GoK, CGoN, KWS, KFS, CBOs, NGOs, Community	20,000,000	X	X	X	X	X

	ecosystems to support diverse plant and animal species under the changing conditions ● Identify and protect habitats for endangered wildlife species		protected ● Length in Km of rehabilitated riparian									
	Control of invasive species: ● Conduct surveys to determine the prevalent invasive species, their effect on endangered wildlife species and device mechanisms to control them ● Devise mechanisms for alternative use of the invasive species.	Adaptation: Build resilience by protecting critical and endangered habitats	● Total area in hectares where invasive species have been controlled ● No. of endangered wildlife species by the invasive species ● 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: ● Mapping, fencing and planting of trees around the springs	Adaptation: 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; Deal with climate risk of forest fires Mitigation: reduce GHGs emissions	● No of forest fires cases reported and controlled ● 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	Mitigation:	Area in hectares under	-100 hectares	GoK, CGoN,	10,000,000	X	X	X	X	X

	spaces	Reduce GHGs emissions	urban forestry		KFS, NGOs, CBOs, Institutions, private sector, civil society							
	Enhance community involvement in wildlife conservation	Enabling action	● No of community groups successfully involved in wildlife conservation ● No. of engagement meeting organized	-At least 2 CBOs per ward 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 ● No. of groups engaged	50 people engaged per ward annually 2 groups per ward	CGoN, KWS, KFS, CBOs, NGOs	25,000,000	X	X	X	X	X
Eco-tourism	**Promote eco-tourism through:** ● Identify key tourist attraction sites to promote sustainable tourism ● Implementation of LOIMP through Promotion of eco-	Adaptation: Build resilience by promoting protection of endangered species and offering communities with alternative source of income	● No of individuals benefiting from ecotourism initiatives ● 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

	tourism											
	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 Sector 4: Food and Nutrition Security

Priority 4: 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 & 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)											
BETA: Agriculture, Health											
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 (in order of priority)**	**Adaptation/Mitigation Action**	**Indicators**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Crop Production	**Promote small-scale irrigation** ● Desilt existing pans and reticulate water for irrigation ● Promote sustainable utilizations of the already dug pans including the private-owned	Adaptation: Increase water storage to increase crop yield and reduce dependence on rain-fed crop production Deal with climate risk- land degradation	● Number of farmers utilizing Climate Smart irrigation to promote crop yields; ● Size of cultivated land under irrigation • Number of Water pans desilted	-2 pan desilted and reticulated annually -100 farmers per ward annually -100 acres of land per ward annually	CGoN - Water Officers, CBOs, Civil Society, NGOs,	50,000,000	X	X	X	X	X
	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	No. of households/farmers/ beneficiaries of the drought-tolerant crops; 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

		yields Mitigation: Crops to act as carbon sinks	●									
	Crop Diversification: ● Promote high yield crops; ● Promote Agroforestry through fruits trees;	Adaptation: Promote high yielding crops even in times of drought promoting food and nutrition security Mitigation: Deal with GHG emissions by increasing carbon sequestration especially through agroforestry	No. of high value crops introduced No. of fora organized to promote high yielding crops ● No. of fruit trees grown	At least 2 high yield Crops 2 fora per ward organized annually 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
	Promote Organic Farming within the County	Mitigation: Reduce emissions from continued use of inorganic fertilizers	Number of farmers engaged; Size of land where practiced	10 farmers per ward per year 5 acres per ward annually	CGoN – Crop Production officers, Livestock Production officers, CBOs, NGOs & Farmers	10,000,000	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 Number of value addition projects initiated	-5,000 farmers annually -3 value addition project initiated	GoK, MoALF, CGoN, Farmers, NGOs, CBOs, Private Sector	10,000,000	X	X	X	X	X
	Research on crop varieties,	Adaptation:	. No. of research	2 research per	CGoN- Crop	10,000,000	X	X	X	X	X

	disease and pests	Addresses climate risk of increased temperatures resulting in emergence of new crop pests and diseases hence declines in crop production and yields	undertaken ●	year	Production Officers, Research institutions, KALRO, KEFRI, KEPHIS						
	Promotion of adoption and use of certified seeds	Adaptation: Ensure food security even in times of drought Mitigation: Reduce GHGs emission	● No. of sensitization meetings organized to promote use of certified seeds ● No. of farmers accessing the certified seeds	-2 meetings organized annually per ward -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 ● No. of community groups supported ● No. of technologies initiated	-100 individuals per ward annually -10 groups per ward annually 2 Technologies initiated	GoK, CGoN, NGOs, CBOs and Farmers	10,000,000	X	X	X	X	X
Livestock Production	**Promotion of appropriate, high quality livestock breeds**	Adaptation: 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

	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 Mitigation: Minimize GHGs emissions especially methane production	• No. of sensitization meetings organized to promote zero grazing • Number of groups supported in establishing zero grazing unit	-1 meeting per ward organised annually -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: Reduce the effects of drought ensuring food security; Address land degradation Mitigation: Reduce GHGs (methane) emissions by avoiding wet fresh fodder	• No. of sensitization meetings organised to promote production of drought resistant fodder crops • Number of farmers relying on drought-tolerant fodder	6 trainings organised annually -100 farmers per ward annually	GoK, CGoN, NGOs, CBOs, Farmers, Research Institutions	10,000,000	X	X	X	X	X
	Promotion of appropriate technologies in livestock husbandry	Adaptation: Promote food security, improve production, improved livelihoods Mitigation: Reduce GHG emissions	• No. of sensitization trainings organised to promote appropriate livestock husbandry strategies • No. of farmers up taking livestock production technologies within the County	-1 training per ward annually -100 farmers per ward per year	GoK, CGoN-livestock production officers, Veterinary Officers, Farmers, NGOs, CBOs, Research institutions,	8,000,000	X	X	X	X	X

					KALRO, AHITI						
	Promoting insurance schemes (livestock, crops and fisheries)	Adaptation: 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	**Promote and enhance fish farming through individual ponds**	Adaptation: 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: 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
	Promotion of sustainable modern fish farming technologies (e-Fishery, sensors)	Adaptation: 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		
	Enhance Lake Ol' Bolossat fishery and nature-based enterprises	Adaptation: Promote food security, improve livelihoods	• No. of mudfish fingerlings introduced into the lake • No. of micro enterprises supported	-50,000 fingerlings -2 youth micro enterprises	GoK, CGoN Community, KWS, LOCCOG, KMFRI	12,000,000	X	X	X	X	X

Priority Sector 5: Disaster Risk Reduction and Management

Priority 5: Disaster and Risk Management											
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 marginalized, women, children, youth, PWDs and the vulnerable groups											
Vision 2030 Pillars: Foundations (disaster risk reduction & ending drought emergencies, infrastructure), Economic and Macro pillar (Agriculture and rural development, infrastructure), Social pillar (marginalized communities, gender, youth & vulnerable groups)											
BETA: Health, Agriculture											
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 (as per priority order)**	**Adaptation/ Mitigation**	**Indicators**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	Y 2	Y 3	Y 4	Y 5
Drought management	**Improve people's ability to deal with drought** through: ● Invest on water harvesting and storage strategies; tanks, pans and dams ● Promote drought resistant crops Improve on drought early warning systems ● Develop expertise to customize and manage satellite-generated vegetation condition index used for drought early warning and response	Adaptation Dealing with high temperatures, water scarcity, prolonged water/ moisture stress leading to crop failure, loss of livelihoods, malnutrition, hygiene issues and school dropouts.	● Capacity of water storage facilities to deal drought ● No. of public fora organised to promote drought resistant crops ● No. of recipients benefiting from climatic early warning information	-1,000,000 litres per year -Targeted population -1 NDVI Map -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
Flood management	**Improve ability of the people to deal with floods –**	Adaptation Dealing with heavy	● Area mapped	-One report on mapping	GoK, CGoN, Farmers/Com	50,000,000	X	X	X	X	X

	including infrastructure: ● Construct dams and pans for water and flood control ● Map and develop storm water drains to channel flood water to the main water ways information)	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	countywide ● No. of water harvesting and flood control structures built ● Length of drains constructed	generated -1 flood control structure per year	munity, MET department, CBOs, NGOs, Civil society							
Management of Landslides, mudslides and rockfalls	**Improve ability of the people to deal with landslides:** • Rehabilitate degraded sites • Gabion and terraces construction	Adaptation: Deal with landslides risks; minimize landslides-resultant losses	No. of degraded sites rehabilitated 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 Control	**Livestock parasites and diseases and crop pests and diseases:** ● Surveillance and monitoring of outbreaks ● Prevention and control of the outbreaks	Adaptation: Minimize losses on climate resultant disasters	No. of surveillance and monitoring reports conducted No. of outbreaks controlled	As per the outbreaks As per the outbreaks	GoK, CGoN, KARLO, Research Institutions, Community,	5,000,000	X	X	X	X	X

Priority Sector 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)											
BETA: Health, Agriculture											
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 (in order of Priority)**	**Adaptation/ Mitigation**	**Indicators**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Disease Control	**Control flooding in human settlements:** Improve drainage and sewerage system	Adaptation: 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
	Adoption of one health approach in disease outbreak response.	Enabling action Adaptation: 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	As may arise	CGoN, MoH, NGOs, CBOs, Community, Civil society	5,000,000	X	X	X	X	X

Solid waste management	**Promote recycling to divert collected waste away from disposal sites:** ● Explore options for methane capture and power generation at landfill sites ● Explore options for waste incineration for energy generation ● Promote circular economy to divert majority of solid waste from landfills in major towns within the County	Mitigation: GHG emission reductions	● Number of facilities producing methane from waste ● Amount of waste converted into energy ● Proportion of solid waste reaching the landfills 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 and awareness raising	**Capacity building:** ● Improve the surveillance and monitoring of climate-related diseases ● 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; Dealing with climate risk of climate-related diseases Enabling action	● No. of monitoring reports ● No. of awareness materials produced ● No. of health workers and volunteers impacted	1 report annually 1000 materials 500 health workers and volunteers annually	CGoN, Community, CBOs, Research institutions	5,000,000	X	X	X	X	X
Policy Regulation	● Develop and implement a county framework for waste water management	Adaptation Enabling Action	● No. of laws/policies formulated and enforced	-A fully Operational waste management	CGoN, GoK, County Assembly, Community,	3,000,000	X	X	X	X	X

			● No of law enforcement officers employed ● Area in hectares protected by enforcing the law ● Fully operational framework on waste management	framework							

Priority Sector 7: Sustainability Manufacturing and Cottage Industries

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)												
BETA: Agriculture, Digital & Creative Economy												
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 (in order of priority)**	**Adaptation/ Mitigation**	**Indicators**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
Local Value Chains	**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
Water Use and Efficiency	**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
Energy efficiency	**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
Optimize manufacturing	● Promote a sustainable	Mitigation Reduce GHGs	No. of effective optimization strategies	-As per the need	GoK, CGoN, CBOs,	10,000,000	X	X	X	X	X

and Production processes	charcoal system ● Promote optimization of manufacturing processes	emissions	introduced		Community, Developers							

Priority Sector 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)											
BETA: Digital and Creative Economy,											
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	**Proposed Action (in order of priority)**	**Adaptation/Mitigation**	**Indicator**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Alternative Energy Sources	Promote use of clean fuels as a way of transitioning to clean cooking by: ● Equip women, youth, elderly and PLWDs groups with alternative energy sources ● 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	Mitigation: 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

	● Introduction of incentives to promote use of clean energy											
	Encourage the uptake of clean biomass cookstoves, innovative and alternatives in rural area: ● **Biogas technology** scaled up to increase access to clean energy by constructing digesters for domestic use, schools and public facilities ● 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	Adaptation Reduce GHGs emissions	● No. of biogas digesters constructed within the County ● No. of households utilizing clean biomass cookstoves among other alternatives within the County	-100 households -50 biogas digesters	CGoN, Civil Society, NGOs, CBOs,	125,000,000	X	X	X	X	X
Energy Efficiency	**Improve energy efficiency and energy conservation in public offices and institutions:** ● Promote energy efficiency and conservation projects/initiatives	Mitigation; Reduce GHGs emissions Adaptation Deal with climate risk of water shortage to produce HEP	● No. of successful energy efficiency initiatives employed ● No. of households and offices utilizing energy efficiently ● No. of households and offices utilizing LED	-As per the need -100 households and offices per ward utilizing energy efficiently	CGoN, KPLC, NGOs, Private sector, Civil society, Communities	10,000,000	X	X	X	X	X

	including: ✓ Efficient lighting ✓ Energy efficiency in buildings ✓ Minimum energy performance standards ✓ Distribution of clean lighting ● **Raise awareness on use of LED energy saving bulbs within the County.**		energy saving bulbs	annually -1000 households and offices using LED bulbs per ward							
Renewable Energy	**Increase renewable energy generation** from solar and wind in rural areas	Mitigation Reduce GHGs emissions Adaptation 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
Solid waste disposal	**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 ● Amount of solid waste discharged • Cases of health complications resulting from waste		CGoN, NEMA, CBOs, Development partners	40,000,000	X	X	X	X	X
Climate resistant transport	**Create incentives for car-pooling and use of alternative means of**	Mitigation: Reduce GHGs emissions	• No. of people utilizing transport methods • No. of effective		CGoN, Private sector,	5,000,000	X	X	X	X	X

	transport such as bicycles, public transport, train		incentives introduced									

Priority Sector 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	**Proposed Action (In order of priority)**	**Mitigation/ Adaptation**	**Indicator**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Climate resilient infrastructure	**Conduct Strategic Environmental Assessments (SEA) for infrastructural programs** 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 ● No. of materials that are zero rated in tax	-One gazetted regulation -As Need arises	GoK, CGoN, National Treasury	5,000,000	X	X	X	X	X
	Climate-proof infrastructure using ecosystem-based approaches (EbA)	Adaptation: 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 Sector 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											
BETA: MSMEs and Digital & Creative Economy											
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	**Proposed Action (in order of Priority)**	**Mitigation /Adaptation**	**Indicator**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y 1	**Y 2**	**Y 3**	**Y 4**	**Y 5**
Carbon assets Sequestration in biomass	• Undertake a County Greenhouse gas emission inventory • Develop a platform for trading carbon credits for sustainable community benefits.	Enabling Action	Greenhouse Gas emissions inventory report No. of carbon trading platforms developed	1 GHGE inventory report 1 carbon trading platform developed	GoK, CGoN, Private Sector, Donors, Community, NEMA, Farmers, CBOs, NGOs, Research institutions	30,000,000	X	X	X	X	X
	• Carbon Credit trading from Forest Carbon sequestration	Mitigation	Forest cover Amount of carbon credits traded	32% county forest cover	GoK, CGoN, Partners	20,000,000	X	X	X	X	X
Roof-top solar energy harvesting and	• Solarization of boreholes, flood and street lights	Mitigation: Reduce GHGs emissions	No. of ER-PIN conducted on soil Carbon	1 ER-PIN conducted	CGoN, GoK, Donors, Community,	50,000,000	X	X	X	X	X

other Energy Efficiencies	• Promote use of solar power within households and institutions • Promote Carbon Offset through Biogas installation in institutions and households • Explore potentials of wind power project in the County • Conduct an ER-PIN to assess the energy demand at envisaged agricultural processing industries to address energy efficiencies and use of renewable energies	Adaptation: Improve livelihoods and reduce energy consumption; derive alternative energy sources			NEMA, Private Sector,							
Soil amelioration	**Soil amelioration to increase soil carbon, mitigate nitrous oxide (N_2O) emissions and achieve food and nutrition security:** • Promote Climate-Smart Agriculture and Sustainable Agricultural Lands Management (SALM) • Conduct an ER-PIN on soil Carbon to assess current baselines and establish	Mitigation: Reduce GHGs emissions Adaptation: Promote food security and improve livelihoods	No. of ER-PIN conducted on soil Carbon No. of methodologies for Monitoring Reporting and Validation procedures established No. of households practising climate smart-technologies	1 ER-PIN conducted 1 guideline on monitoring, reporting and validation 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

	methodologies for monitoring, reporting and validation (MRV) procedures based at ward levels											

Priority Sector 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	**Proposed Action (in order of Priority)**	**Mitigation /Adaptation**	**Indicator**	**Target**	**Actors**	**Budget**	**Timeframe (5-year period)**				
							Y1	**Y2**	**Y3**	**Y4**	**Y5**
Environmental Policies	**Development and implementation of County Environment Action Plan and County State of Environment Report**	Enabling Action	• Complete action plan • 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
Environmental and Social Safeguards Monitoring	**Enhancing monitoring of Environmental and social safeguard for plans and programmes in all sectors.**	Enabling Action to prevent/ mitigate damages and loss Avoiding, minimizing and reducing environmental and social impacts of development program and projects	● No of environmental and social management plans reported ● No of social safeguards and initiatives ● No of grievances reported and resolved	-Dependent on no of programs, plan and projects done	GoK, NEMA, CGoN County Environment Committee-CEC	5,000,000	X	X	X	X	X
Surveillance,	**Environmental**	Mitigation/adaptation	No. of restorations,	No of incidence	CGoN, GoK,	10,000,000	X	X	X	X	X

Control and Management	**degradation and pollution surveillance, control and management in all sectors**	action Proactive action and reduction of pollution of land, water and air	pollution incidences reported and resolved	reported and resolved	Donors, Community, NEMA, CEC, Private Sector,						

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 toensure 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.

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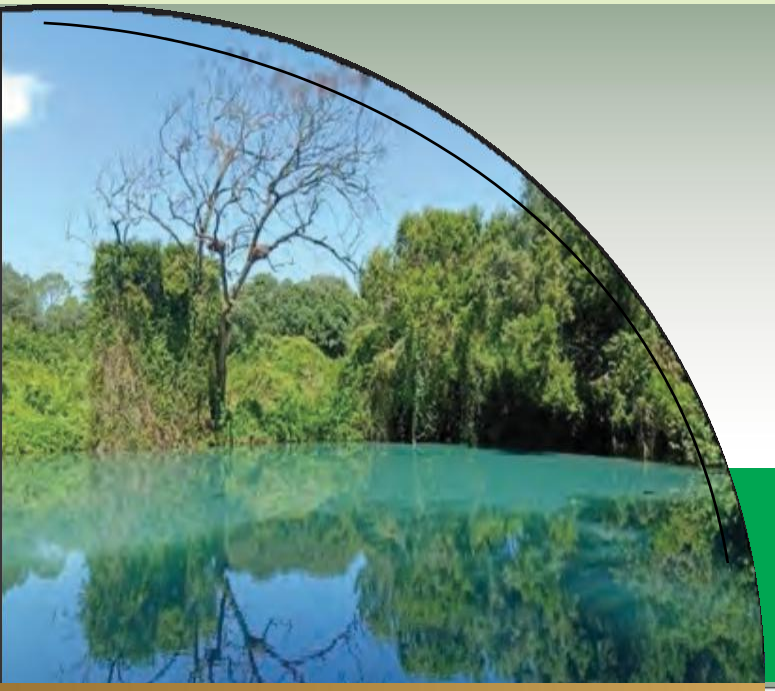

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