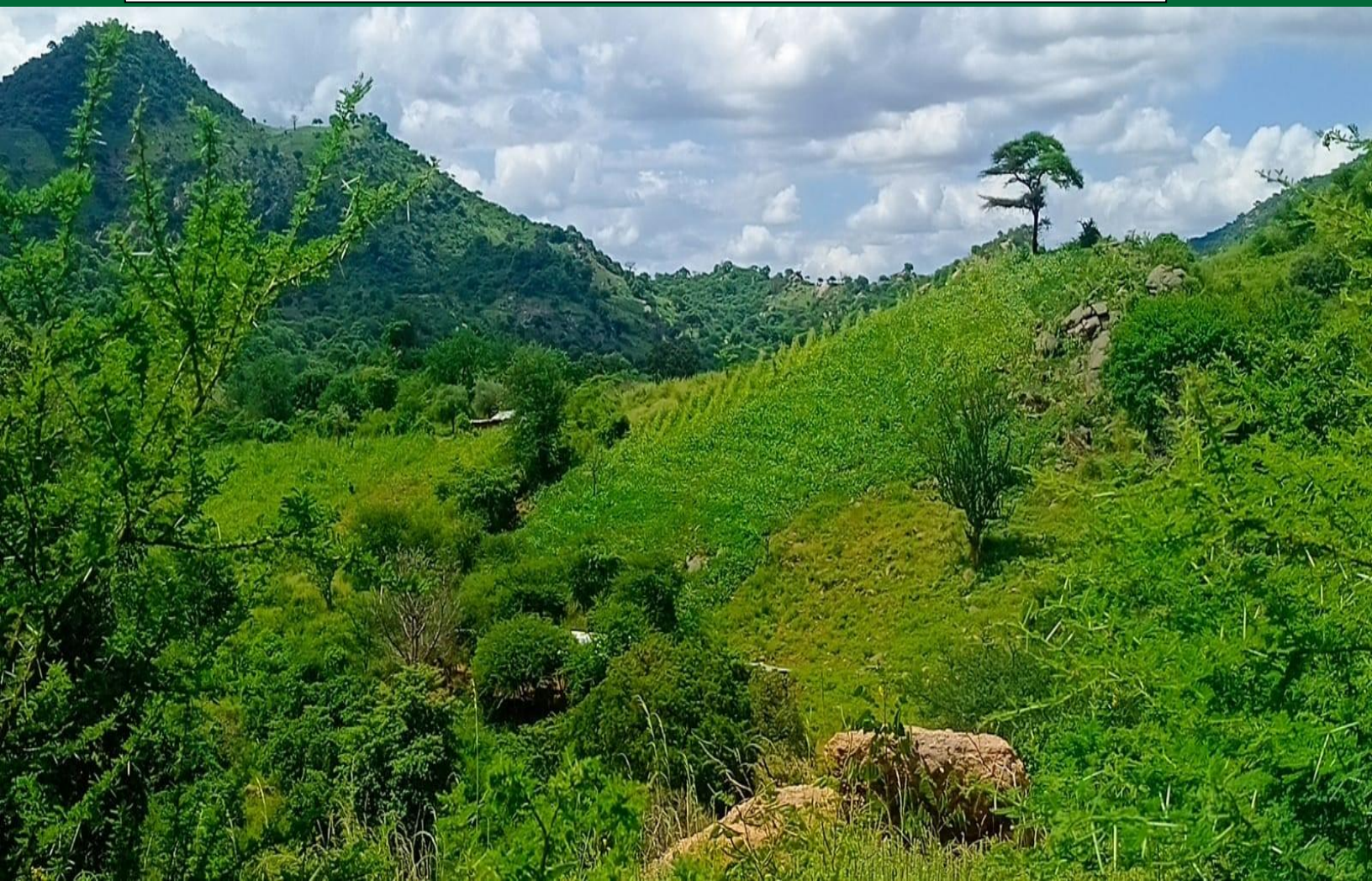
THARAKA NITHI COUNTY, CLIMATE CHANGE ACTION PLAN

2023 – 2028

Leaving No One Behind



WORLD BANK GROUP

DANIDA

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german cooperation

KFW

Kingdom of the Netherlands

Vision

A prosperous, industrialized, and cohesive County

Mission

Enhance sustainable socio-economic growth and optimal utilization of resources.

Core Values

As Tharaka Nithi County, we are committed to championing these core values as the key tenets for our operations:

$(ICT)^2$

Integrity

Straightforwardness, ingenuousness, honesty, and sincerity are an integral part of our undertakings which we shall firmly adhere to in every duty to our society.

Inclusiveness

We believe in equity and equality. As a County we do not regard status or personal preferences but approach our work as guided by principles of fairness and non0bias. People from diverse backgrounds or communities are involved in the County development, and we incorporate the needs, assets, and perspectives of communities into the design and implementation of county programs.

Citizen focused.

We consistently endeavour to create enduring relationships with our citizens; in so doing our approach goes beyond standard citizen participation principles and makes their input an integrated, formalized part of setting county projects/program goals, performance measures, and standards.

Creativity & Innovativeness

We thrive on creativity and ingenuity. We seek the innovations and ideas that can bring a positive change to the County. We value creativity that is focused, data0driven, and continuously0improving based on results.

Transparency and Accountability

We will remain accountable to our stakeholders and will acknowledge responsibility for our actions and decisions. Thus, we shall always endeavour to be transparent, answerable, and liable at all times.

Teamwork

Every person is important and has a part in county development. We endeavour to build a workplace environment that cultivates person's uniqueness, encourages staff participation, collaboration and integration of diverse skills and capabilities.

FOREWORD

Climate change is a global challenge that cuts across all sectors. Its impacts are increasingly devastating, ranging from rising sea levels, more frequent and intense natural disasters, to severe heatwaves, and droughts. These impacts threaten to undo decades of progress in poverty eradication, human development, and economic growth in Kenya. At the National level, Kenya formulated the National Climate Change Action Plan (Kenya) 2018-2022 with priority actions to ensure that national development remains sustainable in the event of any adverse climate change impacts, including droughts, floods, and other extreme climate events.

In order to ensure that climate actions are localized, Tharaka Nithi formulated the County Adaptation Plan (CAP) in the year 2020 with a view to establishing specific provisions for dealing with climate change issues at the ward level. However, this adaptation plan needs to be cascaded and scaled up with priority climate actions for the next five years. This is because, as the County seeks to attain its vision of being a prosperous, industrialized, and cohesive county, the impacts of climate change are likely to be an impediment to the county's development. Therefore, to address this challenge, the county government, businesses, and civil society have recognized the need for a comprehensive five-year climate change action plan that outlines specific measures to reduce greenhouse gas emissions, transition to a low-carbon economy, and build resilience to climate impacts. This Tharaka Nithi County Climate Change Action Plan (TNCCCAP) is ambitious, participatory, and localizes actions at the local level.

This plan sets the tone for the climate change action by highlighting the urgency of the climate crisis and the need for collective action. It provides an overview of the key components of the action plan, including the mitigation, adaptation, and financing strategies. It also sets out the principles that underpin the plan, such as equity, justice, and community participation.

Effective implementation of the climate change action plan requires the commitment and collaboration of all actors, from national governments to the county institutions, local communities, NGOs and the private sector. It requires innovative approaches, bold leadership, and creative solutions. It demands that we rethink the way we produce, consume, and live, and find ways to make our societies more sustainable and equitable.

The climate change action plan is not just a document but represents a shared vision for a sustainable and resilient future for the county. Its successful implementation is essential to safeguard the planet, our

country Kenya, and Tharaka Nithi County for future generations and to ensure a just and prosperous future for all.

Mr. Njue Njagi Kaithungu
COUNTY EXECUTIVE COMMITTEE MEMBER
ENVIRONMENT, MINING AND NATURAL RESOURCES

ACKNOWLEDGEMENT

The county Climate Change Action Plan (2023-2028) is a five-year plan to guide the County Climate Change Actions. The Action plan is the final product of a two-phase process constituting the County climate risk assessment and climate change Action planning. The process has been implemented as part of the Financing Locally Led Climate Actions program implementing modalities. The report comes at the end of a process that involved key players.

We are particularly grateful to the County Executive Committee Member in charge of climate Change Mr. Njue Kaithungu and for providing steadfast leadership in implementing the PCRA process. We appreciate the key Role provided by the County Climate Change Board in supporting the overall supervision of the process. The Technical working group spent a significant amount of time in supporting this process. The County Technical Working group implemented the PCRA process by ensuring the different activities and well-coordinated and executed in timely and efficient manner.

We appreciate the role played by the critical stakeholder organizations who participated in the multi stakeholder workshop that was a key element of the PCRA process. Their participation and support have been key in enriching the PRCA process and action planning due to the vast knowledge they possess regarding the climate challenges.

Our appreciation goes to the Ward Climate Change Planning Committee members and the locational climate change committees for supporting the data collection and community engagement exercise. Their dedication and valuable support in the process ensured the identification of the local needs to be included in the action plan. They acted as key respondents in the key Infomart and Focus group Discussions.

Our gratitude goes to the Dataloop Africa Limited for providing the consultancy services.

Lasty, we thank the County Climate Change Unit for successfully coordinating the PRCA exercise and for their dedication, sacrifice, and commitment to public service.

Mr. Peterson Mwirigi Kathenya
Chief Officer, Environment and Natural Resources

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ACRONYMS

ADP	Annual Development Plan
ASAL	Arid and Semi-Arid Land
BRT	Bus rapid transit
CCCF	County Climate Change Fund
CCCFB	County Climate Change Fund Board
CCU	Climate Change Unit
CEC	County Executive Committee
CEKEB	Central Kenya Economic Bloc
CFAs	Community Forest Associations
CFMS	County Forest Monitoring System
CGs	County Governments
CIDP	County Integrated Development Plan
CIDP	County Integrated Development Plan
CIS	Climate Information Services
CO^2	Carbon Dioxide
CoG	Council of Governors
CRS	County Revenue Strategy
CSP	County Spatial Plan
EPRA	Energy and Petroleum Regulatory Authority (EPRA)
GHG	Greenhouse Gasses
GIS	Geographic Information Systems
GoK	Government of Kenya
HFCs	Hydrofluorocarbons
KALRO	Kenya Agricultural and Livestock Research Organization
KAM	Kenya Association of Manufacturers
KEBS	Kenya Bureau of Standards

KenGen	Kenya Electricity Generating Company
KENHA	Kenya National Highways Authority
KENTRACO	Kenya Electricity Transmission Company
KEPSA	Kenya Private Sector Alliance
KeRRA	Kenya Rural Roads Authority
KFS	Kenya Forest Service
KIRDI	Kenya Industrial Research and Development Institute
KMD	Kenya Meteorological Department
KNBS	Kenya National Bureau of Statistics
KNCCI	Kenya National Chamber of Commerce and Industry
KPIs	Key Performance Indicators
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
KWTA	Kenya Water Towers Agency
MEF	Ministry of Environment and Forestry
NCCAP	National Climate Change Action Plan
NCCC	National Climate Change Council
NDCs	Nationally Determined Contributions
NDMA	National Drought Management Authority
NDVI	Normalized Difference vegetation Index
NEMA	National Environment Management Authority
NF3	Nitrogen trifluoride
NGO	Non-Governmental Organizations
PCRA	Participatory Climate Risk Assessment
PWD	Persons with Disabilities
REA	Rural Electrification Authority
REDD+	Reducing emissions from deforestation and forest degradation

SDG	Sustainable Development Goal
SLM	Sustainable Land Management
TNC	Tharaka Nithi County
TNCCCAP	Tharaka Nithi County Climate Change Action Plan
WRA	Water Resources Authority
WRUAs	Water Resource Users Associations

DEFINITION OF TERMS

Adaptation is used to mean the process by which an individual or a system adjusts and evolves in response to changes in its climatic, environment or circumstances to increase its chances of survival and success. It involves learning, modification, or development of physical, behavioral, or physiological traits that allow a person or a system to better fit and thrive in its surroundings. Adaptation can be either natural, occurring over generations through the mechanism of natural selection, or artificial, through deliberate human intervention.

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

Climate change refers to the long-term alterations in global or regional weather patterns that result from the increase in Earth's average surface temperature due to human activities, such as burning fossil fuels, deforestation, and industrial processes. These changes can include rising sea levels, melting of ice caps and glaciers, more frequent and severe weather events, changes in precipitation patterns, and altered ecosystems. The process of climate change is driven by the gradual accumulation of greenhouse gases, such as carbon dioxide, in the earth's atmosphere, which trap heat from the sun and cause a gradual increase in temperature over time.

Energy Efficiency refers to the use of less energy to perform the same task, i.e. eliminating energy waste.

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

Greenhouse gases (GHGs) are gases that absorb and emit radiant energy within the thermal infrared and include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), Sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3).

Mitigation refers to the actions taken by individuals, organizations, and governments to reduce greenhouse gas emissions and limit the severity of climate change. It typically involves changes in energy consumption, transportation, agriculture, and other human activities that produce greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, which trap heat in the atmosphere and contribute to global warming.

Resilience refers to the capacity of social, economic and environmental systems to cope with a hazardous event, trend, or disturbance. It is manifested through responding or reorganizing in ways that assert the essential function, identity, and structure of the system, while also maintaining the capacity for adaptation, learning and transformation.

Vulnerability refers to the degree to which individuals, communities, and ecosystems are susceptible to the impacts of climate change. This vulnerability is influenced by factors such as exposure to climate hazards (such as extreme weather events, rising sea levels, and changes in precipitation patterns), sensitivity to these hazards (due to, for example, physical or economic dependencies on natural resources), and adaptive capacity (the ability to manage and respond to the impacts of climate change). Vulnerability can vary across regions and communities, based on geography, socio-economic factors, and other local contexts

EXECUTIVE SUMMARY

Climate Change is becoming one of the most serious challenges the globe is facing. Various efforts have been put to battle the effects of Climate change, the latest being the COP27 held in Egypt in 2022 which saw the United Nations converge to agree on policies to limit global temperature rises and adapt to impacts associated with climate change. The Kenya Vision 2030, which is the overarching development policy in Kenya, recognizes that climate change is becoming one of the most serious challenges to the achievement of Kenya's development goals. It identifies Kenya as already highly susceptible to climate-related hazards, and in many areas, extreme events and variability of weather are now the norm; rainfall is irregular and unpredictable, while droughts have become more frequent during the long rainy season and severe floods during the short rains. The arid and semi-arid areas (ASALs), Tharaka Nithi County being classified under this category, are particularly hard hit by these climate hazards, thereby putting the lives and livelihoods of millions of households at risk.

The preparation of County Climate Action Plans is one among the many efforts and strategies that the Country seeks to apply to deal with the Climate Change effects in the counties. The Climate Change Act, 2016 provide for the mainstreaming of Climate Change resilience and adaptation in our counties. The CCCAP seeks to guide the County towards the achievement of low carbon climate resilient sustainable development; to set out actions for mainstreaming climate change responses into sector functions; for adaptation to climate change; for mitigation against climate change; to specifically identify all actions required as enablers to climate change response; to mainstream climate change disaster risk reduction actions in development programmes; to set out a structure for public awareness and engagement in climate change response and disaster reduction; to identify strategic areas of County infrastructure requiring climate proofing; to enhance energy conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses; to strengthen approaches to climate change research and development training and technology transfer; to review and recommend duties of public and private bodies on climate change; to review levels and trends of greenhouse gas emissions; and to identify outputs, overall budget estimates and timeframes to realize expected results.

The preparation of this CCCAP followed a systematic process which involved various steps: Establishing the Scope and Objectives of the Plan, Developing the Technical Working Group (TWG), Literature Review, Stakeholder and Community engagement was key in preparation of this plan, Identification of

Action Areas and Action enablers, validation workshop, comments incorporation and the publication of the final report.

Various extreme climatic conditions and weather events like drought, moisture stress, high temperatures, decline in rainfall, dry spells, heat stress and insufficient patterns of rainfall were identified to continue affecting the residents of Tharaka Nithi County to a greater extent. As such agricultural production, crop farming, water availability, pasture availability and infrastructure among others are most negatively affected.

From the Climate Change Analysis undertaken in the County, various Priority County Climate Change Actions were proposed which included; Food and Nutrition Security, Disaster Risk (Floods and Drought) Management, Integrated Water Supply Planning and Watershed Management, Forestry, Wildlife and Tourism resilience, Health, Sanitation and building resilience in the Human Settlements, Improvement of energy and resource efficiency in the manufacturing sector, implementation of Climate-proof energy and transport infrastructure and last but not least, sustainable lifestyle choices and behaviors.

The enabling factors of the proposed priority County Climate Change Actions were identified as; Enabling Policy and a Regulatory Framework, Mainstreaming in the County Integrated Development Plan (CIDP), Multi-stakeholder participation processes, Climate Finance through the County Climate Change Fund, good Governance, Climate Information Services and Climate Data Access, application of Resilience Planning Tools, Measuring, Reporting and Verification and execution of the various roles and responsibilities by the responsible institutions .

Effective implementation and coordination mechanisms are critical for the successful realization of the plan. Coordination mechanisms include setting targets, policies, and regulations for mitigation, developing localized adaptation plans, and mobilizing finance. Effective institutions and collaborations among different stakeholders and sectors have been identified in the implementation matrix as essential for successful implementation of climate action plans in a timely manner. The plan underscores that its successful implementation will depend on the mobilization of 4.3 billion Kenya shillings over a five year period and investment of the resources, the efficiency of institutional frameworks, and the commitment of policymakers and stakeholders to a low-carbon, resilient, and sustainable future.

1 BACKGROUND AND CONTEXT

1.1 Introduction & Background

Tharaka Nithi County is in the eastern part of Kenya and borders the counties of Embu to the south and south-west, Meru to the north and north-east, Kirinyaga and Nyeri to the west, and Kitui to the east and southeast. The county lies between latitudes 000 07' and 000 26' South and between longitudes 370 19' and 370 46' East. It covers a total area of 2,662.1Km^2. Administratively, the county is divided into five sub-counties namely Tharaka North, Tharaka South, Chuka IgambaNg'ombe and Maara. Tharaka North Sub- County is the largest covering an area of 803.4 Km^2, followed by Tharaka South with746.1 Km^2; Maara is third in size with an area of 465.3 Km^2 and Chuka fourth is with 316Km^2 and Igambango'mbe is the smallest covering an area of 308Km^2. The total area for Chuka and Maara sub-counties includes 179Km^2 and 184Km^2 of Mt. Kenya Forest respectively ((CIDP, 2018).

Kenya is equatorial with a complex and variable climate that ranges from warm and humid in the coastal region, to arid and very arid in the interior. The central and western highlands, which make up about 18% of Kenya's land area, are bisected by the Rift Valley, and have a temperate climate with medium to high rainfall. These highlands are the productive zones of the country, having high to medium agricultural potential. Low and unevenly distributed rainfall over much of Kenya means that about 82% of the country receives less than 700 mm of rain per year. 23 out of Kenya's 47 Counties are considered arid or semi-arid lands (ASALs). The ASAL counties occupy 89% of the country and are home to about 14 million people and approximately 70% of the livestock herd and 90% of the country's wildlife population (NSP, 2015).

Tharaka Nithi is one of the ASALs counties in Kenya and the main occupation of the people of the county is agriculture which includes both crop and livestock production (CRPTNC, 2017). According to the County Climate Change and Response Strategy, 80% of the county's population is engaged in agricultural activities while agricultural production occupies 1,449.6 km2 of arable land in the County. Approximately 43,799 hectares is under food crops while 14,839 hectares is under cash crops. Additionally, the county's economic growth heavily depends on tourism and water resources. The Climate Risk profile for Tharaka Nithi County conducted in 2017 indicates that historic climate trends in the last decades showed a moderate increase in temperature in the rainy seasons and an increase in rainfall in the second wet season

(July-December). Future climate projections for the years 2021- 2065 indicate that the County will remain highly susceptible to more days with moisture stress and continued moderate increases in temperatures. This therefore calls for efforts to manage and sustain the environment and natural resource base.

1.2 Purpose and process of the CCCAP

Climate Change is becoming one of the most serious challenges the globe is facing. Various efforts have been put to battle the effects of Climate change, the latest being the COP27 held in Egypt in 2022 which saw the United Nations converge to agree on policies to limit global temperature rises and adapt to impacts associated with climate change. The Kenya Vision 2030, which is the overarching development policy in Kenya, recognizes that climate change is becoming one of the most serious challenges to the achievement of Kenya's development goals. It identifies Kenya as already highly susceptible to climate-related hazards, and in many areas, extreme events and variability of weather are now the norm; rainfall is irregular and unpredictable, while droughts have become more frequent during the long rainy season and severe floods during the short rains. The arid and semi-arid areas (ASALs) are particularly hard hit by these climate hazards, thereby putting the lives and livelihoods of millions of households at risk.

In 2010, Kenya developed a National Climate Change Response Strategy (NCCRS) which recognized the importance of climate change impacts on the country's development. This was followed by the National Climate Change Action Plan (NCCAP) in 2012 which provided a means for implementation of the NCCRS, highlighting a number of agricultural adaptation priorities. The focus of these initiatives has been at the national level, and there is need to mainstream climate change into county level policies, programmes, and development plans as stipulate in the Climate Change Act, 2016 section 19, therefore ensuring locally relevant, integrated adaptation responses with active involvement of local stakeholders. This provides a basis for the preparation Tharaka Nithi Climate Change Action Plan (2023-2027).

The purpose of the CCAP as stipulated in the Climate Change Act, 2016 is to guide the County towards the achievement of low carbon climate resilient sustainable development; to set out actions for mainstreaming climate change responses into sector functions; for adaptation to climate change; for mitigation against climate change; to specifically identify all actions required as enablers to climate change response; to mainstream climate change disaster risk reduction actions in development programmes; to set out a structure for public awareness and engagement in climate change response and disaster reduction; to identify strategic areas of County infrastructure requiring climate proofing; to enhance energy

conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses; to strengthen approaches to climate change research and development training and technology transfer; to review and recommend duties of public and private bodies on climate change; to review levels and trends of greenhouse gas emissions; and to identify outputs, overall budget estimates and timeframes to realize expected results.

1.3 Process

i. Establishing the scope and objectives of the plan:

The first step was to determine the scope and objectives of the plan. This included identifying the key climate change impacts affecting the county, the geographic area to be covered, and the goals and objectives of the plan.

ii. Technical Working Group (TWG):

The second step in developing the County Climate Change Action Plan was to form a Technical Working Group (TWG). This group typically consisted of experts from various sectors, including government agencies, which were composed of technical members from line department, academia, NGOs, and the private sector. The TWG was responsible for reviewing the plan, conducting technical analyses, and providing technical inputs to the plan.

iii. Community Engagement:

Community engagement involved engaging with community members to gather inputs and build support for the plan. A key component of community engagement is the *Participatory Climate Risk Assessment* (PCRA). PCRA is a community-based process that involved engaging community members in identifying and assessing climate risks and vulnerabilities. The PCRA process typically involved the following steps:

- Identification of key climate change hazards and impacts in the county, such as flooding and drought.
- Conducting a vulnerability assessment to determine which populations, sectors, and areas are most at risk from the identified hazards. The objective of this activity was to identify the people in the community most vulnerable to climate risk (and other risks). These are usually the most

economically, socially and politically marginalized and disadvantaged individuals, households and groups in the community. The facilitator begins by asking the question: 'Which people or groups within the community are most at risk of being negatively affected by hazards, including climate hazards such as drought, or other problems such as disease/pests/insecurity?' Conducting a hazard assessment, which involves identifying and analyzing the climate-related hazards that pose risks to the community.

- Developing a risk assessment by combining the information on hazards and vulnerability. In this section highlights the top three climate hazards (and its associated impacts) in turn, asking the stakeholders about existing strategies or practices they use to avoid the negative consequences of the hazard or to take advantage of the opportunities it brings.
- Prioritization of risks based on severity and likelihood.
- Developing adaptation strategies and actions based on the prioritized risks and this involves identifying and prioritizing actions to address the identified risks.

iv. Stakeholder Engagement:

Stakeholder engagement is a critical process in developing a County Climate Change Action Plan. This process involved engaging with stakeholders to gather inputs, build support, and ensure the plan is tailored to the needs of the community. Stakeholders included community groups, government agencies such as NEMA, KFS, NDMA, Kenya Meteorological Department (KMD), and NGOs. The TWG typically lead stakeholder engagement, which took various, forms, including workshops, meetings, and surveys.

v. Output on Action Plans: Based on the PCRA process, priority actions were developed. The plan typically identified specific actions and strategies to address the identified risks and vulnerabilities. The team worked with community members to develop the climate actions, which were integrated into the County Climate Change Action Plan.

Steps in Stakeholder Engagement:

The following steps were typically involved in stakeholder engagement:

- Step 1: Identification of stakeholders and building a stakeholder database.
- Step 2: Developing a stakeholder engagement plan, which outlined the objectives, methods, and timeline for engagement.

- Step 3: Conducting stakeholder engagement activities, which included workshops, meetings, and surveys.
- Step 4: Analysis and summarization of stakeholder feedback and inputs.
- Step 5: Integration of the stakeholder inputs into the plan.

vi. Public Input:

Public input is a critical component of developing a County Climate Change Action Plan. The TWG provided opportunities for the public to review and provide feedback on the plan. This was done through public meetings, online forums, and surveys.

vii. Review of Key Documents:

To inform the development of the plan, key documents were reviewed. These documents included national and regional climate change policies, scientific reports, and local plans and strategies. For example, the TWG reviewed the National Climate Change Action Plan and the County Development Plan.

viii. Validation:

Once the draft County Climate Change Action Plan was developed, it got validated by stakeholders and the public. This process involved sharing the draft plan with stakeholders and the public for feedback and inputs.

ix. Public Input.

The draft plan was shared with the public for review and comment. The feedback received was reviewed by the Technical Working Group (TWG) and other stakeholders, and the draft plan revised accordingly. The final plan reflected the input received from the community and stakeholders. The final plan was then shared with the public to inform them of the final outcomes of the plan development process. The final public input stage helped to ensure that the plan is practical, feasible, and acceptable to stakeholders and that it reflects the needs and priorities of the community.

x. Final Report:

The final report was submitted to the Tharaka Nithi county Executive committee for adoption and implementation. The report included a summary of the process, the findings of the PCRA, the prioritized actions, and implementation measures.

1.4 Underlying Climate Resilience Context

Kenya's National Climate Change Action Plan recognizes that the nation is acutely aware of its current and future threat from climate change emphasizes the importance of building resilience and increasing adaptive capacity. The County Integrated Development Plan (2018-2022) recognizes the need to strengthen capacity for adaptation to climate change for purposes of achieving the Sustainable Development Goals such as SDG 2 which focuses on ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture, SDG 13 where the County aims at taking urgent action to combat climate change and its impacts through strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in communities by integrating climate change measures in the County Integrated Development Plans and other County Policies and strategies such as the Climate Change Action Plan.

1.4.1 Impacts of Climate Hazards in the County

The Climate Risk profile for Tharaka Nithi County conducted in 2017 indicates that the County is adversely affected by extreme weather events, mostly drought, moisture stress and high temperatures. historic climate trends in the last decades showed a moderate increase in temperature in the rainy seasons and an increase in rainfall in the second wet season (July-December). Future climate projections for the years 2021- 2065 indicate that the County will remain highly susceptible to more days with moisture stress and continued moderate increases in temperatures. Warming has led to drying up of permanent rivers. This translates to reduced levels of water supply in the County for domestic and agricultural use; for both livestock and farming.

The main occupation of the people of Tharaka Nithi County is agriculture, which includes both crop and livestock production (CIDP, 2023). An estimated 80% of the county's population is engaged in agricultural activities while agricultural production occupies 1,449.6 km2 of arable land in the County. Approximately 43,799 hectares is under food crops while 14,839 hectares is under cash crops. Effects of climate change on the weather patterns and the increased warming translating to dried rivers affects the livelihoods of the people of Tharaka Nithi County translating to an affected County and Country economy.

1.4.2 County Climate Hazard Map

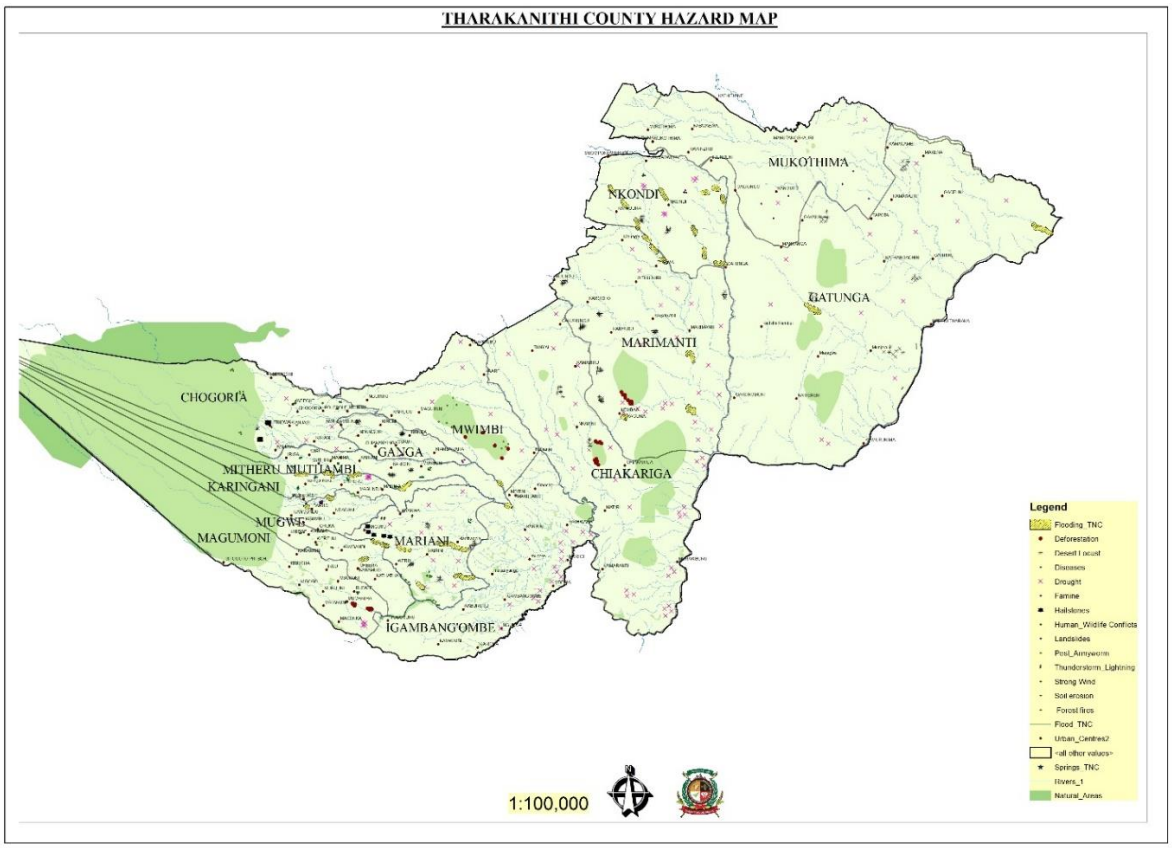


Figure 1: Tharaka Nithi County Hazard Map

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

The Tharaka Nithi County Adaptation Plan (CAP) whose main theme is enhanced climate resilience for sustainable development analyses the climate hazard and vulnerability of various groups in Tharaka Nithi County highlighting the key climatic hazards in the County as droughts, floods, wild fires, extreme temperature and erratic rainfall. Drought is identified as a prime recurrent natural disaster in the County which has previously led crop and livestock losses, famine and population displacement. Climate Change in Tharaka Nithi County, as an ASAL county introduces an additional uncertainty into existing vulnerabilities especially on vulnerable groups in the County such as the women, youth, the elderly and ethnic minorities who form part of dependent population in our societies. Drought has been identified to cause some of the devastating and pervasive socio-economic consequences and it is estimated to have slowed down the GDP of Tharaka Nithi County by an average of 2.8% per annum. Floods are also

identified to cause havoc in the County, the vulnerable groups being in the spot light of the after effects. Therefore, this CCCAP seeks to provide measures to adapt and mitigate on the Climate Change effects giving an attention to the vulnerable groups in the society.

1.5 Brief Overview of Climate Change Actions in the County

There have been previous efforts undertaken by and within Tharaka Nithi County to deal with matters of Climate Change as indicated in the table below.

Table 1: Overview of Climate Change Actions in the county

Climate Change Action	Focus
Climate Risk Profile for Tharaka Nithi County,	This project was undertaken under the Kenya County Climate Risk Profile Series with an aim of profiling the risk levels of Climate Change effects at the County Level which would inform the government on the appropriate measures to undertake to prevent or mitigate the Climate Change effects. It conducted by the Ministry of Agriculture, Livestock and Fisheries (M0ALF) with assistance from the International Centre for Tropical Agriculture (CIAT) and the Kenya Climate Smart Agriculture Project (KCSAP) supported by the world Bank (WB)
Tharaka Nithi Climate Change Fund Act, 2019	The Bill was enacted by the County Assembly for purposes of establishing a Climate Change Fund to facilitate and coordinate financing of Climate Change Adaptation and Mitigation activities, and for connected purposes. Climate Change Adaptation could mean adjustment in natural or human systems in response to actual or anticipated adverse effects of climate change or stimuli or their effects to moderate or exploit beneficial opportunities and the mitigation part would focus on preventing or reducing the emission of greenhouse gases.
County Integrated Development Plans	County Integrated Development plans are prepared by the County Governments covering a period of 5 years as provided for in the County Government Act, 2012 with an aim of stating clear goals and objectives of development, an implementation plan with clear outcomes, provisions for monitoring and evaluation and clear reporting mechanisms. The latest CIDP prepared covering the period (2023-2028) focused on localizing the Climate Change themed SDGs, especially SDG 2 and SDG 13. SDG 2 focuses on ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture and SDG 13 where the County aims at taking urgent action to combat climate change and its impacts through strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in

	communities by integrating climate change measures in the County Integrated Development Plans and other County Policies and strategies. Under the Environment and Natural Resources Sub-Sector in the CIDP, A Climate Change Programme is identified whose main objective is to combat climate change and its impacts and the expected outcome is ensuring resilience and awareness on climate change effects. Key performance indicators included sensitization workshops, number of farmers practicing climate smart agriculture and number of weather report disseminated.
Drought susceptibility bulletins by the National Drought Management Authority as a Vision 2030 Flagship Project	The Bulletins focus on analyzing the drought situation in the County and the Socio-economic impact indicators. It analyzes the Realtime climatic conditions, impacts on vegetation and water, production indicators, both for crop and livestock, market performance and as per the analysis undertaken, recommends interventions to deal with the Climate Change effects.
Emergency Locust Response Programme	A project to support the community respond to the locust invasion and develop their resilience
Kenya Cereals Enhancement Programme- Climate Resilience Agriculture Livelihoods	

1.5.1 Mainstreaming of NCCAP in County Actions

The Climate Change Act, 2016 requires the Government to develop five-year National Climate Change Action Plans (NCCAP) to guide the mainstreaming of adaptation and mitigation actions into sector functions of the National and County Governments. The National Climate Change Action Plan purposes to guide the Country towards the achievement of low carbon climate resilient sustainable development; to set out actions for mainstreaming climate change responses into sector functions; for adaptation to climate change; for mitigation against climate change; to specifically identify all actions required as enablers to climate change response; to mainstream climate change disaster risk reduction actions in development programmes; to set out a structure for public awareness and engagement in climate change response and disaster reduction; to identify strategic areas of County infrastructure requiring climate proofing; to enhance energy conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses; to strengthen approaches to climate change research and development training and technology transfer; to review and recommend duties of public and private bodies on climate change;

to review levels and trends of greenhouse gas emissions; and to identify outputs, overall budget estimates and timeframes to realize expected results.

Section 19 of Act provides for the mainstreaming of Climate Change Actions into County Government function through the preparation of a County Climate Change Action Plan. It also provides for the CIDPs as implementation tools of the CCCAP. For monitoring and evaluation purposes, a County is required, at the end of every financial year, to submit a report on progress of implementation of Climate Change actions to the County Assembly for review and debate.

1.5.2 Climate Change in CIDP

County Integrated Development plans are prepared by the County Governments covering a period of 5 years as provided for in the County Government Act, 2012 with an aim of stating clear goals and objectives of development, an implementation plan with clear outcomes, provisions for monitoring and evaluation and clear reporting mechanisms.

The latest CIDP prepared covering the period (2023-2028) focused on localizing the Climate Change themed SDGs, especially SDG 2 and SDG 13. SDG 2 focuses on ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture and SDG 13 where the County aims at taking urgent action to combat climate change and its impacts through strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in communities by integrating climate change measures in the County Integrated Development Plans and other County Policies and strategies.

Under the Environment and Natural Resources Sub-Sector in the CIDP, A Climate Change Programme is identified whose main objective is to combat climate change and its impacts and the expected outcome is ensuring resilience and awareness on climate change effects. Key performance indicators included sensitization workshops, number of farmers practicing climate smart agriculture and number of weather report disseminated. The Climate Change programme was allocated a total budget of Kshs. 15.5 Million for the period of 5 years, 2018-2022.

2 POLICY ENVIRONMENT

2.1 National Policy Context

2.1.1 The National Perspective

The NCCAP 2018-2022 aimed at furthering Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritizes adaptation. The plan did build on the first Action Plan (2013-2017) and provided a framework for Kenya to deliver on its Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC). The NCCAP 2013-2017 addressed the options for a low carbon climate resilient development pathway as Kenya started adapting to climate impacts and mitigation of growing impacts. The seven (7) pillars of the plan were disaster risk management, food and nutrition security, water and the blue economy, forestry, wildlife and tourism, health sanitation and human settlements, manufacturing and energy and transport. NCCAP 2018-2022 guided the climate actions of the National and County Governments, the private sector, civil society and other actors as Kenya transitions to a low carbon climate resilient development pathway.

The purpose of the Paris Agreement was to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by;

- Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.
- Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.
- Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Kenya's delivery on the Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) includes.

I. Continued enhancement of Climate Change impacts mitigation efforts and are encouraged to move over time towards economy-wide emission reduction. There's a requirement to achieve a balance

between anthropogenic emissions by sources and removals by sinks of greenhouse gases. Kenya as a nation was required to communicate a nationally determined contribution every five years.

II. A global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels.

III. Developed country Parties were required to provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention where a transparency framework of accountability was established.

IV. A long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions Parties, noting the importance of technology for the implementation of mitigation and adaptation actions and recognizing existing technology deployment and dissemination efforts.

Looking into Kenya's current Climate Condition as stipulated in the NCCAP 2018-2022, Climate change has increased the frequency and magnitude of extreme weather events in Kenya causing loss of lives, diminished livelihoods, reduced crop and livestock production, and damaged infrastructure, among other adverse impacts. An example is the torrential rains and severe flooding from March to May 2018 that devastated communities that were already struggling to recover from a prolonged drought. Climate change is likely to negatively impact Kenya's future development and achievement of the goals of Kenya Vision 2030, the long-term development blueprint and other Government's contingency plans which focus on areas such as ensuring food and nutrition security, affordable and decent housing, increased manufacturing and affordable healthcare.

Adaptation is the priority, but climate action also needs to reduce greenhouse gas emissions that are projected to increase because of population and economic growth. Actions in the six mitigation sectors set out in the UNFCCC; agriculture, energy, forestry, industry, transport, and waste are expected to lead to lower emissions than in the projected baseline and help to meet Kenya's mitigation NDC to abate GHG emissions by 30% by 2030.

2.1.2 National Legal and Policy Framework

2.1.2.1 POLICY FRAMEWORK

2.1.2.1.1 The Kenya Vision 2030

The Kenya Vision 2030 is the Country's development blueprint covering a period of 22 years (2008-2030). The Vision aims at transforming Kenya into a newly industrializing middle-income country providing a high-quality life to all its citizens by the year 2030. It is anchored on three (3) pillars; the economic, social and political pillars. The Economic pillar focuses on maintaining a sustained economic growth of 10% per annum over the next 25 years since the launch of the vision, the social pillar focuses on a Kenya that is just and cohesive enjoying equitable social development in a clean and secure environment while the political pillar seeks to achieve a democratic political that is issue based, people centered, result oriented and accountable.

The Vision identifies various key areas of focus which are vital in achieving its goals and under the Social Strategy we find the environment goals that it highlights that could aid in the battle with climatic change effects. It speaks of a Kenya that is clean, secure and has a sustainable environment by 2030. In achieving this goal there are various projects that the vision highlights which include an increase of the forest cover from the present 4% to a 10% which would promote environmental conservation in order t provide better support to the economic pillar flagship projects and for the purposes of achieving the Sustainable Development Goals (SDGs), improving pollution through the design and application of economic incentives and enhancement of disaster preparedness in all disaster-prone areas and improve capacity for adaptation to global climatic change. It also advocates for the harmonization of environmental-related laws for better environmental planning and governance hence the need to mainstream the NCCAP to the County.

2.1.2.1.2 National Climate Change Response Strategy ,2010

The Challenges occasioned by Climate Change in the 21st Century saw the nation formulate a National Climate Change Response Strategy in the year 2010. Some of the earliest noted impacts of Climate Change in Kenya were countrywide temperature increases and rainfall irregularity and intensification. The key concern was how the climatic change effects were translating to a negatively affected economy. The strategy noted that, if no intervention is undertaken at all, the estimated direct costs of climate change in Kenya would potentially amount to two billion US Dollars annually by the year 2030 and considerably

greater cost if the indirect coast would be including. The alarming increase in greenhouse gas emissions was also a key concern hence this response strategy.

The strategy was enacted by the Ministry of Environment and Mineral Resources. The Vision of the strategy is for a prosperous and climate change resilient Kenya. The mission is to strengthen and focus nationwide actions towards climate change adaptation and GHG emission mitigation. The preparation of the Tharaka Nithi CCCAP forms parts of the envisioned efforts. The Vision and Mission of the response strategy are to be achieved through commitment and engagement of all stakeholders which was key in the preparation of this CCCAP and considering the vulnerable natural resources and society. Some of the key natural resources prone to Climate Change that this CCCAP sought to address were the hills, the vegetation and the rivers in Tharaka Nithi County.

The National Climate Change Response Strategy guided the preparation of this CCCAP in areas such as; enhancement of understanding of the global climate change regime hence the review of the NDCs, assessment of the evidence and impacts of Climate Change in Tharaka Nithi County and the recommendation of robust adaptation and mitigation measures needed to minimize risks associated with climate change while maximizing opportunities.

2.1.2.1.3 **National Adaptation Plan (NAP 2015- 2030)**

The Kenya National Adaptation Plan, 2015-2030 focuses on enhancing climatic resilience towards the attainment of Kenya Vision 2030 and beyond. The Plan recognizes the fact that Kenya, like other African Countries is experiencing the impact of climate change variability and change hence the preparation of the National Adaptation Plan which seeks to provide a coordinated approach to address related vulnerabilities and risks of climate change. The NAP is vital to the nation in that it consolidates the country's vision on adaptation supported by macro-level adaptation actions that relate with the economic sectors and county level vulnerabilities to enhance long term resilience and adaptive capacity. NAP gives the County Governments an Implementation role which involves integration and mainstreaming of climate change actions at the County Level, stating the specific interventions and duties of various department in dealing with the effects of Climate change in the County Integrated Development Plans and finally the preparation and submission of the implementation reports to the County Assembly for review and debate. Its main key recommendation that affirms the preparation of the CCCAP is mainstreaming climate change adaptation into the CIDP and other county plans.

2.1.2.1.4 Kenya Climate Smart Agriculture Strategy (2017-2026)

The country's agriculture is predominantly rain-fed and therefore vulnerable to climate change particularly changes in temperature regimes and precipitation patterns, and extreme weather events. This leads to, among others, unsustainable land and agricultural water management. The country requires transformation of its agricultural systems to make them more productive and resilient while minimizing GHG emissions under a changing climate. CSA provides an excellent opportunity for the transformation by uniting agriculture, development and climate change under a common agenda through integrating the three dimensions of sustainable development (economic, social and environmental) by jointly addressing food security and climate challenges.

The CSA recommends adapting to climate change, building resilience of agricultural systems while minimizing emissions for enhanced food and nutritional security and improved livelihoods. The KCSAS is a tool to implement Kenya's NDC contribution for the agriculture sector as highlighted earlier in the national perspective section.

2.1.2.1.5 Climate Risk Management Framework for Kenya ,2016

The framework main goal is integrating disaster risk reduction and climate changer adaptation at National and County Levels. It recognizes that Kenya is one of the most disaster-prone countries in Africa the most common hazards to which Kenya is exposed being drought and flooding. The climate risk management bridges the three spheres of climate change adaptation, disaster risk management and sustainable development. It is an integrated approach to climate sensitive decision-making that is increasingly seen as the way forward in dealing with climate variability and change.

The Climate Risk Management Framework recommends creation of an enabling policy and legal framework for integrated climate risk management, capacity building at both levels of governance for integrated climate risk management, analysis of the level of exposure, vulnerability to disasters and capacity at the local scale, gender mainstreaming, mainstreaming climate risk management into plans and creation of platforms for sharing lessons and good practices on integrated climate risk management.

2.1.2.1.6 National Climate Change Policy (2018-2030)

The overall objective of the National Climate Change Policy is to support the wellbeing of current and future generations in a socially equitable and environmentally sustainable manner through net-zero emissions economy. In view of the devolved government system, two specific recommendations stand out which are the establishment of an institutional framework and building capacity to coordinate and enhance

mainstreaming at the sector level; and putting in place mechanisms linking climate change data and information with national and county planning processes.

2.1.2.1.7 National Climate Finance Policy (2018)

The National Climate Finance Policy highlights ways in which government ministries, departments and agencies can mobilize climate finance which include private, public, multi-lateral agencies and bilateral talks and agreements to finance Kenya's NDC and NCCAP which is localized through the preparation of this County Climate Change Action Plan.

2.1.2.2 LEGAL FRAMEWORK

2.1.2.2.1 The Constitution of Kenya

The foundation of the legal framework for climate change action is the Constitution of Kenya (2010). Article 10 sets out national values and principles of governance, such as sustainable development, devolution of government, and public participation, that are mandatory when making or implementing any law or public policy decisions, including climate change. Article 42 provides for the right to a clean and healthy environment for every Kenyan, which includes the right to have the environment protected for the benefit of present and future generations.

2.1.2.2.2 Climate Change Act, 2016

The Climate Change Act, 2016 is the main legislation guiding Kenya's climate change response through mainstreaming climate change into sector functions, and it is the legal foundation of the National Climate Change Action Plan (NCCAP). It is an Act of parliament that ACT of Parliament to provides for a regulatory framework for enhanced response to climate change; to provide for mechanism and measures to achieve low carbon climate development, and for connected purposes. It establishes a Climate Change Council chaired by the president that is mandated with various functions which include; ensuring the mainstreaming of the climate change function by the national and county governments; approval and overseeing the implementation of the National Climate Change Action Plan; advise the national and county governments on legislative, policy and other measures necessary for climate change response and attaining low carbon climate change resilient development; approve a national gender and intergenerational responsive public education awareness strategy and implementation programme; provide policy direction on research and training on climate change including on the collation and dissemination of information relating to climate change to the national and county governments, the public

and other stakeholders; provide guidance on review, amendment and harmonization of sectoral laws and policies in order to achieve the objectives of this Act; administer the Climate Change Fund established under this Act; and set the targets for the regulation of greenhouse gas emissions. The Climate Change fund is meant for financing mechanism for Fund priority climate change actions.

2.2 County Enabling Legal & Policy Framework

2.2.1 Tharaka Nithi Climate Change Fund Bill, 2019

The Bill was enacted by the County Assembly for purposes of establishing a Climate Change Fund to facilitate and coordinate financing of Climate Change Adaptation and Mitigation activities, and for connected purposes. Climate Change Adaptation could mean adjustment in natural or human systems in response to actual or anticipated adverse effects of climate change or stimuli or their effects to moderate or exploit beneficial opportunities and the mitigation part would focus on preventing or reducing the emission of greenhouse gases.

2.2.2 County Gender Mainstreaming Policy

The women in Tharaka Nithi County were identified among the vulnerable groups in the County by the Climate Risk Profile for the County and hence the enactment of the County Gender mainstreaming policy provides an avenue in ensuring gender equity which promotes sustainable development by the implementation of gender responsive poverty eradication programs and policies in the County towards alleviating and eventually eradicating poverty and equal representation in Climate Change adaptation and resilience committees where the women would advance their agenda on matters climate change. The preparation of this CCCAP also took care of gender representation during stakeholder engagements.

2.2.3 The Tharaka Nithi County Youth Empowerment Act, 2020

The Climate Risk Profile for Tharaka Nithi County identifies the youth as among the most vulnerable groups in the county, with the lowest adoption rates of adaptation strategies. The CRP recommends the need for more initiatives geared towards job creation and alternative livelihoods particularly for women and youth. The Tharaka Nithi County Youth Empowerment Act seeks to unlock youth potential for sustainable wealth creation and development through grants and low interest loans to the youth groups,

small and micro enterprises which enhances the capacity of the youth deterring them from engaging to unsustainable environmental activities such as deforestation and unregulated sand harvesting.

2.2.4 County Integrated Development Plan 2018-2022

The CIDP prepared covering the period (2023-2028) focused on localizing the Climate Change themed SDGs, especially SDG 2 and SDG 13. SDG 2 focuses on Ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture and SDG 13 where the County aims at taking urgent action to combat climate change and its impacts through strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in communities by integrating climate change measures in the County Integrated Development Plans and other County Policies and strategies.

Under the Environment and Natural Resources Sub-Sector in the CIDP, A Climate Change Programme is identified whose main objective is to combat climate change and its impacts and the expected outcome is ensuring resilience and awareness on climate change effects. Key performance indicators included sensitization workshops, number of farmers practicing climate smart agriculture and number of weather report disseminated. The Climate Change programme requires a total budget of Kshs. 2, 452 million for the period of 5 years, 2023-2028.

3 PRIORITY CLIMATE CHANGE ACTIONS

3.1 Identification of strategic climate action priorities in the PCRA

Tharaka Nithi County 2023 long rains performance for the month of April was fair to good with an average of 362.8mm being realized accounting for 134.6% of the long-term average, while the overall Vegetation Condition Index registered a slight drop, despite enhanced rains[1]. Despite the county registering slightly enhanced rainfall in the last few months, Tharaka Nithi continues to have a climate vulnerability index of 0.388[2]. Extreme climatic conditions and weather events like drought, moisture stress, high temperatures, decline in rainfall, dry spells, heat stress and insufficient patterns of rainfall continue to affect the residents to a greater extent. As such agricultural production, crop farming, water availability, pasture availability and infrastructure among others are most negatively affected.

[1] National Drought Management Authority (NDAM), Tharaka Nithi County drought early warning bulletin for April 2023
[2] GoK; UNDP. 2013. Kenya National Development report; Climate Change and Human Development, Harnessing emerging opportunities. Government of Kenya, United Nations Development Programme. Nairobi.

Effects of climate change have affected many residents and especially from the year 2013 to 2014, many farmers lost their entire crop due to poor rains and destruction of farmlands. There has been a string link between such adverse weather events to high food prices and in the long run, food insecurity. Intrinsically, if not addressed, these may lead to famine, lack of water and pasture and break down of key value chains and key infrastructural installations in the county.

This therefore calls for a coordinated response to the negative impacts (both direct and indirect) of extreme weather events to the residents with a view to enhancing the adaptive and absorptive capacities of women, youth, ethnic minorities, people living with disabilities and other marginalised and vulnerable groups.

While the government of Tharaka Nithi County together with other players have had previous attempts with regards to responding to the negative effects of climate change, the level of implementation and structurization of players in the process has been quite slow. Most regions and especially wards are still dealing with the vagaries of the extreme weather patterns coupled with weak socio-economic, institutional, and political systems.

The Tharaka Nithi Climate Change Action Plan (TNCCAP) 2023-2028 acknowledges the direct and indirect impacts of climate change on the county's socioeconomic sectors and prioritizes strategic areas where climate change action will take place for the next five years and the actors involved in the process.

TNCCCAP 2023-2028 prioritizes adaptation actions because of the overwhelming impacts of drought, high temperatures, decline in rainfall, dry spells, heat stress and insufficient patterns of rainfall in Tharaka Nithi County and the adverse impacts of climate change on women, youth, ethnic minorities, people living with disabilities and other marginalized and vulnerable groups.

These climate actions will be sequenced and layered to complement national efforts as espoused in the National Climate Change Action Plan (NCCAP) with provisions that reduce GHG emissions. It will strive to ensure that TNC makes her contribution towards augmenting the efforts through the State Ministry of Environment and Forestry (MEF) of meeting Kenya's targets for Nationally Determined Contributions (NDC). The priority climate change actions in the TNCCCAP 2023-2028 will therefore contribute to creating opportunities and will be mainstreamed in 20 planning sectors for the short, medium and long term as shown in **Box 1**[3]. This builds on the premise that all TNC's socioeconomic sectors are vulnerable

[3] Tharaka Nithi County Climate Change Adaptation Strategy 2020 -2030

to climate change impacts, although the manifestation of these impacts may vary from one sector to the other.

Box 1:Climate Change-County sector specific development benefits

Energy:	Enhance implementation of green energy to reduce GHG emissions overreliance on fossil and wood fuel
Science, technology &innovations:	Innovation and development of appropriate technologies and capacity that promote climate resilient development
Public Sector Reforms:	Integrating climate change adaptation into public sector programmes
Human Resource Development:	Enhancing adaptive capacity and resilience of the informal formal and the sector workforce
Infrastructure:	Enhancing and investing in bankable climate proof infrastructure: Roads, Transport, ICT
Education and training:	Mainstream climate change adaptation in education (formal, non-formal and informal) and training.
Land Reforms:	Mainstream climate change adaptation in land reforms, climate proof county spatial plans and climate resilient spatial planning
Health:	Continued investment in climate sensitive health issues, and integration of climate change into TNC health programmes
Environment	Fostering ecosystem services, cultural heritage, tourism, wildlife habitats, County greening programs, Forest and Landscape rehabilitation for climate resilience and biodiversity conservation within the county
water and sanitation	Implementation of the County Water Master Plan (2018-2040), Upper Tana natural Resource Management project, Capacity Development for Effective Flood Management Project, Water Infrastructure Solutions from Ecosystem Services, Development of solar powered boreholes
population, urbanization, housing	Enhance the adaptive capacity of the population, urbanisation, and housing sectors
gender, vulnerable groups and youth	Strengthen the adaptive capacity of vulnerable groups* (women, orphans and vulnerable children, the elderly, and PWDs
Tourism	Enhance the resilience of the tourism value chain.
Agriculture	Promote and implement climate smart agriculture practices in Tharaka Nithi County. Promote Value addition
livestock development and fisheries	Enhance the resilience of the livestock and fish value chain
Private sector/ trade; manufacturing; Financial services	Create enabling environment for the resilience of private sector investment.
mineral resources	Integrate climate change adaptation into the mineral resources sector

Therefore, to ensure sustainable implementation of climate actions at the local level, and that each climate action is allocated sufficient resources, climate actions will be linked to the following county planning documents:

i) County Integrated Development Plan (CIDP)
ii) County Spatial Plan (CSP)
iii) County Sectoral plans
iv) County Annual Development Plans (ADP)
v) County revenue strategy

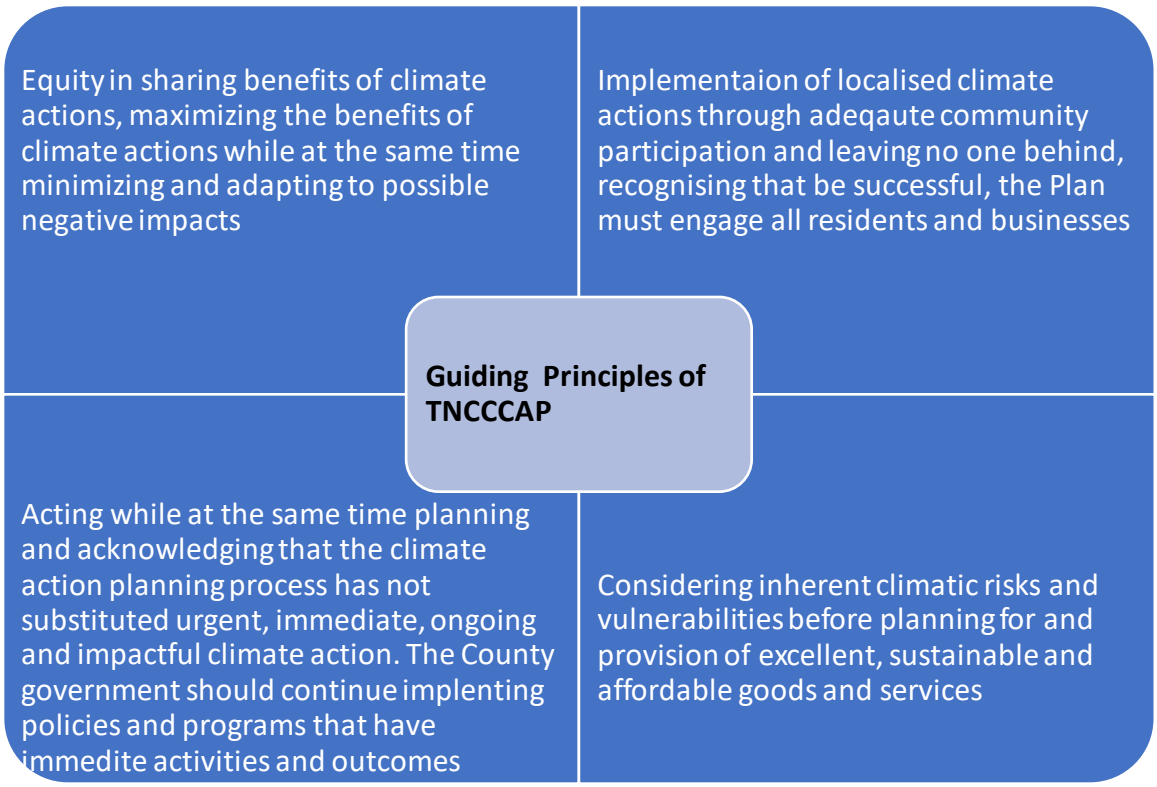
The climate actions are as a result of a comprehensive consultative and Participatory Climate Risk Assessment (PCRA) process involving vulnerable groups, including women, the youth, persons with disabilities, and members of marginalized and minority communities, the private sector, civil society; and sector experts.

3.2 Priority County Climate Change Actions

Climate change is an urgent global issue. It threatens the stability of our planet and the survival of numerous species, including human beings. It is crucial that we take action to mitigate the effects of climate change and prevent further damage. There are numerous actions that can be taken, but some are more urgent than others. As such, priority climate change actions that are required to address climate issues in TNC are presented.

This section outlines through, a cross-sectoral outlook, investment priorities that will strengthen the adaptive capacity and resilience of key livelihood, social and economic systems within in Tharaka Nithi County. These priority climate change actions form the bedrock on the Tharaka Nithi County Climate Change Action Plan 2023-2028. It is expected that implementation will start from 1st July 2023 to June 30th 2028 after the start of the new financial year. Specific sectoral actions and how they feed into strengthening different systems are shown and then sequenced over the next five years with an explanation of how they will together over time build the resilience of the county to current and future climate risks. Specific attention is given to show how the priority actions address the needs and priorities of women, youth, ethnic minorities, people living with disabilities and other marginalized and vulnerable groups.

Box 2: Guiding Principles of TNCCCAP



This box shows the four essential values and principles of the county climate action plan, her people and community. These principles will continue to guide the County in the development and implementation of the proposed priority climate actions.

While there are numerous actions that can be taken to mitigate the effects of climate change, some are more urgent than others. The priority climate change actions include reducing greenhouse gas emissions, protecting, and restoring natural ecosystems, adapting to the unavoidable impacts of climate change, promoting sustainable lifestyle choices and behaviors, and increasing international cooperation and investment. By ensuring that all stakeholders, agencies, and institutions are working together, Tharaka Nithi County and Kenya at large will create a sustainable future for the citizens and future generations by prioritizing actions that:

- Reduce greenhouse gas emissions. Carbon dioxide, methane, and other greenhouse gases trap heat in the atmosphere, leading to a rise in global temperatures. It is essential that TNC reduce emissions from industry, transportation, and agriculture. The Government must set ambitious targets for emissions reductions and create incentives for businesses and individuals to adopt sustainable

practices. This includes support for renewable energy, energy-efficient buildings, and low-carbon transportation options.

- Enhance the adaptive capacity and resilience of communities, with emphasis on vulnerable groups within society.
- Protect and restore natural ecosystems, such as forests and wetlands and dams, that store and absorb carbon dioxide. Deforestation and land-use change account for a significant portion of global emissions. Preserving and restoring these natural ecosystems can help to reduce greenhouse gas emissions and improve biodiversity. Protecting and preserving natural ecosystems will also help to build resilience against the impacts of climate change, such as floods, storms and wildfires.
- Adapt to the unavoidable impacts of climate change, such as more frequent and intense weather events, and changes in precipitation patterns. This means investing in infrastructure that is resilient to these impacts, such drought-resistant crops, and floodwater management systems. The Governments must also work with communities, particularly in vulnerable regions, to develop strategies for adapting to the impacts of climate change.
- Require climate action in Kenya to be undertaken in an integrated manner when addressing several priorities. For example, actions to plant trees to be implemented in a framework that appreciates they also contribute to disaster risk management, water, and food security objectives
- Promote sustainable lifestyle choices and behavior. TNC, citizens and all stakeholders can reduce their personal carbon footprints, for example, by choosing to walk or cycle instead of taking cars, reducing food wastage, and buying locally and sustainably produced products. Impact can also be reduced by using fewer resources, for example, by using energy-efficient products and less plastic.
- Increase international cooperation and investment in climate change mitigation and adaptation. Climate change is a global issue that requires a global response. Governments, businesses and individuals must work together to create a sustainable future. International cooperation and investment will help to support the development of sustainable technologies and infrastructure, particularly in developing countries that are disproportionately affected by climate change.
- Support achievement of the Bottom-Up Economic Transformation Agenda and *SDGs*

Table 2: Priority Climate Change Actions in TNC

Priority County Climate Actions	Objectives

Food and Nutrition Security	Enhance the four pillars of food security *viz.* availability, access, utilization and stability through enhanced productivity and resilience of the agricultural systems via low-carbon mechanisms
Disaster Risk (Floods and Drought) Management	Improve integrated flood and drought management through reducing risks that result from droughts and floods to communities and infrastructure.
Integrated Water supply planning and watershed management	Implement land use practices and water management practices to protect and improve the quality of the water and other natural resources for agriculture, manufacturing, domestic, wildlife, and other uses
Forestry, Wildlife and Tourism	Introduce afforestation programs, control forest fires, proper utilization of forest resources. Increase forest cover to 10% of total land area, increase the resilience of the wildlife and tourism sectors, and rehabilitate degraded lands, including rangelands.
Health, Sanitation and Human Settlements	Reduce incidences of malaria and other diseases that are projected to increase because of climate change, encourage climate-resilient solid waste management, and promote climate resilient buildings and settlements, including in urban centres, ASALs, and coastal areas
Manufacturing	Improve energy and resource efficiency in the manufacturing sector
Energy and Transport	Climate-proof energy and transport infrastructure, promote renewable energy development, increase the uptake of clean cooking solutions, and develop sustainable transport systems

3.2.1 County Climate Action Priority 1: Disaster (Drought and Flood) Risk Management

Disaster like drought and flood pose a huge risk to the people of Tharaka Nithi and as such management the risk associate with these disasters will be an important aspect of environmental planning in the county. This is because, both phenomena can have drastic effects on the county ecosystems, economies, and societies. Their impact is particularly felt more by women, youth, ethnic minorities and people living with disabilities, who are in most cases dependent on agriculture and livestock keeping sustaining their livelihoods. Thus, it is important for the county government, organizations, and individuals to have effective strategies in place to mitigate the potential risks.

3.2.1.1 Socio-economic impacts of Disasters to the county

Individual household are the most affected by the impacts of climate related disasters. Prolonged periods of drought and reduced rainfall causes a shortage of water resources, food insecurity and increased prices of food and other commodities. Droughts are often accompanied by extreme heat, which can cause soil moisture to evaporate, making it difficult for crops and vegetation to grow. Tharaka Nithi, just like many other counties in Kenya, is home to a large agricultural industry, and experiences millions of shillings in economic losses each year due to droughts.

This is mainly because, prolonged droughts lead to crop failure, convert hitherto productive crop areas to dry lands, and loss of livestock, which leads to reduced food security and increased malnutrition, with severe consequences to pregnant and lactating women, children, and the elderly. Gatunga, Mukothima, Igambang'ombe and Marimanti wards that have pastoralists experience livestock deaths and poor health due to lack of forage and water. Droughts also negatively affect livestock businesses through reduced water, increased costs of hay and fodder. However, droughts are not limited only to agriculture, they also affect water supply for domestics use with severe undesirable impacts for communities, particularly for women and girls who have to travel long distances in search of water and have less water for their hygiene. This translates to women and the youth having to work harder to feed and take care of their families, and sometimes forced to

Figure 2: Goats in a drying stream in Nkondi ward

take up roles that used to be the preserve of men, who often migrate to towns in search of gainful employment.

Floods on the other hand can lead to the overflow of rivers and lakes, causing tremendous damage to property and has been identified as a major cause of natural disasters in the county. The damage caused by floods consequently result in economic losses (Figure 3 and Figure 4), displacement of populations and even loss of lives.

Figure 3: A damaged bridge after repair from recent floods in Tharaka Nithi County

Children, persons with disabilities and the elderly are particularly at increased risk during floods and disasters, because they may be left behind or abandoned during emergency responses. Notably, women are often considered the most vulnerable in times of floods because they are exposed to more dangers due to their various roles, such as taking care/rescuing of children, older family members, and people with disabilities before, during, and after floods especially where government response is slow.

Figure 4: Effects from the recent flooding of River Thanantu

3.2.1.2 Practical County Approach to responding to Climate-Related Disasters

To mitigate the risks associated with drought and floods, the county will employ disaster risk management strategies. This entails promoting proactive, rather than reactive approaches to identified disasters. Practical actions will seek to ensure that climate disasters are managed well, before them mutate to emergencies. This will involve forecasting and early warning systems, capacity building and emergency response measures which will be utilized to prevent and mitigate natural disasters such as droughts and floods.

Forecasting and early warning systems will be implemented to ensure that affected communities are informed about the possible occurrence of a disaster, for instance, drought or flood ahead of time before conditions worsen. These systems will make use of technology to gather detailed information about weather patterns and water levels, which then will help to develop accurate predictions.

Capacity building will comprise of development of the skills of staff, individuals and communities towards mitigating risks associated with droughts and floods. This will be achieved through training programs to inform them on the best agricultural practices that can aid during drought. Additionally, this will include providing farmers with access to drought-resistant crop varieties and appropriate water management best practices. Communities will also be encouraged to undertake measures to protect their surroundings from erosion and maintain landscapes in good conditions.

In cases whereby disasters beat the established early warning systems and hence become emergencies, the establishment of emergency response measures will be necessary to provide aid to individuals and communities. These measures will involve providing food, potable water, and shelter during droughts, or rescue efforts when floods occur. For example, the county can establish temporary evacuation centers and provide communication channels to coordinate the provision of relief materials. The county can exploit the provisions of Section 110 of the Public Finance Management Act and establish the County Emergency Fund and subsequently access the fund in times of emergencies. The climate Change Fund under established in line with the Tharaka Nithi County Climate Change Fund Act will also be utilized. Additionally, the county can seek support from the National Drought Emergency Fund (NDEF) that was established in 2018 and is aimed at supporting action against climate-induced risks, such as drought risk management, resilience and preparedness measures, response interventions, and recovery interventions that include protecting the most vulnerable populations.

In conclusion, droughts and floods will be managed with appropriate risk management strategies. These strategies will involve forecasting and early warning systems, capacity building, and emergency response measures. It is important that the county government, organizations, and individuals take proactive measures to mitigate such natural disasters to ensure that the impact on the environment and communities are minimal.

Table 3: Priority Climate Actions for drought and flood risk management *Adapted from the NCCAP 2018-2023*

Strategic Objective one	**Improve integrated flood and drought management through reducing risks that result from droughts and floods to communities and infrastructure.**	
Actions	**Expected Results**	**Timelines**
Increase the number of households and entities benefiting from adaptive services	▪ 7000 beneficiaries of social protection mechanisms, and other safeguards ▪ 4000 households better able to cope with climate change because of receiving benefits from the government.	by 30th June 2028
Improve the ability of people. to cope with droughts	▪ Drought early warning systems improved, including the promotion of people-centred systems. ▪ 100,000 people make use of climate information services in their risk management decisions. ▪ 2000 households make used of Water harvesting and storage facilities. ▪ Increase funding County Emergency Fund	by 30th June 2028
Improved ability of people to cope with, and infrastructure to withstand floods	▪ Flood early warning systems improved, taking advantage of widespread access to mobile technology that provides avenues for dissemination of information. ▪ Design and implementation of integrated flood management plans for water storage, drainage networks, reforestation and rehabilitation of riparian areas, construction of dams, and land use restriction ▪ Dam Safety Control Systems established, including a needs assessment, and development of safety manuals and codes of practice. ▪ Capacity development of at least 50 Water Resources Users Associations (WRUA) that are rights-based groups or community-based organizations with youth, people with disability, female and male membership. ▪ Water and flood control, including dams/dykes, drainage systems, and water storage	By 30th June 2025
Improve the coordination and delivery of disaster risk management	▪ Improve the coordination of disaster risk management, including of floods, droughts, disease outbreaks, landslides, and other disasters by enacting and implementing a county *Disaster Risk management policy and Act* that includes the establishment of: ▪ Strengthening County directorate of Disaster Risk Management to coordinate disaster response. ▪ Engendered sub-County Disaster Risk Management Committees to coordinate disaster response at sub-County levels;	By 30th June 2024
Finance	▪ A Disaster Risk Management Fund to provide funds for disaster preparedness, mitigation of disaster impacts, and disaster recovery measures, particularly for vulnerable groups.	By 30th June 2024

Technology	▪ Expertise developed to customise and manage Normalized Difference vegetation Index (NDVI) (satellite-generated vegetation condition index) used for drought early warning and response	By 30th June 2026
Capacity development	▪ Development of the skills of staff, individuals and communities towards mitigating risks associated with droughts and floods. This will be achieved through training programs to inform them on the best agricultural practices that can aid during drought.	30th June 2027

3.2.2 Climate Change Priority Action 2: Agriculture, Food and Nutrition Security

Food insecurity and nutrition deprivation are not only major global challenges but also affect local populations, and the impacts of climate change in Tharaka Nithi add to their complexity. This sub-section looks at the effects of climate change on agriculture and food security and ends with a highlight of the priority solutions for agriculture, food security and nutrition.

3.2.2.1 Effects of climate change on agriculture and food security

Climate change presents a threat to the county's food security because it exacerbates food and nutrition insecurity through its impact on crop yields, food prices, and food availability. Dry weather conditions lead to declines in the production of most agricultural commodities, because of the reduction in suitable areas for cultivation, caused by temperature increases. Other factors like poor distribution of rainfall, high food prices, poor infrastructure, communal land tenure system, low adoption of drought-tolerant crops, and low use of fertilizers and certified seeds increase the intensity thereby impacting negatively on overall food security, leading to poor household food consumption levels. On the other hand, pastoralists are negatively impacted because extreme climate events lead to reduced pasture and availability of forage, degradation of the environment, and increased poverty. Strong winds and dust storms erode top soil, making grass and rangeland regeneration difficult even when it rains. Hence, it is necessary to take urgent actions to address food and nutrition security in the context of climate change.

3.2.2.2 Priority actions and solutions for agriculture, food security and nutrition

The main economic activity of the people of Tharaka Nithi County is agriculture, which includes both crop and livestock production. An estimated 80 percent cent of the county's population is engaged in agricultural activities while agricultural production occupies 1,449.6 km2 of arable land in the County[4].

[4] **MoALF. 2017.** Climate Risk Profile for Tharaka Nithi County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya

Approximately 43,799 hectares is under food crops while 14,839 hectares is under cash crops. Therefore, actions will be geared towards increasing food security by bolstering the agriculture sector, including action relating to crops, livestock, and fisheries.

One of the first actions is to prioritize sustainable agriculture practices which enhance food security and preserve the environment. Sustainable agriculture practices should be promoted to reduce greenhouse gas emissions, increase crop yields, and strengthen climate resilience. Practices such as conservation tillage, agroforestry, intercropping, and crop diversification can help farmers adapt to climate change and maintain their food security. Moreover, farmers should also be empowered to adopt new technologies such as drought-resistant seeds, smart irrigation, and precision farming.

Another crucial action will be to reduce food waste and loss. Globally, approximately one-third of food produced is lost or wasted, leading to significant greenhouse gas emissions, and draining scarce resources such as water and land. Therefore, effective food management strategies, including reduced food waste and loss, increasing food shelf life, and converting food waste to renewable energy, should be adopted.

For sustainable solutions, most of these priority actions will include focused interventions to address gender issue. Women account for 75% of labour in the agriculture sector[5] with many disadvantaged women being farmers that suffer the impacts of climate change more than men because of lack of input in decision-making, insecure land tenure, limited access to land, and limited access to livestock and technology. The county can establish farmer field schools in a participatory and effective way in order to transfer knowledge to, and learning from the youth, women and people with disability who are engaged in farming. This is because gender-aware agricultural extension services are therefore essential to ensuring that women receive, use, and benefit from vital information, such as climate information services, which should be disseminated on local languages: Kitharaka, KiMeru, Kimbeere or Maara. These services are also important for pastoralists.

[5] National Climate Change Action Plan 2018-2023

Figure 5: Agroforestry and crop diversification in parts of the county

Moreover, actions to improve the nutritional quality of food available and consumed by individuals will also need to be implemented. This will be done through proper fortification of staple foods, promotion of diverse diets, and ensuring food safety and hygienic handling of food. In addition, access to clean water and sanitation is essential for ensuring food security and good nutrition to people in the face of increasing climate variability.

In conclusion, the impacts of climate change continue to threaten food and nutrition security. Thus, it is necessary to prioritize sustainable agriculture, reduce food waste and loss, and maximize the nutritional quality of food. These actions, once implemented effectively, will promote food security and nutrition in the face of climate change, enabling individuals and communities in the county to build resilience and a maintain a healthy and thriving society.

Table 4: Priority Climate Actions for agriculture, food security and nutrition

Adapted from the NCCAP 2018-2023

Strategic Objective Two	**Enhance the four pillars of food security *viz.* availability, access, utilization and stability through enhanced productivity and resilience of the agricultural systems via low-carbon mechanisms**	
Actions	**Expected results**	**Timelines**
Improve crop productivity through the implementation of good agricultural practices	▪ 5000 households have access to an irrigation scheme in the community. ▪ 1000 institutions and value chain actors and households harvesting water for agricultural use. ▪ 20% reduction of agricultural pre- and post-harvest losses	By June 2028

	▪ 10,000 farmers benefiting from accessing climate-oriented crop insurance. ▪ 20,000 farmers accessing subsidies for appropriate agricultural inputs. ▪ Number of households and acreage under sustainable land management (SLM) increased for agricultural production: ▪ Reclamation of 1000 hectares of degraded land; Area under integrated soil nutrient management increased by 5000 acres. ▪ Farm area under conservation agriculture increased to 5000 acres; and total area under agroforestry at farm level increased by 2000 acres.	
Increase crop productivity through improved irrigation	▪ Additional 2000 Hectares put under irrigated agriculture. ▪ 40% increase in production efficiency from irrigated fields	By June 2025
Improve productivity in the livestock sector through the Implementation of Climate Smart Agriculture	▪ At least 2 small dams and water pans in each ward ▪ Animal disease control and surveillance improved. ▪ Value addition on livestock breeds and improved access to artificial insemination services ▪ Diversification, commercialization, and intensification in livestock breeds in 3 sub counties. ▪ 1000 farmers accessing climate-oriented livestock insurance. ▪ 500 households accessing cold dairy storage facilities. ▪ 5000 households using improved manure management through adoption of biogas technology	By June 2026
Diversify livelihoods to adjust to a changing climate	▪ At least 1000 households supported to adopt diversified adaptive enterprises/value chains for sustained livelihoods and nutrition security; and ▪ Small-scale famers supported to transition to specialized and market-oriented output in 13 priority value chains, including drought- tolerant values chains.	By June 2028
Technology and knowledge management	▪ A functional climate information service plan that is linked to disaster Risk Management ▪ Effective food management strategies, including reduced food waste and loss, increasing food shelf life through enhanced storage facilities.	By June 2028
Capacity development	▪ 2000 farmers trained on how to improve performance of the dairy and beef cattle, goats, and other value chains. ▪ 2000 farmers learn techniques to adapt to their changing climate, including conservation agriculture, crop diversification, use of drought-tolerant seeds and water-sensitive planting techniques, and planting a variety of crops. ▪ Provision of appropriate financial, extensions services and equipment to deal with the issues related to smallholder agriculture and impacts of climate change on their livelihoods of 1000 farmers	Continuous
Legal	▪ Develop policies and legislations to promote food security and incomes; advance agro-based industries, and enhance sustainable use of land resources: County Food and Nutrition Security Policy, Tharaka Nithi County Agriculture Service Extension policy and county livelihood guarantee act	By June 2024

3.2.3 Climate Change Priority Action 3: Integrated Water supply planning and watershed management

3.2.3.1 Degradation of water sources and water scarcity

Climate change poses a severe threat to water resources, including water supply and watershed management. To mitigate and adapt to climate change's impact, priority actions are crucial to ensure sustainable water supply and watershed management. The decline in access to quality water in the county is exacerbated by climate change, and its associated droughts. Here are the priority climate actions for water supply and watershed management in Tharaka Nithi County.

Erratic rains due to climate change have affected water supply, with severe impacts on food production. Many hitherto permanent rivers in Tharaka Nithi County have become seasonal and dry up during the dry season thus impacting the residents negatively.

3.2.3.2 Actions and solutions for Integrated Water supply planning and watershed management

This TNCCCAP seeks to compel the county government to invest in increasing water storage capacities to cope with extreme climate events. As droughts and floods become more frequent, increasing water storage capacities will enable the residents to store water and supplement their water needs during dry spells. The county Government should also invest in restoring degraded watersheds to increase the forests' water retention capacity, which can contribute to improved water availability.

Figure 6: Section of a degraded watershed in Marimanti Ward, Tharaka Nithi County

Human behavior and activities have a significant impact on water supply and watershed management. Hence the county will promote water-use efficiency and encourage the adoption of sustainable practices in order to significantly reduce climate change's impact on water resources. For example, promoting sustainable agricultural practices that conserve water will help reduce water use for irrigation, which is a significant water user in the county. Education and awareness campaigns will also encourage communities to promote water conservation and adopt sustainable water use practices.

The county and other stakeholders should invest in monitoring and research to better understand how climate change will affect water resources. For instance, monitoring the water levels in rivers Thanantu, and Thingitu and reservoirs can help in informed decision-making regarding water supply. This is because notable changes due to climate change are drying up Rivers Thanantu and Thingitu in Tharaka Constituency. Most other rivers have been affected by a decrease in rainfall and human encroachment. Further, the County Government should collaborate with researchers from Tharaka and Chuka Universities to develop models that help determine the trajectory of water resources, and this can inform the county executive committee on when to implement certain measures.

Nithi Water and Sewerage Company should prioritize climate actions on water supply and watershed management in urban areas that promote the use of green infrastructure, such as rain gardens, green roofs, and bioswales. These green infrastructure investments can help address climate change and promote biodiversity while reducing the frequency and severity of flash flooding and urban heat islands.

Finally, the county should partner and cooperate with Neighboring Counties under the auspices of Central Kenya Economic Block (CEKEB) to implement integrated effective climate actions for water supply and watershed management within the region. The National government can foster partnership with the county that help provide technical expertise in capacity building, research, and financing sustainable water management practices.

These priority actions are crucial to mitigate and adapt to the challenges of climate change. Investing in increasing water storage capacities, promoting water-use efficiency, monitoring and research, and green infrastructure investments are priority climate actions for water supply and watershed management.

Table 5: Priority Climate Actions for Integrated Water supply planning and watershed management

Strategic Objective three

Implement land use and water management practices to protect and improve the access to quality water for agriculture, manufacturing, domestic, wildlife and other uses		
Actions	**Expected results**	**Timelines**
Increase water harvesting and water storage infrastructure, and improve flood control	▪ Increased water harvesting, flood control and water storage infrastructure ▪ Enhanced integrated watershed management and ecosystem-based adaptation structural/ mechanical design, such as structural catchment protection especially in the upper water catchments. ▪ Development of flood early warning systems in areas susceptible to floods	By June 2027
Enhance quality of water and increase annual per capita water availability through the development of water infrastructure	▪ Enhanced water quality for all residents ▪ 40% increment in annual per capita water availability (harvested, abstracted, and stored) ▪ Construction of 1 multipurpose dam ▪ Undertake a county hydrogeological survey to identify major strategic aquifers. ▪ Realize and implement 3 sub-catchment management plans to assist local communities to protect wetlands, dams, and other water catchment areas. ▪ Development and Conservation of Water Supply systems (dams, water pans, boreholes, water tanks, tank towers, pipeline extensions) ▪ Spring protection ▪ Promotion of rainwater harvesting systems	By June 2028
Increase gender responsive affordable water harvesting based livelihood resilience programmes	▪ Enhanced household access to water through water harvesting ▪ 300 farm ponds installed. ▪ Livelihood systems improved on 5000 hectares of degraded land through the development of water pans and ponds. ▪ 20% reduction in distance and time taken by women and youth to access water	By June 2028
Promote water efficiency (monitor, reduce, re-use, recycle. and modelling)	▪ Promote water-use efficiency and encourage the adoption of sustainable water use practices like efficient irrigation systems. ▪ Innovation in water tracking and the identification and reporting of leakages; ▪ Awareness programme for water efficiency. ▪ Awareness on climate change impacts and the water sector including promoting public awareness on water conservation (recycling, wastewater management) and efficient water use. ▪ Disaster risk reduction measures in the water sector planning and service delivery, particularly in vulnerable, high-risk regions mainstreamed. ▪ Technologies that enhance water resource efficiency are promoted	By June 2026
Improve access to good quality water	▪ 10% increase in the number of people and entities accessing good quality water for domestic, agricultural, and industrial use. ▪ 20% increase in the number of people connected to metered clean water. ▪ Quarterly inspection of water quality ▪ trans boundary water resource management enhanced through collaboration within CEKEB	By June 2026
policies and regulations	▪ County Water Master Plan 2018-2020 fully implemented. ▪ Formulate and implement a county Water Act to ensure universal access to clean drinking water. ▪ Develop a county water harvesting policy for institutions and households	By June 2026

3.2.4 Climate Change Priority Action 4: Forestry, Wildlife and Tourism

3.2.4.1 Impacts of Climate change on Forestry, Wildlife and Tourism

Climate change has over the years caused severe impacts on forests and wildlife in Tharaka Nithi, which also affects tourism especially in the CEKEB. Rising temperatures, extreme weather events, and changes in precipitation patterns have detrimental effects on ecosystems, including biodiversity loss, damage to wildlife habitats, and increased forest fires. As a result, TNC must take urgent actions to mitigate climate change's effects on its forests, wildlife, and tourism.

3.2.4.2 Priority climate actions to maximize benefits.

Forest conservation will play a vital role in storing carbon and help reduce greenhouse gas emissions. Therefore, preserving them is one of the most effective ways to prevent further damage to the environment. Forest conservation efforts will include protecting forests from deforestation, illegal logging, and other human activities. On the other hand, reforestation will involve planting new trees as a part of a long-term conservation plan. This action helps in restoring the degraded forest ecosystem and will help in carbon sequestration. Subsequently, sustainable forest management practices, including reducing logging and forest fires, will help in reducing carbon emissions, thereby mitigating climate change's impacts on forests.

Climate change has a significant impact on wildlife habitats, leading to habitat loss and fragmentation. Habitat conservation will help protect species and restore ecological balance while, reduction in hunting and poaching to protect wildlife populations will be crucial in keeping a stable wildlife ecosystem. The depletion of certain species can disrupt entire ecosystems. Biodiversity conservation will also be essential to maintaining a healthy ecosystem. The protection of species and landscapes supports better adaptation for wildlife when faced with climate changes.

Sustainable tourism practices will include using energy-efficient facilities, minimizing waste, reducing water consumption, and promoting eco-tourism within the county. Such practices can help mitigate the impacts of tourism on the environment and reduce greenhouse gas emissions. Local communities will also be supported to create job opportunities and help alleviate poverty, which in turn results in fewer negative impacts on natural resources, wildlife, and habitats. Additionally, raising awareness about the importance of implementing sustainable tourism practices will encourage tourists, businesses, and local communities to support ecotourism activities, which will in turn contribute to protecting the environment.

Figure 7: A tree nursery in Tharaka Sub County

Climate action for forests, wildlife and tourism are essential for preserving ecosystems. It is necessary to undertake collaborative measures involving citizens, governments, businesses, and stakeholders to combat climate change and promote conservation. Implementing the above priority actions will create a sustainable future that supports both the environment and the economy.

Table 6: Priority Climate Actions for Forestry, Wildlife and Tourism management

Strategic Objective Four	**Introduce afforestation programs, control forest fires, proper utilization of forest resources towards achieving a county forest cover of 10% of total land area, increase the resilience of the wildlife and tourism sectors, and rehabilitate degraded lands, including rangelands**	
Actions	**Expected results**	**Timelines**
Afforestation and reforestation of degraded and deforested areas in the County	▪ Improved access to climate resilient tree species ▪ Increased tree nurseries, production, and availability of seedlings ▪ Integrated ecosystem and community-based approaches in sector strategies in support of adaptation to reduce natural resource-based conflicts. ▪ 1000 Hectares of land put under afforestation and or reforestation. ▪ 2000 households practicing agroforestry and intercropping. ▪ 5000,000 trees planted. ▪ through such initiatives as: ▪ Annual National Tree Planting Day held each year for five years. ▪ 10% of school land areas planted with trees. ▪ Forest management and planning. ▪ Silvicultural interventions. ▪ Improved soil fertility using organic manure for farming. ▪ Fast-growing trees for biomass energy (high calorific value for fast-growing trees, acacia polyantha- Lucina) planted	By June 2028

Reduce deforestation and forest degradation	▪ Reduced deforestation and forest degradation ▪ 10 Community Forest Associations established in consultation with KFS ▪ Access to forests limited to guards and guided visits. ▪ Improved enforcement and monitoring of forests ▪ Alternative technologies developed to reduce demand for biomass, such as clean cooking, briquetting, and efficient charcoal production). ▪ REDD+ architecture through multi-stakeholder engagements, including a county strategy and investment plan, safeguards information system developed. ▪ County Forest Monitoring System (NFMS) implemented in county through KFS for improved forest monitoring and measurement	By June 2027
Restore degraded forest landscapes.	▪ 500 hectares of forest on degraded landscapes restored. ▪ Enhanced natural generation of degraded lands through conservation and sustainable management. ▪ Ecosystem-based adaptation through rangeland and forest landscape restoration and sustainable management	By June 2027
Promote sustainable timber production on privately owned. land	▪ Additional 1000 hectares of land added to area under private sector-based commercial and industrial plantations. ▪ Zero timber production on protected forests and landscapes	By June 2027
Conserve land areas for wildlife	At least 10% of terrestrial and inland water and especially areas of importance for biodiversity and ecosystem services, conserved. 1000 hectares of wildlife habitats conserved to support a broad range of wildlife and plant species. A county free of human-wildlife conflicts Dispersal areas and migratory pathways for wildlife that have been identified in the National Wildlife Dispersal Corridor Report (NWDCR) secured.	By June 2027
Capacity development	The capacity of all relevant county institutions builds for the efficient transfer and implementation of the devolved function with respect to community forests	By June 2028
policy and regulatory	Standards and regulations, including social and environmental safeguards, for sustainable forestry management developed. Guidelines and standards for establishment of green zones, as required by the Forest Act 2016, developed, and linked with County physical planning and development control functions. An adaptation strategy for the tourism sector developed. Land use planning and zoning done to segregate and identify forest areas for conservation. Climate change mainstreamed into environment audits, environmental impact assessments, and strategic environmental assessments in conjunction with NEMA	By June 2028

3.2.5 Climate Change Priority Action 5: Health, Sanitation and Human Settlements

3.2.5.1 Climate issues linked to Human Health, Sanitation and Human Settlements

Climate change and global warming impacts affect human health, sanitation, and human settlements in several ways. The United Nations acknowledges that climate change is one of the biggest threats to human life and wellbeing, as it is already affecting weather patterns, resulting in heatwaves, droughts, floods, and

storms. As described in the previous sections, climate change also affects the environment, such as water resources, food, and air quality.

Tharaka Nithi has been experiencing increased incidence of heatwaves leading to dehydration, and other heat-related illnesses; and increased air pollution, leading to various respiratory problems such as asthma and lung cancer. There are more incidences of infectious diseases to women and children such as malaria which are transmitted through vectors such as mosquitoes. In some cases, reduced access to clean water can lead to waterborne diseases such as cholera and typhoid fever. Malnutrition can also result from decreased agricultural productivity and food insecurity. Inadequate sanitation, together with global warming, increases the risk of waterborne diseases and malnutrition. Climate change leads to an increased frequency and intensity of flooding, which affects the cleanliness of water in households, and pose health risks due to increased exposure to disease-carrying vectors. Human settlements, especially in along major rivers like Thanantu and Thingitu are susceptible to natural disasters such as floods. Climate change also exacerbates housing insecurity due to housing destruction and displacement of people from their homes because of flooding or landslides.

3.2.5.2 Priority Climate Actions

1. Promote the use of clean energy such as solar and wind, which helps reduce air pollution and, in turn, reduces respiratory illnesses.
2. Create green spaces in urban areas, which help reduce the urban heat island effects and provide a source of clean air.
3. Combat vector-borne diseases by implementing appropriate control measures such as mosquito nets, vaccines, and targeted insecticide treatment.
4. Provide clean water and sanitation services that can help prevent waterborne diseases.
5. Promote sustainable agricultural practices that can help reduce malnutrition and promote food security.
6. Implement proper water and sanitation infrastructure that can withstand floods and other impacts of climate change.
7. Promote proper hygiene practices such as handwashing, to prevent waterborne diseases.
8. Increase the capacity of health systems to respond to outbreaks of communicable diseases.
9. Educate the public on the importance of sanitation and hygiene practices.
10. Implement building codes and standards that prioritize resilience against natural disasters.

11. Develop early warning systems and emergency response plans to anticipate natural disasters and mitigate their effects.
12. Promote the use of alternative construction materials that reduce the carbon footprint of housing structures and promote climate resilience.
13. Disseminate information to the public on the importance of sustainable housing practices.

Climate change has significant impacts on health, sanitation, and human settlements. The actions proposed in this section can go a long way in mitigating the challenges posed by climate change, but they need to be implemented purposely and on at a county-wide level. TNC need to work together with all stakeholders in implementing and following through with the measures to ensure a healthier, cleaner, and more sustainable future for all.

Table 7: Priority Climate Actions for Health, Sanitation and Human Settlements

Strategic Objective Five	**Reduce incidences of malaria and other diseases that are projected to increase because of climate change, encourage climate-resilient solid waste management, and promote climate resilient buildings and settlements, including in urban centres**	
Actions	**Expected results**	**Timelines**
Promote recycling to divert collected waste away from disposal sites.	▪ An established waste recycling plant at Ndagani, Chuka Sub County and implement a circular economy solid waste management approach that diverts at least 90% of collected waste away from disposal sites. ▪ Established waste to energy plant at landfill sites. ▪ Sensitized and capacity build communities on waste management at source. ▪ Waste Reduction, Recycling and Recovery implemented at each Sub County level. ▪ Sewerage network increased by 20% from the current levels	By June 2028
Reduce the incidence of malaria and other vector borne diseases	▪ Community-level interventions on malaria control scaled up with emphasis on women as community health workers. ▪ Uptake and utilisation of malaria treatment services increased to reduce the incidence of malaria. ▪ Appropriate vector control measures such as mosquito nets implemented	By June 2028
Climate proof landfill sites	▪ The existing dumpsites in Kathwana, Chuka, Chogoria and Marimanti screened for vulnerability to climate change, and plans developed to adapt to extreme climate patterns. ▪ Relocated the current dumpsite at Chuka to Ntuntuni, Ndagani	By June 2027
Control flooding in human settlements	▪ Storm water drains to divert flood water constructed in select urban centres. ▪ Proper water and sanitation infrastructure that can withstand floods and other impacts of climate change implemented.	By June 2027
Promote healthy Human settlements and housing	▪ Green spaces in urban areas, which help reduce the urban heat island effects and provide a source of clean air created. ▪ Use of alternative construction materials that reduce the carbon footprint of housing structures and promote climate resilience promoted. ▪ Building codes and standards that prioritize resilience against natural disasters implemented.	By June 2027

	▪ Adaptive capacity of the urban poor enhanced by increasing the number of affordable housing and related infrastructure.	
Technology and capacity building	▪ Use of clean energy such as solar and wind, which helps reduce air pollution and, in turn, reduces respiratory illnesses implemented. ▪ The surveillance and monitoring of climate-related diseases improved. ▪ The health impacts of transition to clean cooking tracked. ▪ Early warning systems and emergency response plans to anticipate natural disasters and mitigate their effects developed	By June 2027
Capacity building	▪ The public educated on the importance of sanitation and hygiene practices. ▪ Information to the public on the importance of sustainable housing practices disseminated. ▪ The awareness of community health workers and volunteers strengthened by developing materials on climate-related health risks, including disaster risk management, and the impacts on women, children, and persons with disabilities.	Continuous
Policy and regulation	▪ Waste Management policy developed. ▪ Alternative approaches to land acquisition, other than compulsory acquisition, implemented, where possible. ▪ Policy for green building and, green building codes and regulations that account for climate information, developed. ▪ Laws on urban planning and storm water management in urban areas formulated and implemented.	By June 2028

3.2.6 Climate Change Priority Action 6: Manufacturing

3.2.6.1 Climate change issues linked to Manufacturing.

With global temperatures rising at an alarming rate and causing adverse impacts on the environment, manufacturing as a sector continues to contribute significantly to greenhouse gas emissions, which are responsible for climate change. Climate change increases resource scarcity, such as water and raw materials that are used as inputs in manufacturing. An example is reduction in crop production that negatively impacts the agro-manufacturing. As such, priority climate actions for manufacturing are imperative to mitigate the effects of climate change.

3.2.6.2 Actions and solutions to counter impacts to manufacturing

Energy Efficiency since, manufacturing units consume a large amount of energy and contribute to greenhouse gas emissions. The industry should strive towards energy-efficient production practices. The appropriate usage of machinery, upgrading old equipment, and shifting to renewable energy sources would significantly reduce greenhouse gas emissions. Carbon Capture in the manufacturing industry that produces significant amounts of carbon dioxide emissions that contribute to climate change. Adopting carbon capture technology to capture and store carbon dioxide emissions can reduce the industry's carbon

footprint. Use of sustainable Materials as the manufacturing industry is responsible for consuming vast amounts of natural resources and producing a lot of waste. Using sustainable materials and recycling waste materials can help reduce energy consumption, minimize waste, and lower greenhouse gas emissions.

Manufacturing units must adopt sustainable modes of transportation to replace traditional modes of hauling and distribution. The industry must embrace transport that utilize low-carbon fuels, electric fleets, and other sustainable options. The manufacturing industry must set emission reduction targets to reduce GHG emissions. the effective implementation of emission reduction targets program can create a sense of accountability and responsibility towards environmental sustainability in the manufacturing industry. Encourage Sustainable Practices in the industry to promote sustainability awareness campaigns and training programs that encourage employees to adopt sustainable practices. This will create a culture of sustainable development within the organization.

Prioritizing climate actions in the manufacturing industry is crucial for the long-term sustainability of the planet and county. The above steps need to be taken to ensure that manufacturing practices become more environmentally friendly, minimize waste generation, and rely on sustainable processes and materials. By adopting these measures, the manufacturing sector can reduce its contribution to greenhouse gas emissions and become more sustainable, contributing to global efforts to address climate change

Table 8: Priority Climate Actions for Manufacturing

Strategic Objective six	**Improve energy and resource efficiency in the manufacturing sector**	
Actions	**Expected results**	**Timelines**
Improve water use and resource efficiency	▪ Number of companies/factories participating in water efficiency initiatives increased. ▪ Long term private sector investment in adaptation and resilience building measures implemented	By June 2028
Increase energy efficiency	▪ 5% Increase in Number of companies participating in energy efficiency initiatives. ▪ Minimum Energy Performance Standards developed for appliances. ▪ Appropriate usage of machinery, upgrading old equipment, and shifting to renewable energy sources implemented	By June 2028
Optimize manufacturing and production processes	▪ Optimization of manufacturing processes ▪ A sustainable charcoal system promoted by encouraging the uptake of efficient kiln technologies. ▪ A charcoal certification and labelling scheme established	By June 2027
Capacity development	▪ Innovation promoted through a Sustainable Consumption for Micro, Small and Medium Enterprises (MSME), with emphasis on women and the youth. ▪ Awareness raising undertaken to promote resource efficiency within the private sector.	By June 2027

Policy and regulatory	▪ Application of special economic zones legislation and planning laws that encourage clustering of industries into zones to enhance symbiosis and increase shared industrial efficiency measures enhanced. ▪ A county waste management Act formulated and implemented for treatment and management of industrial (trade) effluent	Continuous

3.2.7 Climate Change Priority Action 7: Energy and Transport

3.2.7.1 Energy, Transport, and their nexus with climate change

The energy and transportation sectors are significant contributors to greenhouse gas emissions across the world. As such, addressing climate change through these sectors is critical for mitigating the impacts of climate change. These impacts increase incidences of delays, disruptions, damages, and failures across land-based and air transportation systems. The impact of drought on hydrogenated electricity is well understood in Kenya too as the seven folk dams that generate most of the hydropower in Kenya are in close proximity to Tharaka Nithi County. Reducing GHG emissions in the energy and transport sectors is required to achieve Kenya's mitigation NDC under the Paris agreement. The transport sector is a significant source of GHG emissions, directly accounting for about 13% of Kenya's total GHG emissions in 2015[6].

3.2.7.2 Priority climate actions for energy and transport sector

a. Transition to renewable energy sources: This will involve accelerating the transition from fossil fuels to renewable energy sources like wind, solar, hydropower, and geothermal energy. This includes promoting distributed energy systems like rooftop solar panels and incentivizing energy storage systems.
b. Increase energy efficiency: Energy efficiency measures can reduce energy consumption and costs while also reducing greenhouse gas emissions. For example, using energy-efficient appliances, improving building insulation, and promoting more sustainable transportation options like cycling, walking, and public transport.
c. Decarbonize transportation: Transportation is not only the largest source of CO2 emissions worldwide but also in Kenya. Some priority actions include promoting public transportation, promoting the use of zero-emission vehicles like electric cars, building bike lanes and pedestrian walkways, and developing policies to discourage the use of private

[6] National Climate Change Action Plan 2018-2013

cars in Majors towns like Chuka, and ensuring that, like Kigali town, all neighbourhoods are connected to efficient public transport systems.

d. Move towards a circular economy: A circular economy model prioritizes resource efficiency and aims to reduce waste at every stage of production, use, and disposal. This includes designing products for reuse and recycling, minimizing waste, and reusing waste products to create new products.
e. Encourage carbon capture and storage technologies: Carbon capture and storage (CCS) technologies can provide a bridge to a lower-carbon future by capturing CO2 emissions from power plants and industrial facilities and storing them underground.

Implementing these priority climate actions will require a collaborative effort from individuals, businesses, and governments and all other interested players in the county. Improving energy efficiency, reducing emissions from transportation, shifting to renewable energy sources, and embracing a circular economy model can help to change the current trajectory and mitigate the worst impacts of climate change.

Table 9: Priority Climate Actions for Energy and Transport

Adapted from National Climate Change Action Plan 2018-2023

Strategic Objective seven	**Climate-proof energy and transport infrastructure, promote renewable energy development, increase the uptake of clean cooking solutions, and develop sustainable transport systems**	
Actions	**Expected results**	**Timelines**
Increased renewable energy for electricity. generation, in a manner that is climate resilient and accounts for the needs of rural areas	▪ Biomass generation promoted. ▪ Solar and Wind power use promoted	By June 2028
Improved energy Efficiency and energy conservation	▪ Energy efficiency and conservation projects delivered. ▪ Efficient lighting promoted in all county buildings. ▪ Energy efficiency in buildings made mandatory before approval is granted	By June 2028
Climate proofed energy infrastructure	▪ 10 hectares of water catchment areas conserved and rehabilitated by protecting the areas feeding hydro-generation reservoirs.	By June 2027
Transition to clean cooking with such alternative fuels as LPG and other clean fuels promoted in both	▪ Number of households using LPG, or other cleaner fuels for cooking increased by 10% ▪ Loan programme through micro-finance institutions to assist with up-front costs of ▪ Local businesses stocking and delivering LPG to consumers. ▪ Engagement of women and youth groups to brand cooking cylinders procured by government; and	By June 2027

rural and urban areas	▪ Increased production of such non-forest biomass fuel briquettes as agricultural waste, sawdust and human waste, with emphasis on women and the youth.	
Develop an affordable, safe and efficient public transport	▪ 10 km of non-motorized transport facilities constructed, including pedestrian and bicycle access within, and to town centres and transit stations.	By June 2027
Climate proof transportation infrastructure	▪ Climate information used in infrastructure planning, and transport resilience plans developed. ▪ Feasibility study on constructing roads that systematically harvest water and mitigate floods undertaken	By June 2027
Technology	Climate change resilient technologies promoted;	Continuous
Capacity development	▪ Planning and building control regulations to encourage compact development, mixed use updated and implemented. ▪ Training and public awareness on climate change adaptation and mitigation mechanisms. ▪ Working with NGOs to train of jua kali artisans to produce improved cookstoves;	Continuous

4 DELIVERY MECHANISMS FOR COUNTY CLIMATE ACTION PLAN

4.1 Enabling Factors

The priority Climate Change actions in Tharaka Nithi County, coined from the Participatory Climate Risk Assessment (PCRA) process undertaken involving the vulnerable groups, the marginalized and minority and communities, the private sector, the civil society and sector experts include reducing greenhouse gas emissions, protecting and restoring natural ecosystems, adapting to the unavoidable impacts of climate change, promoting sustainable lifestyle choices and behavior, and increasing international cooperation and investment for implementation purposes. The various sectors of focus include Food and Nutrition, Disaster Risk Management, Integrated Water supple planning and watershed management, Forestry, wildlife and Tourism, Health, Sanitation and Human Settlements, Manufacturing, Energy and Transport. For the objectives of each sector to be achieved, as highlighted in chapter three, there are certain key enabling factors which include.

- Enabling Policy and a Regulatory Framework
- Mainstreaming in the County Integrated Development Plan (CIDP)
- Multi-stakeholder participation processes
- Climate Finance through the County Climate Change Fund
- Governance
- Climate Information Services and Climate Data Access

- Resilience Planning Tools
- Measuring, Reporting and Verification
- Institutional roles and responsibilities

4.1.1 Enabling Policy and Regulation

Tharaka Nithi County, through the County Assembly enacted the Climate Change Fund Bill in 2019 whose main purpose was establishing a Climate Change Fund to facilitate and coordinate financing of Climate Change Adaptation and Mitigation activities which have been clearly highlighted in this Climate Change Action Plan. This demonstrates an effort by the County to counter climate change effects. However, there is need to develop a comprehensive policy and regulatory framework for climate Change for the County which includes localizing the National Climate Change Act, 2016 and the National Climate Change Policy prepared in 2018. There is need to also mainstream climate change actions into the County Physical and Land Use Development Plan, which is currently under preparation, County Sectoral Plans, County Integrated Plans, the County Annual Development Plans and the County Revenue Strategy. The Legal and Policy framework will guide development and enable climate finance to address County-specific local issues as highlighted in this County Climate Change Action Plan.

Table 10: Priority enabling actions-Enabling Policy and Regulatory Framework

Enabling Actions	Coordinating Institution	Expected Results & Timelines
Prioritize, develop, and implement the needed County regulations to effectively implement the County Climate Change Act, 2019 through a multi-stakeholder process that includes women, youth, the elderly, persons with disabilities and minority groups in the County.	County Office of the Attorney County Assembly	By 30th June 2024-Assessment of needed regulations finalized By 30th June 2025-CC regulations developed and operationalized and a County CC Policy developed and operationalized
Prepare the County Physical and Land Use Development Plan, the County Integrated Development Plan (2023-2027) and ensure that Climate Change is mainstreamed in preparations of such plans	Department of Lands and Physical Planning Department of Finance	By 30th June 2024-Preparation of the CIDP (2023-2028) By 30th June 2025-Completion of the County Physical and Land Use Development Plan

4.1.2 Mainstreaming in the CIDP

The County Integrated Development Plans, as provided for in the County Government Act, 2012 are prepared with an aim of stating clear goals and objectives of development, an implementation plan with clear outcomes, provisions for monitoring and evaluation and clear reporting mechanisms. Therefore, it is

key to note that this plan would be a key enabler of the Climate Change priority actions by taking into consideration the proposed actions per sector and the objectives of each as noted in Chapter 3. The sectoral goals and objectives would be translated to programs and objectives as shown in the table below.

Table 11: Priority enabling actions-Mainstreaming in the CIDP

Programme	Objectives	Timelines
Food and Nutrition Security	To enhance the four pillars of food security *viz.* availability, access, utilization and stability through enhanced productivity and resilience of the agricultural systems via low-carbon mechanisms	Short-term
Disaster Risk (Floods and Drought) Management	To improve integrated flood and drought management through reducing risks that result from droughts and floods to communities and infrastructure.	Medium-term
Integrated Water supply planning and watershed management	To improve integrated flood and drought management through reducing risks that result from droughts and floods to communities and infrastructure	Medium-Term
Forestry, Wildlife and Tourism	To introduce afforestation programs, control forest fires, proper utilization of forest resources. Increase forest cover to 10% of total land area, increase the resilience of the wildlife and tourism sectors, and rehabilitate degraded lands, including rangelands.	Medium-Term
Health, Sanitation and Human Settlements	To reduce incidences of malaria and other diseases that are projected to increase because of climate change, encourage climate-resilient solid waste management, and promote climate resilient buildings and settlements, including in urban centres, ASALs, and coastal areas	Medium-Term
Manufacturing	To improve energy and resource efficiency in the manufacturing sector	Medium-Term
Energy and Transport	Climate-proof energy and transport infrastructure, promote renewable energy development, increase the uptake of clean cooking solutions, and develop sustainable transport systems	Long-Term

4.1.3 Multi-stakeholder participation processes

The delivery of this Climate Change Action Plan needs the application of a collaborative approach from all actors including the community, the various departments at the County Level, collaboration between the National Government and the County Government of Tharaka Nithi and the Private Sector. Each of the mentioned stakeholders have a role to play in ensuring that this Action Plan is implemented. The National Government is a key collaborator with the County Government in that its is required to ensure the preparation of the NCCAPs that guide the preparations of the CCAP after every 5 years, the County Government is the main player in implementing this CCAP through mainstreaming to the main County Plans, financing and ensuring that the community is well involved in its implementation because the community play a key part as a driving force of climate change effects through the various anthropogenic activities which have been highlighted in this Plan identified through the PCRA process.

4.1.4 Finance - County Climate Change Fund

Financing of the proposed actions in this Plan is critical in seeing it through the implementation phase. The Climate Change Fund created through the County Climate Change Fund Bill which is a process supported by the National Treasury and stipulated in the Climate Change Act, 2016 needs to be operationalized to ensure that the proposed Climate Change Actions are executed. For the actions that need alignment with national strategies and policies the County Government would take advantage of the available synergies between the Counties and the National Government such as the Council of Governors to seek for collaboration avenues for implementation of the proposed actions. International donors would also be a key source of funding for the implementation of this plan hence a recommendation for the Department of Environment to seek for such collaborations for ease of implementation of the proposed actions. Capacity is also needed to track and report on sources, applications and impacts of climate finance. Tracking and reporting would improve on analysis, including identifying actions that provide value for money, determining how much finance reaches those most in need such as women, youth, the elderly and persons with disabilities, and the climate impact of the finance.

Table 12: Priority enabling actions-Finance-County Climate Change Fund

Enabling Actions	Coordinating Institution	Expected Results & Timelines
Operationalization of the Climate Change Fund including establishment of the management and oversight of the fund	Department of Finance	By 30th June 2024-Fund is operationalized including establishment of a secretariat and a management board
Report on domestic and national climate finance flows through a County Climate Change Tracking System	Department of Finance Department of Climate Change	By 30th June 2024-Climate Finance tracking system established at the County By 30th June 2025-Climate finance tracking system reporting on domestic and national climate finance flows.

4.1.5 Governance - County Government Structures

The Capacity of the Tharaka Nithi County to implement this CCAP is dependent on structure, functions and powers of the various County Departments. The County Climate Change Act, 2019 creates various institutions that are mandated with various roles and responsibilities meant to foster the climate change mitigation and adaptation agenda. The institutions include the County Department of Climate Change, the County Climate Change Unit, Climate Change Board and Climate Change Planning Committee. The

Integration and Collaboration of these institutions is very key in enabling the implementation of the TNCCCAP.

4.1.6 Governance - Climate Change Planning Committees

The Climate Change Planning Committees were created by the County Climate Change Act, 2019 whose main mandate is to provide technical support to the Climate Change Board, to develop, consultatively, eligibility criteria for selecting and prioritizing climate change projects and programs for approval by the Climate Change Board, and they are generally in charge of coordination and supervision of climate change matters in the County. They are key enables of the implementation of the actions of this CCCAP.

4.1.7 Climate Information Services & Climate Data Access

The County would consider the creation of a County Climate Change Resource Centre as a priority action to promote Climate information and knowledge management. This center provides a one-stop storehouse of climate change-related information, and an online climate change portal would also be created which would help move the agenda of climate change with the changing times and technology. This will make it easy for the Climate Change department to do a real-time update of the climate change data. The Resource center is recommended to be opened to the public to allow ease access of information since the people are key actors of the implementation of this plan. The integration of Climate Change in education curriculum at the County Level and the development of a public awareness and engagement strategy are priority actions required by the Climate Change Act, 2016 which states clearly that these actions need to be mainstreamed in the Counties. Information is key and it could improve access to information and reduce climate vulnerability.

Table 13: Priority enabling actions-Climate Information Services & Climate Data Access

Enabling Actions	**Coordinating Institution**	**Expected Results & Timelines**
Operationalize a publicly accessible Climate Change Resource Centre with an updated climate Change information portal that has platforms for youth, women, the elderly, persons with disabilities and the minority groups	Climate Change Department	By 30th June 2024-Business Plan for the CCCRC developed By 30th June 2025-development of the CCCRC which is opened for access by the public
Establishment of community Education, Business and Information Centers to improve access to information and reduce climate vulnerability	Climate Change Department	Every year after this Plan comes to effect, such a center is established in a ward

4.1.8 Resilience Planning Tools

Resilience Planning is a planning process which generally seeks to promote actions that ensure communities have access to critical lifeline needs, services, and capital in the period following a disaster and actions that reduce risk from natural and human-driven hazards over the long-term, reducing the likelihood that communities suffer from multiple disasters over time that compound. The first set of potential actions relate to emergency response and disaster recovery, while the second set of actions recognize that short-term response and recovery measures may not always be sufficient following a disaster to ensure that communities recover and prosper. (Centre, 2020). From the situational analysis undertaken during the preparation of this CCCAP, there are various disasters that were found to be a threat to sustainable development in Tharaka Nithi County that need resilience planning which include drought and flooding. Therefore, the utilization of resilience planning tools such as the Resilience Analysis and Planning Tool (RAPT) and the City Resilience Action Planning Tool for the various sectors identified under the priority actions in chapter three of this CCCAP would go along way in making the County adaptive to Climate Change effects hence reducing climate change effects vulnerability of the People of Tharaka Nithi County.

4.1.9 Measurement, Reporting and Verification

The NDC, where the counties play a key role, Kenya is expected to provide information on mitigation, adaptation and support received including National GHG inventory to enable tracking of progress on implementing and achieving the mitigation component of the NDC, information related to climate change impacts, vulnerabilities and adaptation and information on financial, technology development and transfer, and capacity building needs and support received from developed countries. Kenya's transparency framework is based on the measurement, reporting and verification plus (MRV+) system defined in NCCAP 2013-2017 as "an integrated framework for measuring, monitoring, evaluating, verifying and reporting results of mitigation actions, adaptation actions and the synergies between them.

The MRV+ system includes MRV of emissions and removals of greenhouse gases for mitigation actions. Kenya reports to the UNFCCC through National Communications and Biennial Update Reports, which include GHG inventories in the agriculture; energy (including transport); land use, land-use change and forestry (LULUCF); industrial processes; and waste sectors.

Therefore, there is need for the County to localize the MRV+ system at the County level so that the measurements, reporting and verifications at the County level inform the national MRV+ system which makes it easy for the National Government to report on the NDC.

The MRV+ system would also aid the County Government of Tharaka Nithi in reporting the results achieved by the climate change action and spending on the climate change both at the County and National Level. For mitigation, the County would be able to demonstrate that the GHG emissions are lower than the projected baseline and that the County and the Country are delivering on NDC. For adaptation it could mean that the residents of Tharaka Nithi County are better able to cope with Climate Change.

Table 14: Priority enabling actions-MRV+

Enabling Actions	**Coordinating Institution**	**Expected Results & Timelines**
Establishment of a monitoring and evaluation (M&E) component of the MRV+ system to report on adaptation actions and benefits, including identification and measurement of adaptation indicators	Climate Change Department	By 30th June 2024-Climate registry for adaptation actions established, with information publicly available. By 30th June 2025- Adaptation M&E system fully functional, setting out institutional structures and role of stakeholders in reporting
Establish a functional system to develop the County's GHG inventory and an MRV system for tracking mitigation for NDC reporting	Climate Change Department Other County Departments	By 30th June 2025-Submission of the first County Reporting

4.1.10 Institutional Roles and Responsibilities (summarised in a table)

The National Climate Change Act, 2016 and the County Climate Change Act, 2019 establish structures and responsibilities that guide the oversight and management of the CCCAP and mainstreaming of the CCCAP to the NCCAP. The responsibilities of the main institutions that would be engaged in the oversight, implementation and monitoring of the CCCAP 2023-2027 are as described in the table below.

Table 15: Priority enabling actions-Institutional Roles and Responsibilities

Institution	**Roles**
National Climate Change Secretariat (NCCS)	Established under the Ministry of Environment and Natural Resources and it acts as the National focal point for the UNFCCC for purposes of NDC. Works in coordination with the County Governments Ensures Climate Change is mainstreamed in different sectors of the economy
National Environment Management Authority	Responsible for monitoring and enforcing compliance of climate change interventions

County Climate Change Unit	Lead Agency of the climate change plans and actions to deliver operational coordination. It's charged with integrating and mainstreaming climate change actions, interventions, and duties into County Integrated Development Plans (CIDPs) Submission of a report on the implementation progress of climate change actions to the County Assembly for review and debate
Climate Change Board	Oversees climate change matters in the County
County Climate Change Planning Committee	To provide technical support to the Climate Change Board To develop, consultatively, eligibility criteria for selecting and prioritizing climate change projects and programs for approval by the Climate Change Board In charge of coordinating and supervising climate change matters in the county
The Ward Planning Committee	Consult with the community on the relevant Climate change activities. Facilitating public participation at the ward level to develop and prioritize proposals for investments in public goods that building community resilience to climate change. Monitoring implementation of projects at the ward level Ensuring compliance with the provisions within the Tharaka Nithi County Climate Fund Act and its regulations with respect to reporting and accountability

4.2 Implementation and Coordination Mechanisms

The climate change action plan is a critical document that outlines measures to reduce greenhouse gas emissions, improve resilience to climate change impacts, and transition to a low-carbon economy. It requires effective implementation and coordination mechanisms to be successful. Coordination mechanisms include setting targets, policies, and regulations for mitigation, developing localized adaptation plans, and mobilizing finance. Effective institutions and collaborations among different stakeholders and sectors are essential for successful implementation of climate action plans in a timely manner. The successful implementation of climate change action plan will depend on the investment of resources, the efficiency of institutional frameworks, and the commitment of policymakers and stakeholders to a low-carbon, resilient, and sustainable future.

4.2.1 Department of Environment, Mining and Natural Resources

Effective coordination and institutional arrangements are crucial to ensuring that resources are allocated efficiently and effectively. The implementation of mitigation measures will require collaboration between different sectors and stakeholder groups. It will include the deployment of clean energy technologies, improved efficiency, and changes in consumption patterns. A crucial mechanism for coordinating and implementing mitigation measures is the setting of targets, policies, and regulations. In addition to regulations, collaboration between the public and private sectors can also support the implementation of mitigation and adaptation measures. The private sector can help facilitate the deployment of renewable

energy, drive innovation, and support the transition to low-carbon operations. All these sectors and institutions will require structured coordination mechanisms.

The department through the leadership of the County Executive Committee Member in charge of Climate Change will provide the overall policy level coordination of the County Climate Change Action plan implementation framework. It will also oversight and coordinate all other institutions tasked with implementation of this plan.

4.2.2 Climate Change Unit

The Climate Change Unit will play a crucial role in the coordination mechanism for adaptation and mitigation under this plan. It will lead the development of localized climate change adaptation plans. Such plans should reflect the local context and include measures that address the specific vulnerabilities and risks of a particular region as identified during the PCRA process. Executive order number 2 of 2023 signed by the Governor assigns the following roles to the unite:

i) Coordination of climate change initiatives.
ii) Coordination and implementation of climate change projects and programs

Therefore, the directorate will be responsible for operational level coordination of climate change actions and the implementation of this county climate change action plan 2023-2028. This will also entail coordination and reporting on implementation of actions by all partners and stakeholders implementing climate change activities/programmes in the county.

4.2.3 County Climate Change Fund Board

The availability of finance will be essential for implementing the climate change actions outlined in chapter 3. One critical mechanism for financing the local climate action will be the full operationalization the county climate fund to drive investment in mitigation and adaptation projects, prioritize projects that align with the national and county priorities and development objectives.

Section 6 of Tharaka Nithi county climate change fund act 2019 makes provisions for the role of the County Climate Change Fund Board in climate activities in the county. CCFB will:

(i) Compile the projects approved by the County Planning Committee and prepare the County Climate Finance Budget.

(ii) Based on criteria, ensure equitable allocation of the moneys available in the Fund with regard to the projects received by the County and Ward Planning Committees.

(iii) Manage the administrative costs of the fund including the costs of the meetings and sitting of County Planning Committee and the Ward Planning Committee.

(iv) Oversee the execution of the County Climate Finance Budget.

(v) Provide the essential linkages between the County Executive Committee and the County Assembly about management of the Fund.

(vi) Coordinate capacity building for Climate Change Awareness and Climate Finance.

(vii) Coordinate research and development for Climate Change Finance.

(viii) Mobilize funds for Climate Change Finance.

(ix) Approve the ward and county disbursement proposals by the Fund Administrator

4.2.4 County Climate Change Planning Committee

The role of the County Climate Change Planning Committee shall be as guided by Section10 of the county Climate Change Act 2019. The planning committee will:

(i) Develop, consultatively, eligibility criteria for selecting and prioritizing climate change projects and programs for approval by the board.

(ii) Evaluate and recommend climate change proposals developed by the Ward Planning Committee and submit them to the board.

(iii) Provide oversight to the project evaluation process by the Ward Planning Committee and prepare appropriate reports to the Climate Change Fund Board.

(iv) Develop and implement monitoring and evaluation framework for Climate Finance projects and programs.

(v) Design a Climate Change Awareness strategy for the County.

(vi) develop a Climate Change research priority needs for the county.

4.2.5 Ward Planning Committees

Ward planning committees will be crucial in coordinating the implementation and ensuring the sustainability of climate change projects at the ward level. The roles of the ward planning committees will be as provided for in section 14 of county climate change act 2019 and will include:

(i) Consulting with the community on the relevant Climate change activities.

(ii) Facilitating public participation at the ward level to develop and prioritize proposals for investments in public goods that building community resilience to climate change.

(iii) Monitor the implementation of projects at the ward level.

(iv) Prepare the budget at the ward level;

4.3 Implementation Matrix

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
Disasters -drought and flood risk management												
Strategic Objectives Improve integrated flood and drought management through reducing risks that result from droughts and floods to communities and infrastructure												
Increase the number of households and entities benefiting from adaptive services	• 1000 beneficiaries of social protection mechanisms, and other safeguards • 2000 households better able to cope with climate change because of receiving benefits from CCCF • CCCF address local adaptation priorities that are identified and monitored by wccp committees comprised of women, youth, people with disabilities and men • Each Ward has a functional WCCPC	• Number of beneficiaries of social protection mechanisms and other safeguards • Number of Households under hunger safety net umbrella • Amount of money allocated for climate actions through county climate change fund • Number of wards with WCCPC	TNC, NDMA, State Department of Special Programmes , Department of Finance, WRUAs, WRA, community CCCFB	Persons with disabilities; Pastoral communities , Marginalised communities ; the elderly; Women and children.	2023-2028	TNC, GoK, Donors	100m	30m	20m	20m	20m	10m
Improve the ability of people to cope with droughts	• Drought early warning systems improved, including the promotion of people-centred systems • 100,000 people make use of climate information services in their risk management decisions • 2000 households make used of Water harvesting and storage facilities • Increase funding County Emergency Fund	• Number of functional drought early warning systems • Number of people making use of climate information systems • Number of people with installed water harvesting and storage facilities • County emergency fund operational	Department of environment , Department of Finance, NGOs/CBOs ; Water Services Trust Fund (WSTF);	Women, youth, people with disabilities Farmers; Pastoral and agro-pastoral communities ; Marginalised communities ; Women and children	2023-2025	TNC, GoK, Donors	70m	30m	10m	10m	10m	10m
Improved ability of people to cope with and infrastructure to	• Flood early warning systems improved, taking advantage of widespread access to mobile technology that provides	• Number of flood early warning systems • Number of flood management plans	TNC, Department of environment , Department	Women, youth, people with disabilities Farmers	2023-2025	TNC, GoK, Donors	50m	15m	10m	10m	10m	5m

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
withstand floods	avenues for dissemination of information. • Designed and implemented flood management plans for water storage, drainage networks, reforestation and rehabilitation of riparian areas, construction of dams, and land use restriction. • Dam Safety Control Systems established, including a needs assessment, and development of safety manuals and codes of practice. • Capacity development of at least 50 Water Resources Users Associations (WRUA) that are rights-based groups or community-based organizations with youth, people with disability, female and male membership. • Water and flood control, including dams/dykes, drainage systems, and water storage	• Number of dams with safety control systems • Number of WRUAs trained	of Finance, CCPC, WCCPCs, CCFB NGOs/CBOs ; Water Services Trust Fund (WSTF);	along flood prone rivers Thanantu and Thigitu, Pastoral and agro-pastoral communities								
Improve the coordination and delivery of disaster risk management	Improve the coordination of disaster risk management, including of floods, droughts, disease outbreaks, landslides, and other disasters by enacting and implementing a county *Disaster Risk management policy and Act* that includes the establishment of:	• County disaster risk management policy • County disaster risk management bill • County Directorate of Disaster management established.	TNC, Office of County Attorney, Department of environment , Department of Finance, NDMA, CCPC,	Women, youth, people with disabilities Farmers Pastoral and agro-pastoral communities	2023-2024	GOK, TNC, Donrs	20m	5m	5m	5m	3m	2m

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	• A County directorate of Disaster Risk Management to coordinate disaster response. • Engendered sub-County Disaster Risk Management Committees to coordinate disaster response at sub-County levels;	• Sub county disaster management committees established	WCCPCs, CCFB NGOs/CBOs ;									
Capacity development	• Development of the skills of staff, individuals and communities towards mitigating risks associated with droughts and floods. This will be achieved through training programs to inform them on the best agricultural practices that can aid during drought. • Research on migration as an adaptation strategy	• Number of staff with enhanced skills on disaster risk adaptation and mitigation	TNC, KIPRRA, NDMA, NGOs	TNC staff, Women, youth, people with disabilities Farmers Pastoral and agro-pastoral communities	2023-2027	TNC, GoK, NDMA, Donors	5m	1m	1m	1m	1m	1m
Sub Total Disaster Risk (Flood and Drought) Management							245	81	46	46	44	28
Agriculture, Food and Nutrition Security												
Strategic objective: Enhance the four pillars of food security *viz.* availability, access, utilization and stability through enhanced productivity and resilience of the agricultural systems via low-carbon mechanisms												
Improve crop productivity through the implementation of good agricultural practices	• 5000 households have access to an irrigation scheme in the community. • 1000 institutions and value chain actors and households harvesting water for agricultural use • 20% reduction of agricultural pre- and post-harvest losses	• Number of households with access to an irrigation scheme • Number of institutions and farmers harvesting waster for agricultural use • Percentage of post and pre harvest losses • Farmers with crop insurance	TNC, NDMA, Department of Agriculture, community, KMD, NGOs, KALRO	TNC staff, Women, youth, people with disabilities Farmers Pastoral and agro-pastoral communities	2023-2028	TNC, GoK, Donors	100	30	20	20	20	10

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	• 10,000 farmers benefiting from accessing climate-oriented crop insurance. • 10,000 farmers accessing subsidies for appropriate agricultural inputs. • Number of households and acreage under sustainable land management (SLM) increased for agricultural production: Reclamation of 1000 hectares of degraded land; Area under integrated soil nutrient management increased by 5000 acres; • Farm area under conservation agriculture increased to 5000 acres; and total area under agroforestry at farm level increased by 2000 acres.	• Farmers accessing subsidies. • Number of hectares under sustainable land management practices										
Increase crop productivity through Improved irrigation	• Additional 2000 Hectares put under irrigated agriculture. • 40% increase in production efficiency from irrigated fields	• Ha of land under irrigated agriculture	Department of Agriculture, TNC, NGOs	Farmers, Pastoralists and CBOs	2023-2025	TNC, GoK, Dnors	100	60	20	20		
Improve productivity in the livestock sector through the Implementation of Climate Smart Agriculture	• At least 2 small dams and water pans in each ward • Animal disease control and surveillance improved. • Value addition on livestock breeds and improved access to	• Numbers of new dams and water pans • Disease control and surveillance systems • Farmers accessing livestock insurance. • HH accessing cold dairy storage facilities	TNC; KMFRI; KALRO; ICT; Private sector investors; KMFRI; KALRO CBOs /NGOs	Pastoral communities ; Small-scale and underprivileged farmers	2023-2026	TNC, GOK, Donors	150	60	35	40	15	

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	artificial insemination services • Diversification, commercialization, and intensification in livestock breeds in 3 sub counties. • 1000 farmers accessing climate-oriented livestock insurance. • 500 households accessing cold dairy storage facilities • 500 households using improved manure management through adoption of biogas technology	• GHG emission from agricultural sector • County abattoirs using biotechnology										
Technology and knowledge management	• A functional climate information service plan that is linked to disaster Risk Management • Effective food management strategies, including reduced food waste and loss, increasing food shelf life through enhanced storage facilities.	• Climate service plan linked to DRR. • Food storage facilities installed. • Waste to energy plan	TNC, Min of ICT, GoK, NDMA,	NGOS, Women, Farmers, Pastoralists	2023-2028	TNC, GOK, Donors	100	50	20	10	10	10
Capacity development	• 2000 farmers trained on how to improve performance of the dairy and beef cattle, goats, and other value chains. • 2000 farmers learn techniques to adapt to their changing climate, including conservation agriculture, crop diversification, use of	• Farmers trained. • Extension officers per sub county	TNC, NDMA, Department of Agriculture, community, KMD, NGOs, KALRO	Farmers, women, Youth	2023-2028	GoK, TNC, Donors	20	10	5	2	2	1

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	drought-tolerant seeds and water-sensitive planting techniques, and planting a variety of crops. • Provision of appropriate financial, extensions services and equipment to deal with the issues related to smallholder agriculture and impacts of climate change on their livelihood's of 1000 farmers											
Legal	• Develop policies and legislations to promote food security and incomes; advance agro-based industries, and enhance sustainable use of land resources: County Food and Nutrition Security Policy, Tharaka Nithi County Agriculture Service Extension policy	• Policies • Bills	County Attorney, County Assembly	TNC, farmers	2023-2024	TNC, GOK	5	3	2			
Sub Total Agriculture, Food and Nutrition Security							475	213	102	92	47	21
Integrated Water supply planning and watershed management												
Strategic Objective: Implement land use and water management practices to protect and improve the access to quality water for agriculture, manufacturing, domestic, wildlife and other uses												
Increase water harvesting and water storage infrastructure, and improve flood control	• Increased water harvesting, flood control and water storage infrastructure • Enhanced integrated watershed management and ecosystem-based adaptation structural/ mechanical design, such as structural catchment protection especially in the upper water catchments.	• Water harvesting and storage facilities. • River Catchments under enhanced watershed management • Flood early warning systems in place	NDMA, TNC, National Water Harvesting Authority, NGOs, Department of Water	Farners, Women, Pastoralists	2023-2027	GOK, TNC, Donors	90	30	30	20	20	

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	• Development of flood early warning systems in areas susceptible to floods											
Enhance quality of water and increase annual per capita water availability through the development of water infrastructure	• Enhanced water quality for all residents • 40% increment in annual per capita water availability (harvested, abstracted, and stored) • Construction of 1 multipurpose dam at Tharaka Sub County • Undertake a county hydrogeological survey to identify major strategic aquifers • Realize and implement 3 sub-catchment management plans to assist local communities to protect wetlands, dams, and other water catchment areas. • Development and Conservation of Water Supply systems (dams, water pans, boreholes, water tanks, tank towers, pipeline extensions) • Spring protection • Promotion of rainwater harvesting systems	• Per capita quality water availability • Number of dams • Hydrological surveys done • Artificial ground water recharge • Waters pans, Tanks, water towers, pipeline extensions • Boreholes • Sub county catchment management plans	MWS; Kenya Waters Towers Agency (KWTA); RMA;, private sector, TNC, WSRB, Nithi Water and sewerage company, Department of Water, community, NGOs, KWTA, WRA, WRUAs	Household consumers; Industrial consumers; The marginalized	2023-2028	TNC, GOK, Donors	100	30	30	30	5	5
Increase gender responsive affordable water harvesting based livelihood	• Enhanced household access to water through water harvesting • 300 farm ponds installed.	• HH harvesting rainwater. • Farms ponds • Ha of rangelands improved	TNC, Nithi Water and sewerage company, Department of Water,	Farmers, women, Youth	2023-2028	TNC, GOK, Donors	60	15	15	15	10	5

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
resilience programmes	• Livelihood systems improved on 5000 hectares of degraded land through the development of water pans and ponds • 20% reduction in distance and time taken by women and youth to access water	• Women and youth reporting reduced time accessing water	community, NGOs, KWTA, WRA, WRUAs									
Promote water efficiency (monitor, reduce, re-use, recycle and modelling)	• Promote water-use efficiency and encourage the adoption of sustainable water use practices like efficient irrigation systems. • Innovation in water tracking and the identification and reporting of leakages; and • Awareness programme for water efficiency. • Awareness on climate change impacts and the water sector including promoting public awareness on water conservation (recycling, waste water management) and efficient water use. • Disaster risk reduction measures in the water sector planning and service delivery, particularly in vulnerable, high risk regions mainstreamed. • Technologies that enhance water resource	• Farmers using sustainable irrigation systems\ • Awareness programmes • DRR measure in water sector • Promotions on technologies for water efficiency	WRA, TNC, department of Water, NGOs	Farmers, Women, pastoralists, people with disabilities	2023-2026	TNC, GOK, Donors	50	10	10	10	10	10

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	efficiency are promoted											
Improve access to good quality water	• 10% increase in the number of people and entities accessing good quality water for domestic, agricultural, and industrial use • 20% increase in the number of people connected to metered clean water • Quarterly inspection of water quality • trans boundary water resource management enhanced through collaboration within CEKEB	• People accessing quality water • Number of HH with water quality meters • Water quality inspections •	WRA, Nithi Water, Athi Water Services Board, TNC	Women, Urban dwellers, farmers	2023-2026	TNC, GOK, Donors	95	45	30	20		
policies and regulations	• County Water Master Plan fully implemented • Formulate and implement a county Water Act to ensure universal access to clean drinking water. • Develop a county water harvesting policy for institutions and households	• County Water master plan • County Water Act • County Water Harvesting policy	County Attorney County Assembly, TNC	Staff, women, farmers	2023-2026	TNC	5	3	2			
Subtotal for Integrated Water supply planning and watershed management							400	133	117	95	45	20
Forestry, Wildlife and Tourism management												
Strategic Objective: Introduce afforestation programs, control forest fires, proper utilization of forest resources towards achieving a county forest cover of 10% of total land area, increase the resilience of the wildlife and tourism sectors, and rehabilitate degraded lands												
Afforestation and reforestation of degraded and deforested areas in the County	• Improved access to climate resilient tree species • Increased tree nurseries, production and availability of seedlings	• Ha of land under improved resilient tree species • Number of new tree nurseries	KFS; KEFRI; CFAs Youth Organizations; Kenya Plant	Non-industrial forest owners; Marginalised communities,	2023-2028	GOK, TNC, Donors	85	26	20	15	15	10

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	• Integrated ecosystem and community-based approaches for adaptation to reduce natural resource-based conflicts. • 1000 Hectares of land put under afforestation and or reforestation. • 2000 households practicing agroforestry and intercropping. • 5000,000 trees planted	• Ha of land afforested or reafforested. • Number of HH in agroforestry and intercropping • Ha of school land planted with new trees	Health Inspectorate Service (KEPHIS); Ministry of	farmers; Pastoral communities ; Rangelands Conservation NGOs								
Reduce deforestation and forest degradation	• Reduced deforestation and forest degradation • 10 Community Forest Associations established in consultation with KFS • REDD+ architecture • County Forest Monitoring System (CFMS)	• Number of hectares of protected forest land • CFMS • GHG emissions	KFS; KEFRI; TNC CFAs Youth and women organizations; department of environment	Youths; Schools; Tertiary Institutes; Private Conservancies; Conservation NGOs	2023-2027	GOK, TNC, Donors	100	32	30	20	18	
Restore degraded forest landscapes.	• 500 hectares of forest on degraded landscapes restored. • Enhanced natural generation of degraded lands through conservation and sustainable management. • Ecosystem-based adaptation through forest landscape restoration	• Ha of restored forests	KFS; KEFRI; Department of Environment	Pastoralists; Farmers; Rangelands and wetlands inhabitants	2023-2027	GoK, TNC, Donors	10	5	2	2	2	
Promote sustainable. Timber production on privately owned land	• Additional 1000 hectares of land added to area under private sector-based commercial and industrial plantations.	Number of hectares of private sector-based plantations	KFS; NEMA; KEFRI; Private Sector investors TNC	Private land owners; Timber manufacturing industry	2023-2027	TNC, GOK, Donors	5	2	1	1	1	

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	• Zero timber production on protected forests and landscapes											
Conserve land areas for wildlife	• At least 10% of terrestrial and inland water and biodiversity and ecosystem services, conserved. • 1000 hectares of wildlife habitats • A county free of human-wildlife conflicts • Dispersal areas and migratory pathways for wildlife secured	Percentage of terrestrial and inland water areas conserved Number of hectares of wildlife conservation areas Number of secured incidents of human wildlife conflicts Percentage of dispersal areas and migratory pathways	TNC, KWS; Wildlife Conservations Society (WCS); Wildlife Conservations NGOs; Kenya Wildlife Service Training Institute (KWSTI)	Households; Farmers; Pastoralists experiencing human-wildlife conflicts; Private conservancies	2023-2027	GOK, TNC, Donors	50	10	10	10	10	10
policy and regulatory	• Guidelines and standards for establishment of green zones, developed, and linked with County physical planning and development control functions • An adaptation strategy for the tourism sector developed. • Land use planning and zoning done to segregate and identify forest areas for conservation	• Guidelines and standards • Tourism adaptation strategy • Land use and Zoning plans	County Attorney County Assembly TNC	Farmers, Pastoralist, Tourists,	2023-2028	GOK, TNC	5	2	1.5	.5	.5	.5
Sub Total for Forestry, Wildlife and Tourism management												
Health, Sanitation and Human Settlements												
Strategic Objective: Reduce incidences of malaria and other diseases connected to climate change, encourage climate-resilient solid waste management, and promote climate resilient buildings and settlements												
Promote recycling to divert collected	• An established waste recycling plant at	• Waste recycling plant • Percentage of waste recycled	NEMA;	Persons living	2023-2028	TNC, GoK, Donors	200	100	25	25	25	25

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
waste away from disposal sites.	Ndagani, Chuka Sub County • Established waste to energy plant at landfill sites • Sensitized and capacity build communities on waste management at source • Waste Reduction, Recycling and Recovery implemented at each Sub County level • Sewerage network increased by 20% from the current levels	• GHG emissions from waste • Waste to energy plant • Number of people connected to sewer network	Department of Environment Department of energy	near dumpsitesManufacturers; Nithi Water and sewerage company; Private sector								
Reduce the incidence of malaria and other vector borne diseases	• Community-level interventions on malaria control scaled up with emphasis on women as community health workers. • Uptake and utilisation of malaria treatment services increased to reduce the incidence of malaria. • Appropriate vector control measures such as mosquito nets implemented	• Households using mosquito nets • Malaria incidences per 1000 people	TNC, KEMSA, MoH; Kenya National Bureau of Statistics (KNBS); NGOs, Donors	Marginalised communities ; Underprivileged Women, youth and children	2023-2028	TNC, GoK, Donors	50	15	10	10	10	5
Climate proof waste management and landfill sites	• The existing dumpsites in Kathwana, Chuka, Chogoria and Marimanti screened for vulnerability to climate change, and plans developed to adapt to extreme climate patterns. • Relocated current dumpsite at Chuka to Ntuntuni, Ndagani	• Chuka dumpsite relocated to Ntuntuni • Number of landfill/waste disposal sites screened for climate impacts	NEMA; Department of Environment , Waste collectors Department of Health	Waste management companies	2023-2027	TNC, GoK, Donors	30	15	5	5	5	

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
Control flooding in human settlements	• Storm water drains to divert flood water constructed in select urban centres. • Proper water and sanitation infrastructure that can withstand floods and other impacts of climate change implemented.	• KMs of storm water drains constructed • Flood ways constructed in urban centres • KMs of new sewerage system	TNC, WRA; MOTIHUD, Department of Public Works	Residents of flood-prone areas	2023-2027	TNC, GoK, Donors	2000	1000	500	250	250	
Promote healthy Human settlements and housing	• Green spaces in urban areas, which help reduce the urban heat island effects and provide a source of clean air created. • Use of alternative construction materials that reduce the carbon footprint of housing structures and promote climate resilience promoted. • Building codes and standards that prioritize resilience against natural disasters implemented • Adaptive capacity of the urban poor enhanced by increasing the number of affordable housing and related infrastructure	• Number of new Green spaces • New Building Code • Affordable housing units using appropriate building technologies	TNC, EPRA, MOTIHUD; NCA; NEMA; NHC;	Landlords; Tenants; Industries; Private sector Investors, urban residents	2023-2027	TNC, GOK, Donors	500	200	200	50	50	
Technology and capacity building	• Use of clean energy such as solar and wind • The surveillance and monitoring of climate-related diseases improved	• Units with clean energy • Early warning system and emergency plan •	TNC, EPRA, MOTIHUD; NCA; NEMA;	Landlords; Tenants; Industries; Private sector Investors, urban residents	2023-2027	TNC, GOK, Donors	50	10	10	10	10	10

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	• The health impacts of transition to clean cooking tracked. • Early warning systems and emergency response plans											
Policy and regulation	• Waste Management policy developed. • Policy for green building and, green building codes and regulations that account for climate information, developed; • Laws on urban planning and storm water management	• County waste management policy • Green building strategy and code • County Physical Planning Policy	TNC, County Attorney, County Assembly	Landlords; Tenants; Industries; Private sector Investors,	2023-2028	TNC, GoK, Donor	5	1	1	1	1	1
Total for Health, Sanitation and Human Settlements							2835	1341	751	351	351	41
Manufacturing												
Strategic objective : Improve energy and resource efficiency in the manufacturing sector												
Improve water use and resource efficiency	• Number of companies/factories participating in water efficiency initiatives increased. • Long term private sector investment in adaptation and resilience building measures implemented	• Number of companies participating in resource and water efficiency initiatives	TNC; KAM; WRMA; WRUA, EPZA	Industries; Manufacturers	2023-2028	TNC, GoK, Donors	30	8	8	8	8	8
Increase energy. efficiency	• 5% Increase in Number of companies participating in energy efficiency initiatives • Minimum Energy Performance Standards developed for appliances. • Appropriate usage of machinery, upgrading old	• GHG emissions from energy sector • Number of companies in energy efficiency initiatives • Number of energy efficiency standards	TNC, department of Energy, KEBS; KAM; KIRDI	Industries; Manufacturers	2023-2028	TNC, GoK, Donors	30	8	8	8	8	8

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
	equipment, and shifting to renewable energy sources implemented											
Optimize manufacturing and production processes	• Optimization of manufacturing processes • A sustainable charcoal system promoted by encouraging the uptake of efficient kiln technologies. • A charcoal certification and labelling scheme established	• Household using efficient Kiln technologies • GHG emission from manufacturing sector	TNC, KEBS; KIRDI; KAM; KEPSA, KNCCI	Charcoal manufacturers; Briquette manufacturers; Cement	2023-2027	TNC, GoK, Donors	10	4	2	2	2	
Sub Total for Manufacturing							**70**	**20**	**18**	**18**	**18**	**16**
Energy and Transport												
Strategic Objective Climate-proof energy and transport infrastructure, promote renewable energy development, increase the uptake of clean cooking solutions, and develop sustainable transport systems												
Renewable energy for electricity generation, in a manner that is climate resilient and accounts for the needs of rural areas	• Biomass generation promoted. • Solar and Wind power use promoted	• Tones of biomass generated. • Households using solar and windpower • Institutions using solar power • GHG emissions from energy sector	Department of energy, KIRDI; NGOs	Households Corporate businesses; Electricity consumers	2023-2028	TNc, GoK, Donors	50	10	10	10	10	10
Improved energy Efficiency and energy conservation	• Energy efficiency and conservation projects delivered. • Efficient lighting promoted in all county buildings. • Energy efficiency in buildings made mandatory before approval is granted	• Number of energy performance standards developed • % Building using efficient lighting in the county • Bylaws on energy efficiency in buildings	Department of physical planning, Department of energy, KETRACO; KIRDI; KAM, County attorney	Households; Corporate businesses; Electricity consumers	2023-2028	TNc, GoK, Donors	5	1	1	1	1	1

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	23/24	24/25	25/26	26/27	27/28
Climate proofed energy infrastructure	• 10 hectares of water catchment areas conserved and rehabilitated by protecting the areas feeding hydro-generation reservoirs. • Concrete poles replace wooden poles	• Percentage of poles that are concrete • Ha of water catchment areas conserved and rehabilitated	KETRACO; WRA KFS; KWTA	Electricity consumers; Hydro-power Plants, KENEGN	2023-2027	TNC, GoK, Donors	8	2	2	2	2	
Transition to clean cooking with such alternative fuels as LPG and other clean fuels promoted in both rural and urban areas	• Number of households using LPG, or other cleaner fuels • Loan programme through micro-finance institutions to assist with up-front costs of • Local businesses stocking and delivering LPG to consumers. • Increased production of such non-forest biomass fuel briquettes as agricultural waste, sawdust and human waste, with emphasis on women and the youth.	• GHG emissions from the energy sector • Number of HHs using LPG • Number of HHs with improved biomass cookstoves • Number of local businesses stocking LPG	NEMA, EPRA, TNC, Department of Trade, NGOs	Rural firewood and charcoal consumers. Urban households using charcoal consumers. Institutions Using charcoal	2023-2027	TNC, GoK, Donors	50	20	10	10	10	
Develop an affordable, safe and efficient public transport	20 km of non-motorized transport facilities constructed, including pedestrian and bicycle access within, and to town centres and transit stations.	• KMs of non-motorized transport • GHG emissions from the transport sectors	NTSA; KENHA; KURA; KERRA, TNC, department of Transport,	Commuters Public transport providers; Cyclists; Pedestrians	2023-2027	TNC, GoK, Donors	500	200	100	100	100	

Priority Actions	Expected Outputs/Outcomes	KPIs	Responsible Institutions	Targeted Groups	Time frame	Source funds	Indicative budget in KES Millions					
							Total	**23/24**	**24/25**	**25/26**	**26/27**	**27/28**
Climate proof transportation infrastructure	• Climate information used in infrastructure planning, and transport resilience plans developed;	• Number of KMs of roads that are climate proofed • Feasibility study of road construction to harvest water and mitigate floods	KURA KeRRA; KeNHA; department of roads	Pedestrians; Motorists; Farmers	2023-2027	TNC, GoK, Donors	100	30	30	20	20	
Legal and capacity development	• Planning and building control regulations to encourage compact development, mixed use updated and implemented. • Training and public awareness on climate change adaptation and mitigation mechanisms. • Working with NGOs to train of jua kali artisans to produce improved cookstoves;	• County building and development control policy • Number of people trained	TNC, NGOs, County Attorney, Department of Physical Planning	Residents, urban dwellers	2023-2028	TNC, GoK, Donors	30	10	5	5	5	5
Sub Total Energy and Transport							30	10	5	5	5	5
Grand Total							**4310**	**1875**	**1103.5**	**655.5**	**556.5**	**156.5**

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