



REPUBLIC OF KENYA

COUNTY GOVERNMENT OF TURKANA



TURKANA COUNTY CLIMATE CHANGE POLICY

SEPTEMBER 2020





REPUBLIC OF KENYA



TURKANA COUNTY

CLIMATE CHANGE POLICY, 2020

Department of Water, Environment and Mineral Resources

***“Climate change is no longer some far-off problem; it is happening here, it is happening now”
Barack Obama, 44th President of the United States of America. @BarackObama Twitter Sep 1, 2015***

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FOREWORD

This Turkana County Climate Change Policy 2020 provides a framework for addressing climate change issues in the County. It recognizes that climate change is directly affecting the social, economic and human development of countries. So far, 1°C of global warming has been surpassed, and hundreds of millions of people, especially the poor and vulnerable in the Global South, are confronted with severe consequences.

Bringing climate change to a halt has become a prerequisite to protect poor people, future generations, and creation itself from tremendous suffering. It has also become a prerequisite to achieving the Sustainable Development Goals (SDGs). Apart from mitigating greenhouse gas emissions, strengthening climate resilience through effective disaster risk reduction and adaptation to the changing climate are essential for success. Without immediate and deep emission reductions, the aspirational 1.5°C temperature goal will soon be out of reach, and the 2°C limit would likely be surpassed soon after.

Climate change has increased the frequency and magnitude of extreme weather events in Turkana, causing loss of lives, diminished livelihoods, reduced crop and livestock production, and damaged infrastructure, among other adverse impacts. Climate change is likely to negatively impact Turkana's future development and achievement of its mission. Besides, it will also affect the national Government's Big Four agenda for 2018-2022 and Vision 2030.

Kenya has shown its commitment to addressing climate change by the enactment of the Climate Change Act (Number 11 of 2016). This is the first climate change-dedicated legislation in Africa, and provides a regulatory framework for an enhanced response to climate change. It provides mechanisms and measures to transition to a low carbon climate resilient development. This pathway emphasizes sustainable development and prioritises adaptation, recognising the importance of increasing the climate resilience of vulnerable groups including women, youth, people with disabilities, and marginalised and minority communities.

Part III, section 19 of the Act provides for mainstreaming climate change actions into County Government functions. Further, the National Climate Change Action Plan (NCCAP) 2018-2022 states that in delivering the Action Plan, County Governments are responsible for integrating and mainstreaming climate change actions into their 2018-2022 County Integrated Development Plans. Based on the aforementioned provisions, this Policy has been developed to mainstream climate change actions into the Turkana County Government functions.

Hon. Chris Aletla

County Executive, Water Services, Environment and Mineral Resources
THE COUNTY GOVERNMENT OF TURKANA

ACKNOWLEDGEMENT

The Turkana County Climate Change Policy 2020 process was driven by the Ministry of Water Services, Environment and Mineral Resources; Turkana County Government and supported by Trócaire and the Catholic Diocese of Lodwar under the project 'Promoting Ecosystem- based Adaptation Approaches to Climate Change and Governance in Turkana County which was funded by UKAID through Dfid. We also appreciate the guidance and support from the Turkana County Community Land Technical committee, FAO - KE under the EU funded Land Governance Programme.

It would not have been possible without the dedication and support of the various officers of the county government at different levels from the County Office to the Ward level, which provided the time of their staff and their accompanying expertise.

We, especially, wish to recognise the work of all the stakeholders who participated and provided valuable input at various stages of the policymaking process. The list includes the communities that provided critical information that informed the Policy, the civil society and other development partners implementing climate change-related projects in the County, County Executive members, technical officers and above all the County Assembly Committees.

Special acknowledgement is extended to the Chief Officer, Ministry of Water Services, Environment and Mineral Resources Mr Moses Napeyok Natome and Mr Clement Nadio, Director of Environment, for their leadership, support, and cooperation throughout the policy development process.

Trócaire Kenya team led by Mr Denis Kioko, Michael Thiauri and Joseph Ekuwam Lomule contributed significantly to the policy writing process. The process was led by Prof. Benard Muok, Lead Consultant at Asben Eco-Consultants and Capacity Building Ltd. The full list of the critical contributors appears at the end of this Policy. To all those who contributed their time and knowledge, to the people of Turkana County, we express our deepest gratitude and appreciation.

Moses Natome

Chief Officer, Water Services, Environment and Mineral Resources

THE COUNTY GOVERNMENT OF TURKANA

EXECUTIVE SUMMARY

Background

Turkana County economy is highly dependent on the natural resource base, and thus is highly vulnerable to climate variability and change. Rising temperatures and changing rainfall patterns, resulting in increased frequency and intensity of extreme weather events such as droughts and flooding, threaten the sustainability of the county's development. Among the most vulnerable regions in Kenya are the arid and semi-arid lands (ASALs) or simply referred to as the drylands. Due to high poverty rates, changing socioeconomic and political circumstances and demographic growth, traditional coping strategies are increasingly becoming insufficient. Further, the increased frequency of extreme events is not allowing them time to recuperate after such shocks. To safeguard sustainable development, the County Government of Turkana has developed this Climate Change Policy to provide a clear and concise articulation of overall response priorities to climate variability and change.

This Policy's focus is on the interlinkages between sustainable development and climate change. Climate change adversely impacts critical sectors that are important to the County economy and society: Environment, Water and Forestry; Agriculture, Livestock and Fisheries; Trade; Extractive Industries; Energy; Physical Infrastructure; Tourism; and Health. This Policy, therefore, elaborates intervention measures that can help to achieve the goal of low carbon climate-resilient development. The Policy focuses on the three key climate change outcomes: Adaptation, mitigation and financial mechanism for implementation of the climate change actions.

Why the Policy?

This Policy has been developed to facilitate a coordinated, coherent and effective response to the local, national and global challenges and opportunities presented by climate change. An overarching mainstreaming approach has been adopted to ensure the integration of climate change considerations into development planning, budgeting and implementation in all sectors and at all levels of the county government. The goal of this Policy, therefore, is to enhance the resilience of communities and natural systems to steer Turkana County towards a low carbon pathway for sustainable development. The goal thus builds on the mission of the County, which is to *facilitate the socioeconomic transformation of Turkana through*

sustainable use of resources to ensure a high quality of life for the people of Turkana County.

The Climate Change Policy and Regulatory Framework

The response to climate change in Turkana must adhere to the international agreements, particularly the Paris Agreement and the United Nation's Sustainable Development Goals. The Policy is also guided by the National Climate Change Act 2016 as well as the constitutional governance framework, while addressing the goal of attaining low carbon climate-resilient development. To achieve the latter, this Policy focuses on appropriate mechanisms to enhance climate resilience and adaptive capacity, and the transition to low carbon growth.

Enhancing Climate Resilience and Adaptive Capacity

Communities already have a long record of adaptation to climate variability. However, the impacts of climatic and other human-made stresses have been growing continuously at a rate that often exceeds human and ecosystem tolerance levels. Consequently, many traditional adaptive knowledge and livelihood strategies practised in drylands for centuries no longer sufficient or are inefficient. Efforts to reduce the vulnerability of drylands populations, therefore, must reinforce their risk management and coping capacities by augmenting existing adaptation mechanisms and supplementing them with new options that are tailored to the unique local contexts.

Building climate resilience requires that the County systems of governance, ecosystems and society can maintain competent function in the face of climate change. This would aid a return to some normal range of function even when faced with adverse impacts of climate change. Adaptive capacity is key to improving socioeconomic characteristics of communities, households and industry as it includes adjustments in behaviour, resources and technologies, and is a necessary condition for design and implementation of effective adaptation strategies. There is mutual reliance in that the national adaptive capacity depends on the resilience of its systems.

Mitigation outcome

Kenya seeks to undertake an ambitious mitigation contribution towards the 2015 Paris Agreement to achieve a low carbon, climate-resilient development pathway. Kenya, therefore, seeks to abate its GHG emissions by 30% by 2030 relative to the BAU

scenario of 143 MtCO₂eq; and in line with its sustainable development agenda. While Kenya currently makes little contribution to global greenhouse gas (GHG) emissions, a significant number of priority development initiatives outlined in Vision 2030 and its Medium Term Plans will impact on Kenya's levels of GHG emissions. Turkana County is obliged to play its role in adopting a low carbon development pathway.

To attain low carbon growth, the County will take steps outlined in this Policy by implementing regulatory mechanisms that mainstream low carbon growth options into the planning processes and functions of the county government. Areas targeted include: Managing drylands for carbon sequestration; Improve urban planning and waste management; Improve transport to increase efficiency; Develop clean energy technologies to reduce the use of fossil fuel; and Greening the extractive industry in Turkana County.

Mainstreaming Climate Change into the Planning Process

Climate change mainstreaming is necessary to equip various coordinating and sectoral agencies of the county governments with the tools to respond to the complex challenges of climate change effectively. In this context, mainstreaming implies the integration of climate change policy responses and actions into County, and sectoral planning and management processes. This requires explicitly linking climate change actions to core planning processes through cross-sectoral policy integration. This integration operates horizontally by providing an overarching county guidance system, such as through this Policy and County climate change legislation; and vertically by requiring all sectors and levels of county government to implement climate change responses in their core functions. This is done, for instance, through clear policy implementation mechanisms provided for in the Policy, County Climate Change Act and County Climate Change Financial Management Regulation.

Enabling Regulatory Framework

The County requires appropriately designed legislative, Policy and institutional frameworks that provide a regulatory architecture comprising the vital components of climate change governance. It is imperative to ensure compliance with the constitutional framework of public administration, especially the devolved system of government. Various sectoral laws and policies such as County Climate Change Act and County Climate Change Financial Management Regulation will be developed to provide

the legislative basis for specific actions to enhance the county capability to tackle climate change challenges and exploit emerging opportunities. This complex undertaking forms a foundation for the attainment of low carbon climate-resilient development, and sets the basis for climate change mainstreaming. It, therefore, requires the county government to undertake various core interventions, including the enactment of overarching climate change legislation to provide the framework for coordinated implementation of climate change responses and action plans. It is also necessary to have an institutional coordination mechanism with high-level convening power to enhance the inter-sectoral response to climate change, and a technical, institutional framework to guide Policy and functional implementation of climate change legal obligations of the national and County governments.

The eventual climate change regulatory framework must observe the requirements for gender equality mandated by the 2010 Constitution. The adoption of a gender mainstreaming approach involves assessing the implications for women and men of any planned climate change action, including legislation, policies or programmes, in any area and at all government levels to achieve gender equality. It is also essential that the Policy and law account for the youth when planning and executing climate change responses because the youth represent a crossover between the present and future generations, and play a critical role in socioeconomic development.

ABBREVIATIONS

AECB Ltd	Asben Eco-Consultants and Capacity Building Limited
AF	Adaptation Fund
ASAL	Arid and semi-arid lands
BCM	Billion cubic metres
CADP	County Annual Development Plan
CBDR&RC	Common but Differentiated Responsibilities and Respective Capabilities
CECM	County Executive Committee Member
CIDP	County Integrated Development Plan
CIS	Climate Information Services
CoG	Council of Governors
COP	Conference of parties
CSA	Climate-smart agriculture
DFID	Department for International Development
EbA	ecosystem-based adaptation
FCPF	Forest Carbon Partnership Facility
GBV	Gender-based violence
GCF	Green Climate Fund
GEF	Global Environmental Facility
GHG	greenhouse gas
ICT	Information Communication Technology
IDRC	International Development Research Centre
IPCC	Intergovernmental Panel on Climate Change
KALRO	Kenya Agricultural and Livestock Research Organizations
KBM	Knowledge Base Management
KCSAS	Kenya Climate-Smart Agriculture Strategy 2017-2026
KEFRI	Kenya Forestry Research Institute
KMD	Kenya Meteorology Department
LAAS	Lodwar Alluvial Aquifer System
LPG	Liquefied petroleum gas
LULUCF	Land Use, Land-Use Change and Forestry
MCM	Million cubic metres
M&E	Monitoring and Evaluation
NDC	Nationally Determined Contribution

NDMA	National Drought Management Authority
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organisations
NTFP	Non-timber forest products
PBS	Poverty Benefit Scheme
PCCB	Paris Committee on Capacity Building
PSP	Participatory Scenario Planning
SACCOs	Savings and Credit Co-Operatives
SDGs	Sustainable Development Goals
UKAID	UK Department for International Development
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
WHO	World Health Organization

1. INTRODUCTION

Human-induced warming reached approximately 1°C (between 0.8°C and 1.2°C) above pre-industrial levels in 2017, increasing at 0.2°C (likely between 0.1°C and 0.3°C) per decade (IPCC, 2018).

1.1 Background

- 1.1.1 Climate change has become one of the greatest threats to our planet and modern civilisation. So far, 1°C of global warming has been surpassed, and hundreds of millions of people, especially the poor and vulnerable in the Global South, are confronted with severe consequences. T
- 1.1.2 The World Bank estimates that climate-related extreme weather events are pushing more than twenty million people back into poverty every year¹. Furthermore, extreme weather events such as hurricanes, floods and droughts are causing annual economic losses of more than USD 300 billion, not counting the indirect losses like drops in consumption, which have been estimated to another USD 220 billion.
- 1.1.3 Bringing climate change to a halt has become a prerequisite to protect poor people, future generations, and creation itself from tremendous suffering. It has also become a prerequisite to achieving the Sustainable Development Goals (SDGs). Apart from mitigating greenhouse gas emissions, strengthening climate resilience through effective disaster risk reduction and adaptation to the changing climate are essential for success. Without immediate and deep emission reductions, the aspirational 1.5°C temperature goal will soon be out of reach, and the 2°C limit would likely be surpassed soon after.
- 1.1.4 The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) presents strong evidence that surface temperatures across Africa have

¹ World Bank (2017): Sovereign Climate and Disaster Risk Pooling. World Bank Technical Contribution to the G20. Washington

increased by 0.5-2°C over the past 100 years, and from 1950 onwards climate change has changed the magnitude and frequency of extreme weather events.

1.1.5 Africa is one of the most vulnerable continents to the impacts of climate change. From the local level to the global, climate change has, therefore, become an economic, political, social, and environmental challenge, and Africa is especially vulnerable to its adverse effects. This is because most of the continent's economies depend on climate-sensitive natural resources and have very low levels of adaptive capacity and extreme levels of poverty. The health, livelihoods and food security of people in Africa have been affected by climate change.

1.1.6 Kenya's climate is already changing. Average annual temperatures increased by 1°C between 1960 and 2003, with most warming taking place in the 'long rains' season of March, April and May, which is also the primary planting season. The effects of climate change and related disasters have the potential to adversely impact the majority of Kenyans given that about 75% of the population depends directly on land and natural resources for their livelihoods.

1.1.7 In Kenya, climate change has increased the frequency and magnitude of extreme weather events that have led to loss of lives, diminished livelihoods, reduced crop and livestock production, and damaged infrastructure, among other adverse impacts. 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 the Government's Big Four agenda for 2018-2022, which focuses on ensuring food, and nutrition security, affordable and decent housing, increased manufacturing and affordable healthcare.

1.1.8 Among the most vulnerable regions in Kenya are the arid and semi-arid lands (ASALs) or simply referred to as the drylands. Inhabitants of drylands have learnt, over millennia, to cope with permanent water scarcity, variable inter- and intra-seasonal rainfall and the recurrent risks of weather-related shocks. However, as a result of high poverty rates, changing socioeconomic and political circumstances and demographic growth, traditional coping strategies are increasingly becoming insufficient. Further, the increased frequency of extreme events is not allowing them time to recuperate after such shocks. For example,

extreme drought events in Turkana are increasingly frequent, and have impacted negatively on pastoral livelihoods.

1.1.9 Unsustainable land management practices, including over-grazing, illegal and excessive fuelwood collection and poor resource governance, among others, have become prevalent, often due to institutional or tenurial barriers. As a result, increasing the already fragile dryland ecosystems have been further degraded. This has been compounded by poorly conceived policies and ineffective governance.

1.2 Turkana County

1.2.1 Location

Turkana County covers a land area of 77,000 km², accounting for 13.5% of the total land area in Kenya (Turkana County Investment Plan, 2016-2020). It lies between Longitudes 34° 30'E and 36° 40'E and between Latitudes 10° 30'N and 50° 30'N. Turkana is located in the northwest of Kenya and borders Uganda to the west, South Sudan and Ethiopia to the north and northeast, respectively. Internally, it borders West Pokot and Baringo counties to the south, Samburu County to the southeast, and Marsabit County to the east.

1.2.2 Demographics

Turkana County is home to 926,976 people (according to the 2019 National Census), which consists of 478,087 male, 448,868 female and 21 inter-sex. The County has 164,519 households with an average household size being 5.6 and an average population density of 14 persons per Sq. Km. Rapid population growth has resulted in Turkana County having an extremely youthful population. The current census (2019) shows that more than half the County's population is below the age of 19. This youth-dominated population profile indicates the need for urgent investments in education, nutrition, water and health. Further, as a result of its geographic location, the population of Turkana County is affected by the periodic influx of refugees from the neighbouring countries. Population growth, the expansion of the youth population and the impact of recurrent droughts upon pastoralist communities, have resulted in rapid levels of urbanisation in Turkana.

1.2.3 Climatic Conditions

Turkana County is an arid and semi-arid county characterised by warm and hot climate. The temperatures range between 20°C and 41°C with a mean of 30.5°C while the rainfall pattern and distribution is erratic and unreliable. There are two rainfall seasons. The long rains (*akiporo*) usually occur between April and July and the short rains between October and November and ranges between 52 mm and 480 mm annually with a mean of 200 mm. The driest periods (*akamu*) are January, February and September. The rainfall is distributed on an east-west gradient with more rain in the western parts and other areas of higher elevation. The precipitations are brief and come with violent storms resulting in flash floods. The surface runoff and potential evaporation rates are incredibly high.

1.2.4 Topography

The extensive Eastern African Rift System traverses Turkana County. The topography of Turkana varies between semi-arid and arid landscapes consisting of low-lying plains and isolated hills and mountain ranges. The altitude extends from 369 m ASL at Lake Turkana to the highest point at around 900 m ASL near the Ugandan border in the west. The main mountain ranges of the County are Loima, Lorengippi, Mogila, Songot, Kalapata, Loru, Kailongol and Silale mountains. Because of their high elevation, the mountain ranges are generally green, covered with dense bushes and woody vegetation. The mountain ranges support critical economic activities such as honey production, dry season grazing, wood production, and charcoal production.

1.2.5 Water Resources

The primary sources of water in rural parts of Turkana County are unprotected dug wells, streams, and boreholes. More than half (61%) of rural households in the County use unimproved water sources with the majority relying on unprotected wells and streams. Full water resources potential for the County is not yet established as no proper monitoring installations exist in permanent rivers. Access to water significantly affects food security due to its impact on the key sectors such as livestock production, crop production, sanitation, health and nutrition, and therefore hampering human productivity.

1.2.6 vegetation

1.2.6.1 The vegetation is widely varied and ranges from patchy annual grassland and herbaceous plants interspersed with woody shrubs to riverine woody tree species, although most parts of the County have dwarf shrubs and bush species. Vegetation type is classified into three eco-climatic zones, which are influenced by climate, topography and soil.

1.2.6.1 Eco-climatic zone VI is the very arid parts of Turkana County found in the low plains of Turkana Central, Turkana East and Turkana South Sub-counties. These are rangelands characterised by dwarf grassland or shrub grassland with *Acacia reficiens* often confined to watercourses and depressions with barren land in between.

1.2.6.2 Eco-climatic zone V is the arid environment. These are typical rangelands dominated by *Commiphora* and *Acacia* woodlands. The zone is found in Turkana west Turkana North and Kibish Sub-counties.

1.2.6.3 Eco-climatic zone IV is the semi-arid land. This is the semi-evergreen brushland mainly savannah woodlands characterised by *Acacia-Themeda –Brachystegia* woodlands.

1.2.6.4 The tree cover in Turkana County is estimated at 4.06%. There exist forests in high altitude ranges or mountains (montane forests) and along river courses (riverine forests). Forests known to exist are found on Loima hills, Mogila hills, Songot hills, Pelekech Hills, Lorionotum, and Lokwanamur. Doum palm (*Hyphaene thebaica* L.) tree is one of the most economically important tree species for its use in basketry industry employing hundreds of people in the County.

1.2.6.5 The exotic invasive *Prosopis juliflora* has increasingly become an important coloniser, especially on riverine floodplains, along roadsides, and near human settlements. The increasing colonisation of the grazing lands by *P. juliflora* if not well managed is likely to constitute an ecological and socioeconomic threat.

1.2.6.6 Another important vegetation type in Turkana is the riverine forest. Riverine forests in arid and semi-arid areas support a rich diversity of flora and fauna. They also provide humans with a wide array of non-timber forest products (NTFP), such as firewood, construction materials, edible fruits, and medicines. In particular,

pastoralists depend on riverine forests during the dry season, when the adjacent rangelands cannot supply their livestock with sufficient pastures.

1.3 Rationale of the Policy

One of the outstanding achievements within the National Climate Change Action Plan 2013-2017 period was the enactment of the Climate Change Act in May 2016. This law provides a regulatory framework for an enhanced response to climate change, and promotes a mainstreaming approach to enhance action toward a low carbon climate-resilient development pathway.

Part III, section 19 of the Act provides for mainstreaming climate change actions into County Government functions and states as follows:

1.3.1 A county government shall, in performance of its functions, integrate and mainstream climate change actions, interventions and duties set out in this Act, and the National Climate Change Action Plan into various sectors;

1.3.2 A county government shall, in the developing, updating and approval of the County Integrated Development Plan, and the County Sectoral Plans mainstream the implementation of the National Climate Change Action Plan, taking into account national and County priorities;

1.3.3 The Governor of a county shall designate a County Executive Committee Member to coordinate climate change affairs;

1.3.4 Subject to the Act and the Constitution, a county government may enact legislation that further defines the implementation of its obligations under this Act, or other climate change functions relevant to the County or such other related purposes; and,

1.3.5 A county government shall at the end of every financial year, through the designated County Executive Committee Member, submit a report on the progress of implementation of climate change actions to the County Assembly for review and debate, and a copy of this report shall be forwarded to the Climate Change Directorate for information purposes.

1.3.6 Further, the National Climate Change Action Plan (NCCAP) 2018-2022 states that in delivering the Action Plan, County Governments are responsible for integrating

and mainstreaming climate change actions into their 2018-2022 County Integrated Development Plans. Besides, they must designate a County Executive Committee member to coordinate climate change affairs, and report annually to their County Assemblies on the implementation of climate change. County governments are expected to establish climate change units that will oversee the implementation of climate actions.

1.3.7 Based on the aforementioned provisions, this Policy has been developed to mainstream climate change actions into the Turkana County Government functions.

2. SITUATION ANALYSIS



2.1 Evidence of Climate Change in Turkana County

2.1.1 In Kenya, the arid or semi-arid lands (ASALs) occupy 89% of the country and are home to about 14 million people and approximately 70% of the national livestock herd and 90% of the country's wildlife population. Twenty-three of Kenya's 47 Counties are considered as ASALs.

2.1.2 Turkana County is frequently affected by weather-related disasters, particularly droughts, which have a profound impact on Turkana County economy and people's well-being. Over the past several decades, Kenyan government data show a clear trend in increasing average temperatures in Turkana county.

2.1.3 Since 1960, Kenya has experienced a general warming trend, reported as being about 1°C, or 0.21°C per decade. This temperature increase has been observed across all seasons, but mainly from March to May.

2.1.4 While global mean temperatures are estimated to have increased by 0.8°C (1.5°F) in the past century, in Turkana County Since 1967 air temperatures have increased by 2-3°C while rainfall has declined and become variable. Climate change in Turkana has been manifest by increased climate-related hazard. The main risks, which cause disasters in the County, are the following:

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- **Drought:** The occurrence of drought is more frequent in the arid (lower rainfall) areas than in the semi-arid zones. Turkana County is particularly vulnerable to droughts, mainly because of its geographical location and climate. According to recent reports, the region experiences drought episodes in every 3-5 years with received rainfall ranging between 200 - 500 mm annually. The worst-hit areas in the region include Lochor - Aikeny, Naorus, Kalotum, Kapua locations within Kalokol Division and Lochor - Ekuyen, Lorugum, Urum, Namoruputh, Turkwel, Lobei within Loima and Turkwel divisions.
 - **Flood:** Extreme rainfall and massive flooding, often amplified by climate change, causes devastation among communities in Turkana County. There are two types of floods in Turkana County that can be characterised in relation to meteorological processes: river floods and flash floods. Frequent river floods are experienced at River Kawalase and River Kachoda, which notoriously burst their banks during the rainy seasons, other river systems that experience floods include Turkwel and Kerio.

2.2 Impacts of Climate Change in Turkana County

2.2.1 Turkana County is part of the ASALs of Kenya, which comprise 83 per cent of Kenya's landmass. It has a fragile ecosystems and experience low investment in public goods and services, which increases the county's vulnerability to climate change.

2.2.2 The impacts of climate change cut across diverse aspects of society, the economy and the environment. The adverse impacts of climate change experienced in the County include:

- a. **Environment, Water and Forestry:** Natural ecosystems have been adversely affected by climate change, including through variations of temperature and precipitation. The decline in environmental quality brings social and economic hardship to the people who depend on these ecosystems, and increases contestation and the likelihood of conflict over diminishing natural resources. It also creates a window for invasive species, new pests and diseases. Turkana County is continuously experiencing threat from land degradation and desertification caused by climatic variations and human impacts such as overgrazing of livestock, smallholder farming on poor soils, and the creation of

small cities or towns. Impacts include loss of biodiversity, threats to animal and plant species, change in vegetation composition and structure, decrease in forest coverage, rapid deterioration of land cover, and depletion of water quality and quantity through the destruction of catchments and underground aquifers. There is increased scarcity of water resources which is becoming a core concern, making resource management more difficult and increasing the likelihood of conflict. Water scarcity will affect livestock production and agricultural systems.

- b. **Agriculture, Livestock and Fisheries:** The livestock, agriculture, livestock and fisheries are the key economic sectors in the County. These sectors are most vulnerable to climate change. Pastoralism is the primary livelihood strategy in Turkana, and 60 per cent of the population depends on it for their welfare. Turkana people derive food (milk, meat and blood) and money exclusively from livestock slaughter or sales. Livestock management systems rely extensively on natural systems such as rain fed pasture. These livestock systems are very climate sensitive, being vulnerable to the impacts of changing and irregular rainfall patterns and droughts. Greater drought frequency in the ASALs increases livestock morbidity and mortality because of reduced availability of forage, increased disease incidences and a breakdown of marketing infrastructure.
- c. **Physical Infrastructure:** An improved and expanded physical infrastructure is an important and necessary enabler of socio-economic development. Climate associated disasters, particularly flash floods cause destruction of road and communication networks. Such disasters are becoming more frequent in the County.
- d. **Health:** Human health has been affected adversely by climate change impacts in Turkana County. The county has a high degree of risk from climate-sensitive infectious diseases such as food or waterborne diseases like diarrhoea, hepatitis A, and typhoid fever. Vector-borne diseases such as malaria, dengue fever, and Rift Valley Fever are also common. High temperatures and intense rainfall, which are some of the effects of climate change, are known to be critical factors in initiating malaria epidemics in the County.
- e. **Food security:** With nearly half of the County's population chronically food insecure, disasters threaten food security through disruption of cropping, livestock production and marketing activities.

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- f. **Conflicts:** In recent decades, episodes of drought-induced food shortage associated with conflicts have resulted in massive casualties. The casualties include internal displacement of persons and refugees, posing dilemmas for the long-term development of the County. Further, conflicts related to 'complex' emergencies can create the need for massive and prolonged relief operations, and require heavy use of social and economic assets in mitigation, thus derailing the County's aspiration for sustainable economic and social development.

2.3 Status of Climate Change Governance in Turkana County

Climate change governance at the national level is well stipulated in the Climate Change Act 2016. In Turkana County, climate change is domiciled in the Ministry of Water Services, Environment and Mineral Resources under the directorate of the environment. There have been attempts to establish climate change committees at the village level under the name of Village Adaptation Committee or village Disaster Management Committees. These attempts are mainly spearheaded by donor projects but lack a legal framework for their operation and sustainability.

2.4 Summary of the National Emissions Profile

2.4.1 While there are currently no emission figures at the County level, Turkana case is part of the larger Kenyan case since all emissions are estimated at the national level.

2.4.2 Kenya's GHG emissions total 60.2 MtCO₂e, which is only 0.13 percent of the world's total (45,261 MtCO₂e). Kenya's GHG emissions, excluding land-use change and forestry (LUCF), increased by 24.07 MtCO₂e from 1990 to 2013. The average annual change in total emissions during this period was 2.5 per cent, with sector-specific average annual changes as follows: agriculture (2.6 per cent), energy (2.6 per cent),² industrial processes (6.3 per cent) and waste (2.6 per cent).

2.4.3 Kenya's Second National Communication (SNC) to the UNFCCC, which includes a GHG inventory for the period 1995-2010, shows LUCF to be a source of emissions, rather than a sink. The SNC shows that LUCF activities released an average of 17.2

² WRI CAIT 2.0, 2017. WRI draws on international data from the FAO for the LUCF sector and notes that its data is useful as reference only and may not coincide with LUCF emissions reported by countries to the UNFCCC (WRI. CAIT Country Greenhouse Gas Emissions: Sources and Methods, 2015).

MtCO₂e per year from 1990 to 2010, which it notes to be consistent with the observed loss of forest cover in Kenya over the same time.

2.5 Progress of Climate Change Adaptation in Turkana County

2.5.1 Several projects have been completed or are ongoing addressing vulnerability and coping strategies concerning climate change in Turkana County. Most of these projects are, however, donor-driven. Both the CIDP II and I have no dedicated budget lines on climate change. Yet, climate change-related activities are supported under the various sectoral budgets such as water, environment, agriculture, disaster management, among others.

2.5.2 Among the donor projects, the Department for International Development (DFID)/ International Development Research Centre (IDRC) funded Enhancing adaptation to climate change amount pastoralists in northern Kenya (2008- 2010) focused on developing an understanding of pastoralist vulnerability and coping strategies in Turkana and Mandera districts. The project examined indigenous coping strategy, best practices and institutional arrangements for adapting to climate change (www.idrc.org/ccaa).

2.5.3 Practical Action implemented Promoting Resilient Pastoralist Livelihoods Project in Turkana County, Kenya for 3 years from April 2016 to April 2019. The project's overarching goal was to contribute to the enhancement of climate change resilience for pastoralists' livelihoods, hence making them better adapted to the consequences of climate change and better prepared to respond to drought to prevent recurrent drought-related humanitarian situations.

2.5.4 National Drought Management Authority (NDMA) in partnership with DAI has been implementing Hunger Safety Net Programme (HSNP) since 2009 in four counties: Marsabit, Mandera, Turkana, and Wajir. In the first phase that ended in 2012, 69,000 households in the four counties were reached with a cash transfer payment every two months.

2.5.5 Trócaire Kenya is implementing a 2-year project with funding (from November 2018 – September 2020) from the UK Department for International Development (UKAID) through the Department for International Development (DfID) a project titled: *Promoting Ecosystem-based Adaptation Approaches to Climate Change and*

Governance in Turkana County, in partnership with Caritas Lodwar and close collaboration with the county department of water services Environment and mineral resources. The project focus areas are seven communities in Turkana South (Katilu, Lokapel, Lomokamar, Lochwa) and Turkana East (Lopii, Morulem and Katilia). The core objective of the project is to address the food and livelihoods insecurity experienced by pastoralist communities in Turkana, through Climate Change Governance that is inclusive, participatory and pro-poor.

2.5.6 FAO Kenya through funding from the European Union (EU) is implementing a Land Governance Programme (2016-2021) aimed at improving food security through equitable and secure access and management of land for better livelihoods and socioeconomic development. Climate change is one of the significant factors compounding pressure on land and natural resources, particularly water, pastures and forests and negatively affecting community land governance. The Programme strives to get more information to understand the current trends and mobility dynamics of pastoralist communities affected by persistent droughts. Consultations on the mapped transhumance routes at the county level are ongoing to underscore the coping strategies of communities (and other users) to get a clearer picture of the status of land degradation.

2.6. Strengths, Weakness, Opportunities and Threats (SWOT) Analysis

A SWOT analysis was conducted to bring out the current situation of the County in as far as climate change is concerned (Table 1).

Table 1: SWOT Analysis

STRENGTHS (+)		WEAKNESSES (-)	
1	Enactment of Community Land Act in 2016.	1	Low community awareness on environmental issues
2	Strong stakeholders/Partners	2	Inadequate inter-sectorial coordination of climate change issues in the County
3	Existence of rich aquifers	3	Inadequate mainstreaming of climate change in development planning
4	Installation of early warning systems by the National Drought Management Authority (NDMA)	4	The Community Land Act 2016 is yet to be operationalised

5	Availability of natural resources
6	Several policies supportive of climate change already in place
7	Climate change domiciled in the Directorate of Environment.
8	Presence of traditional systems and natural resource management such as <i>ekwar</i> and traditional weather forecasting
9	Existence of climate change desk under the County Director of Environment as well as climate change advisor in the office of the governor.
10	Well trained disaster management and environmental safeguard officers
11	Political goodwill and legislative assembly willing to consider and adopt policies

5	Low capacity to manage climate change-related disasters
6	Low community awareness on disaster management
7	Weak human and animal disease surveillance systems
8	Low investment in climate change by private sector
9	Expansive landmass
10	Lack of water security
11	Limited technical capacity at both county and community levels

OPPORTUNITIES (+)

1	Establishment of community disaster committees
2	Presence of CBOs, FBOs and NGOs addressing vulnerability and climate resilience in the County
3	Introduction of poverty and healthcare-related programmes
4	Willing partners to support the policy development process.
5	Responsive community
6	Increased national and international interest that can serve as avenues for financial and technical support
7	Political goodwill in the county leadership

THREATS (-)

1	Persistent high poverty levels
2	Increase in population
3	Insecurity
4	Loss of community assets due to disasters
5	Loss of skilled human resources
6	Prone to climate hazards such as drought and flood
7	Cyclic Calamities/Natural disasters

8	There are partners ready to support the implementation of climate change policies.
9	

8	Emerging shocks such as locusts and Covid-19
9	Increased national and international interest which if not planned for may lead to their agendas taking the forefront as opposed to the County and community agenda

3. POLICY AND INSTITUTIONAL FRAMEWORK

Climate change is a global problem that demands a comprehensive solution, and Kenya is an active player in international efforts. The international response to climate change is founded upon the United Nations Framework Convention on Climate Change (UNFCCC). The Paris Agreement under the UNFCCC aims to strengthen the global response to the threat of climate change by keeping global temperature rise this century well below 2°C above pre-industrial levels. The Paris Agreement entered into force for Kenya on January 27 2017, and as set out in Article 2(6) of the Constitution of Kenya (2010), now forms part of the law of Kenya.

At the domestic level, a robust regulatory framework comprising laws, policies, plans and institutions are being progressively established at the National and County levels to address climate change. The foundation of the institutional and 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.

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 NCCAP. Besides, Kenya has developed the National Climate Change Response Strategy (2010), first NCCAP (2013-2017), National Adaptation Plan (NAP 2015- 2030), Kenya Climate-Smart Agriculture Strategy (2017-2026), Climate Risk

Management Framework (2017), National Climate Change Policy (2018) and National Climate Finance Policy (2018), among other sector plans and policies that address aspects of climate change.

NCCAP 2018-2022 aims to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate-resilient development in a manner that prioritises adaptation. This plan builds on the first Action Plan (2013-2017) and provides a framework for Kenya to deliver on its Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC). NCCAP 2018-2022 guides the climate actions of the National and County Governments, the private sector, civil society and other actors as Kenya transitions to a low carbon climate-resilient development pathway.

At the County level, the County still lacks policies in critical sectors. However, several policies play an essential role in supporting climate change adaptation and mitigation actions. These include Turkana County Water, Sanitation Services Sector Strategic Plan 2017-2021; The Turkana County Water and Sewerage Services Sector Policy, 2016; Turkana County Disaster Risk Management Policy, 2017; Turkana County Climate Change Action Plan 2019-2022, Turkana County Integrated Development Plan (CIDP) II, 2018-2022 and County Annual Development Plan (CADP) 2019/2020, Sector Plans and County Coordination Development Policy.

4. STRATEGIC GOALS AND OBJECTIVES OF CLIMATE CHANGE POLICY

4.1 Policy Goal

The goal of this policy is enhanced resilience of communities and natural systems to steer Turkana County towards a low carbon pathway for sustainable development. The goal thus builds on the mission of the County, which is to *facilitate socioeconomic transformation of Turkana through sustainable use of resources to ensure a high quality of life for the people of Turkana County.*

4.2 Policy Objectives

The objectives of this policy are to:

- (i) Improve the enabling environment for efficient implementation of climate change actions in Turkana County;
- (ii) Strengthen the climate resilience of communities in Turkana through enhancing their adaptive capacity and ensure sustainable livelihoods;
- (iii) Catalyse Turkana County's transition towards a low carbon development pathway;
- (iv) Facilitate effective mobilisation and utilisation of financial resources in implementing climate change mitigation and adaptation strategies; and,
- (v) Enhance the awareness, skills and institutional capacity of relevant stakeholders in implementing climate change adaptation and mitigation measures.

4.3 Guiding Principles

The following values and principles shall guide the application and interpretation of this policy and the making or implementation by the county government of any policy on climate change:

- (i) Community driven and bottom-up planning of response to climate change;
- (ii) Commitment to informed participation of communities in the planning and implementation of climate change response interventions;
- (iii) Recognition, respect and integration of knowledge, perspectives and experiences of communities in climate change response;
- (iv) Planning and implementation of climate change response to be anchored in and supportive of devolution;
- (v) Flexible learning approach to addressing challenges of climate change;
- (vi) Investments focused on achieving equitable benefits;
- (vii) Inclusion of all major actors in the planning and implementation of climate change response;
- (viii) Protection of the climate system for the benefit of present and future generations;
- (ix) Ensuring a just transition for all towards an environmentally sustainable economy and society in the light of county circumstances and developmental goals;
- (x) National values and principles of governance spelt out in Article 10 of the Constitution;

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- (xi) Values and principles of public service spelt out in Article 232 of the Constitution;
 - (xii) Promotion and protection of the right to a clean and healthy environment in accordance with Article 42 of the Constitution; and,
 - (xiii) Commitment to the fulfilment of the state obligations in respect of the environment as stipulated under Article 69 of the Constitution.

5. THE OPTIONS: STRATEGIC INTERVENTION AREAS

5.1 Enabling Environment for Efficient Implementation of Climate Change Actions

Lack of the necessary foundations for development in arid lands, particularly infrastructure, human capital, and security, is deterring investment, undermining productive potential, draining resources into prolonged emergency response, and frustrating local-level initiatives. To improve the enabling environment for efficient implementation of climate change actions, the Turkana County Government will:

5.1.1 Policy framework

Weak policies, legislation, enforcement, and overlap of mandates among institutions involved in climate change adaptation implementation coupled with poor coordination and collaboration among institutions and stakeholders in climate change have contributed to the County's inability to address vulnerability and GHG emissions effectively. Further, cross-cutting issues such as inadequate financing of climate change activities; limited capacity of Women, Youth, and Vulnerable Groups (WY&VG) to participate in such activities; unsustainable natural resource management (NRM) and utilisation; and, limited human resource capacity to undertake climate change actions have also led to poor implementation of climate change activities.

Policy statements

- (i) *Develop overarching policy and legal instruments for effective implementation and coordination of climate change actions in the County. The instruments shall be guided by science and meet the constitutional requirement of full public participation and inclusivity while ensuring buy-in by stakeholders at all levels;*

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- (ii) Establish the institutional framework and build capacity to coordinate and enhance mainstreaming at the sector level; and,*
 - (iii) Strengthen institutional capacity at all levels, particularly within county-level planning and coordination structures to address the significant capacity challenges likely to face a multi-sectorial approach in addressing climate change.*

5.1.2 Infrastructure

Infrastructure specifically designed to reduce vulnerability to climate variability (e.g., flood control structures and decentralised energy systems), transport and general public health infrastructure (e.g., sanitation facilities, wastewater treatment systems, laboratory buildings) enhance adaptive capacity. However, infrastructure (mainly if immovable) can be adversely affected by climate, especially extreme events such as floods.

Transport infrastructure and operations are severely affected by climate impacts. For example, broken bridges and overtopped roads in Turkana County often result in total closure of roads during the rainy seasons, thus cutting access to markets, schools and health facilities. Poor transportation and communication infrastructure in Turkana restrict trade and income generation opportunities. Transport is, therefore, a critical factor in enhancing adaptive capacity.

Policy statements

To strengthen infrastructure to meet the needs of the County economy and population, the County Government will:

- (i) Adopt better standards in road construction that consider expected and unexpected climate hazards;*
- (ii) Invest in flood risk management and riverbank protection measures;*
- (iii) Invest in road network for building the Country's resilience;*
- (iv) Strengthen the resilience of the energy sector and harness renewable energy;*
- (v) Climate proof water reticulation system to protect against climate hazards;*
- (vi) Invest in health infrastructure to enhance resilience; and,*
- (vii) Improve access to technology and the use of ICT.*

5.1.3 Security and the rule of law

Conflicts involving pastoralist groups are widely experienced in the County. Frequent spells of drought force the pastoralists to migrate regularly in search of water and pasture across the region, sometimes even across the national borders, thus often leading to wars and conflicts over the scarce resources. Though most of the conflicts are local in nature, inter-ethnic conflicts arising from persistent droughts, food scarcity and changes in lifestyles are evident amongst the different nomadic groups.

Such conflicts seriously undermine the adaptive capacity of the communities since they result in loss of community assets and even life. Further conflicts affect the communities disproportionately with children, women and older people being the most vulnerable.

Policy statements

To enhance security and the rule of law in the County, the County Government will:

- (i) Put in place comprehensive measures to end livestock raiding and inter-communal violence, including incentives for individuals, communities or institutions, which deliver positive results for peace;*
- (ii) Put in place a holistic strategy involving short- and long-term goals, and in partnership with other stakeholders is required. A peace ambassador and a County Policing Authority may assist in a more tailored approach to security management;*
- (iii) Strengthen traditional systems of governance and alternative dispute resolution mechanisms;*
- (iv) Ensure that all interventions in the region are planned and conducted in a manner that is sensitive to local values and priorities;*
- (v) Develop a mechanism with neighbouring countries, which ensures effective management of peace and security; and,*
- (vi) Peacebuilding on the cross-border areas shall continue, with support for the organisation of meetings to break down suspicion. At the local level, local leadership shall be brought together across international borders (notably the South Sudan-Kenya border).*

5.1.4 Human capital

The vast disparity in human capital between the ASAL counties and the rest of Kenya is so acute that significant investment will be necessary if the County is to compete on an equal basis with the rest of the Country.

Policy statements

To improve human capital, the County will:

- (i) Develop and enhance appropriate infrastructure for education, training and health care at all levels, including tertiary and higher education;*
- (ii) Introduce flexible and high-quality healthcare systems, which are responsive to the needs of the area;*
- (iii) Increase the number of appropriately trained education, health and nutrition professionals and develop mechanisms to attract and retain high-calibre officers;*
- (iv) Address issues that disproportionately affect the education, health and nutritional status of girls and women; and,*
- (v) Invest in education infrastructure that is more suited to the pastoral system and the natural environment.*

5.2 Strengthen the climate resilience of communities in Turkana through enhancing their adaptive capacity and sustainable livelihoods

Communities already have a long record of adaptation to climate variability. However, the impacts of climatic and other human-made stresses have been growing continuously at a rate that often exceeds human and ecosystem tolerance levels. Consequently, many traditional adaptive knowledge and livelihood strategies practised in drylands for centuries no longer sufficient or are inefficient. Efforts to reduce the vulnerability of drylands population, therefore, must reinforce their risk management and coping capacities by augmenting existing adaptation mechanisms and supplementing them with new options that are tailored to the unique local contexts.

5.2.1 Promote diversification of livelihood options

Livelihoods in Turkana are primarily based on extensive livestock production and natural resources, and most cash earnings come from sales of livestock or livestock products. Indeed, approximately 70% of the human populations inhabiting the area are

nomadic or semi-nomadic pastoralists. However, the impact of drought, increasing insecurity, and famine has led to a growing emergence of sedentary Turkana and experimentation with alternative livelihoods.

Policy statements

To promote diversification of livelihood options, the Turkana County Government shall:

- (i) Promote development of selected drylands product value chains such as aloe, handicrafts, gum arabic, indigenous fruits, forage trees, ecotourism, honey, livestock, and livestock products;*
- (ii) Promote the adoption of appropriate technology and acquisition of equipment to facilitate the production of improved quality of products;*
- (iii) Provide an environment for women to be productively engaged in income-generating activities;*
- (iv) Support development of business skills for entrepreneurship, marketing and enterprise management;*
- (v) Develop a market system for local products and promote "buy Turkana-build Turkana" marketing strategy;*
- (vi) Support access to micro-credit funding by SMEs, local entrepreneurs and startups; and,*
- (vii) Build capacities of communities for entrepreneurship and economic activities.*

5.2.2 Socioeconomic resilience and inclusivity

For vulnerable and low-resilience populations, it is critical to provide the tools and support they need to manage and recover from the natural shocks that cannot be avoided.

Policy statements

To build socioeconomic resilience to cater for the vulnerable and keep economic growth inclusive, the Turkana County Government shall:

- (i) Improve early warning effectiveness and preparedness to save lives and protect assets;*
- (ii) Invest in social protection such as a poverty benefit schemes and insurance-based solutions to make the population better able to cope with shocks;*

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- (iii) Improve the county health care system; and,*
 - (iv) Ensure equity and provide targeted gender interventions and specific measures to protect vulnerable populations in all sectors.*

5.2.3 Mainstream gender and support vulnerable groups sand youth

Climate change is likely to affect poor and underprivileged regions, communities and people disproportionately as they are more vulnerable and have the least resources to adapt. In Turkana County, the marginalised groups like women, people with disabilities (PWDs), children, youth and the aged who are likely to be strongly affected by climate. Climate change is expected to increase the workload of women engaged in agriculture production and other subsistence activities such as collecting fuelwood and water. Further, marginalised groups are found to be more vulnerable during extreme climate events and disasters. It is indispensable to ensure the participation of male and female gender in all policies, initiatives and decisions relating to climate change.

Policy Statements

To address the gender aspects of vulnerability to climate change, the County Government shall:

- (i) Enhance access to the youth and women enterprise funds;*
- (ii) Design special poverty programmes targeting the vulnerable segments of the communities such as children, women, youth and people living with disabilities;*
- (iii) Facilitate access to social protection and insurance mechanisms against main climate hazards;*
- (iv) Establish affordable and accessible credit lines for the urban and rural poor, youth and other vulnerable groups;*
- (v) Reduce the vulnerability of women to climate change impacts, particularly in relation to their critical roles in rural areas in provisioning of water, food and energy;*
- (vi) Develop and implement climate change vulnerability-reduction measures that focus women's needs mainly;*
- (vii) Incorporate women's appropriate role in the decision making process on climate change mitigation and adaptation initiatives;*

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- (viii) Ensure that women are well represented in land and natural resource governance and decision making; and,*
 - (ix) Develop climate change adaptation measures on local and indigenous knowledge, mainly held by women.*

5.2.4 Climate-smart agriculture and agroecology to drive food security

If farmers are enabled to adapt to weather threats, and climate extremes in the short and medium-term, future generations will be better placed to adapt to climate change, whatever specific form it takes. Measures that improve productivity while also building resilience to future climate change, i.e. “no-regret” measures—will be promoted.

The Kenya Climate-Smart Agriculture Implementation Framework 2018-2027 (KCSAIF) has been developed to provide a guide to various innovative and transformative initiatives and best practices that will strive to address challenges brought about by climate change. It is envisioned to ensure increased agricultural productivity and sustainably build resilience of the national agricultural systems. It also aims at providing various options for implementation of the Kenya Climate-Smart Agriculture Strategy 2017-2026 (KCSAS).

Policy statements

To promote smart climate agriculture, the Turkana County Government shall:

- (i) Promote adoption of climate-resilient crop varieties by supporting research and investment;*
- (ii) Implement an agriculture risk management framework including agricultural insurance to manage the financial cost of disasters to the farmers and the government for sustainability in agriculture;*
- (iii) Invest in modern irrigation technologies supported by the use of renewable energy;*
- (iv) Build the capacity of farmers to promote sustainable soil management;*
- (v) Invest in integrated pest management;*
- (vi) Promote water harvesting to ensure better utilisation of rainwater for increased crop productivity;*
- (vii) Promote agroforestry practices;*
- (viii) Facilitate tenure security to support investment in agriculture;*

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- (ix) Strengthen research and extension systems relevant to rain-fed crop production; including soil and water conservation, organic farming and agroforestry;*
 - (x) Promote improved practices in postharvest storage and management;*
 - (xi) Strengthen market linkages for farm produce to improve income for the farmers;*
 - (xii) Establish mechanisms to extend affordable finance to smallholder farmers, particularly women; and,*
 - (xiii) Implement Kenya Climate-Smart Agriculture Strategy 2017-2026 (KCSAS).*

5.2.5 Livestock and fisheries development

Livestock production is the backbone of economic activity in Turkana County. Impact of climate change such as drought and flood are increasing undermining the traditional pastoralism system. Livestock health continues to be one of the significant challenges of the system. There is also limited value addition in the livestock sector, and significant infrastructural and financial constraints facing livestock traders. In general, the livestock sector lacks the kind of institutional support in research, development and marketing that other productive sectors enjoy.

Policy statement

- (i) Develop the fish value chain by taking the following measures:*
 - Support acquisition of modern fishing boats;*
 - Take steps to reduce siltation of the Ferguson Gulf;*
 - Support the purchase of modern fish cooling and preservation equipment including solar driers;*
 - Establishment of fishponds to supplement and reduce the stress on the lake resources;*
 - Support value addition in fish and livestock products;*
 - Support establishment of fish marketing cooperatives to bargain for best prices in the market;*
 - Develop and support linkages to external markets; and,*
 - Create awareness among the local population to adopt fish eating.*
- (ii) Promote adoption of climate-resilient animal breeds by supporting research and investment;*
- (iii) Promote diversification of herd composition;*

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- (iv) Develop a framework for robust community-based animal health systems;*
 - (v) Strengthen disease control and surveillance;*
 - (vi) Strengthening pastoral institutions and resource rights necessary to enhance livestock mobility to facilitate resilience building within the pastoral system of Turkana County;*
 - (vii) Implement agriculture risk management framework including index-based insurance to manage the financial cost of disasters to pastoralists and the government for sustainability in livestock production;*
 - (viii) Implement the Community Land Act, 2016;*
 - (ix) Rehabilitate livestock marketing infrastructure through partnerships with the private sector and community associations. This will include the building of slaughterhouses, improvement of road connections, organisation of marketing and trading cooperatives and installation of cold stores and refrigerated vehicles;*
 - (x) Develop a programme for livestock feed supplements especially during droughts;*
 - (xi) Rehabilitate degraded rangelands to improve the penetration and storage of rainwater and enhance biomass production;*
 - (xii) Develop jointly with neighbouring counties/countries, policies which facilitate and recognise the contribution of cross-border trade and facilitate the cross-border movement of livestock for food security;*
 - (xiii) Establish mechanisms to extend affordable finance to livestock producers and traders, particularly women, youth and people living with disabilities; and,*
 - (xiv) Strengthen research and extension systems, which are relevant to the livelihoods of ASAL livestock-keepers, including women.*

5.2.6 Water resources

Turkana County also faces both physical and economic water scarcity interchangeably during and between seasons. Except for Lake Turkana, naturally-occurring surface water bodies are negligible due to the high evaporation rates. The Lake is situated in the eastern side of the County, with fishing as the primary activity. Water in the lake region has high fluoride content, thus not suitable for consumption by humans and animals due to its adverse effects. However, it is used both domestically and for livestock during the dry season.

In Turkana County, other than the naturally occurring surface water bodies, there are also the human-made ones such as pans and dams. The County has in recent years experienced increased construction of water harvesting structures such as dams, water pans, subsurface dams, etc. Besides, the County has abundant aquifers at Lotikipi, Nakalale and Napuu, with the latter having been established as a reliable source of water for the growing population in Lodwar. It is, however, critical to note that County is still facing high water poverty.

Policy statements

To harness and conserve water resources in the County, the Turkana County Government shall:

- (i) Enact rainwater harvesting regulation for mandatory water harvesting at household and institutional levels;*
- (ii) Support research to map water resources in the County, including the aquifers.*
- (iii) Protect the LAAS from human-induced pollution.³ Protection measures could include, but are not limited to:*
 - Protect river buffer zones and well fields;*
 - Regulate upstream irrigation and catchment conservation;*
 - Develop town land-use planning, so that town expansion, industries, high-density settlements and waste disposal zones are located away from the defined aquifer areas; and,*
 - Carefully install a proper sewerage network and re-evaluate the existing on-site sanitation in the aquifer zone; and,*
- (iv) Implement Turkana County Water, Sanitation Services Sector Strategic Plan 2017-2021.*

5.2.7 Resilient settlement

The increase in population in at-risk areas and the projection of urbanisation growth in the next decades suggest that guiding land use and strengthening housing are priorities to reduce the County's vulnerability to natural disasters and climate change. Current settlement trends in the County lead to unplanned development, including in

³ The LAAS is a strategic reserve for drinking water supplies. Because of its geological characteristics and urban setting, it is highly vulnerable to pollution but still generally uncontaminated by anthropogenic activities.

areas with significant and increased levels of inherent risks such as flood-prone areas, riparian areas and lakeshores, which contributes to, increased vulnerability.

Policy statements

To ensure resilient and safe settlement within the County, the Turkana County Government shall:

- (i) Carry out land-use planning for more reliable urban development and future development;*
- (ii) Support land tenure security, participatory land-use planning, zonation and development control;*
- (iii) Interlink conservation with settlement development, e.g. green zones in residential areas;*
- (iv) Develop and implement a county spatial plan;*
- (v) Promote sustainable and climate-appropriate architecture and construction materials;*
- (vi) Adopt resilient building code against natural disasters in urban, peri-urban and rural areas; and,*
- (vii) Establish an informal settlement upgrading programme, considering current and future climate-related risks.*

5.2.8 Health and education services

According to the IPCC, communities with more "human capital" or knowledge have higher adaptive capacity.

Policy statements

To improve health and education services, the County Government will:

- (i) Introduce flexible health systems of high quality, which are responsive to the needs of the area;*
- (ii) Embrace health systems innovation such as the use of appropriate ICTs and other technologies in service delivery;*
- (iii) Adapt community-based health systems for remote and mobile populations, and integrate these with animal health systems where applicable;*
- (iv) Introduce a health insurance scheme tailored to the needs of pastoralists by enhancing the universal healthcare;*

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- (v) Promote innovative systems to provide context-based education to the pastoral communities;*
 - (vi) Develop resilient education infrastructure that include mobile library and use of e-Learning technology; and,*
 - (vii) Provide incentives for education of girl child.*

5.2.9 Resilient ecosystems

The importance of ecosystems and their services cannot be overemphasized. The need for resilient ecosystems that respond to livelihood risks such as land and soil degradation, the erosion of biodiversity and water shortages or floods through approaches centering on ecosystem protection is a strong strand in the grey and academic adaptation literature.

Policy statements

To ensure resilient ecosystems in the County, the Turkana County Government shall:

- (i) Reinforce the authority of traditional natural resource management systems that promote sound environmental practices;*
- (ii) Protect and advance indigenous knowledge and practices such as ekwar (plural ngikwarin), promote formal and informal environmental education and awareness, and intensify environmental conservation efforts;*
- (iii) Protect and increase forest cover, riverine vegetation and critical water catchment areas, including unique ecosystems such as Loima Hill Forest;*
- (iv) Develop and/or implement payment for ecosystem services as an incentive for conservation;*
- (v) Collaborate with research institutions such as Kenya Forestry Research Institute (KEFRI), Kenya Agricultural and Livestock Research Organizations (KALRO) and academic institutions such as Turkana University College to adopt best practices in the management of invasive species such as *Prosopis* sp and *Opuntia stricta*;*
- (vi) Promote ecosystem-based adaptation (EbA) for biodiversity and ecosystem services as part of an overall adaptation strategy to help people and communities adapt to the adverse effects of climate change at local and County levels;*
- (vii) Promote the establishment of conservancies after detailed thinking and consultations to avoid inflaming conflicts, and issues of land access, which*

impacts on livelihood. Full participation of community members and consideration of pastoral movements shall be essential; and,
(viii) Implement Community land Act 2016.

5.2.10 Natural disasters

Turkana County experiences multiple complex disasters which are related to droughts, flooding, conflicts, raids, landslides, human and livestock diseases outbreak and epidemics, crop infestations among others that negatively impacts human populations. COVID-19 is the latest in the list. Disaster profiles in Turkana County indicate the occurrence of many incidents, which have increased in frequency, intensity and severity over the past few decades. In most cases, entire populations of Turkana are affected by disasters that disrupt lives, livelihoods and draw gains achieved in human development.

Policy statement

To improve local responses to natural disasters and climate change, the Turkana County Government shall:

- (i) Implement Ministry of Health guidelines on COVID-19;*
- (ii) Mainstream disaster risk analysis into development planning processes; and,*
- (iii) Operationalise and implement the County Disaster Risk Management Policy 2017.*

5.2.11 Climate information services (CIS)

Provision of easily accessible, timely and decision-relevant climate information can help society to cope with current climate variability and change; and in turn limit the economic and social damage caused by climate-related disasters. Climate Information Services (CIS) can also support society to build resilience to future climate change and take advantage of opportunities provided by favourable climate conditions. An effective CIS requires adequate technical capacities and appropriate communication strategy that enables good exchange within information producers, translators, and user communities.

Policy statements

To establish climate information services in the County, the Turkana County Government shall:

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- (i) Create a framework for the provision of climate services;*
 - (ii) Establish infrastructure for data collection, monitoring and early warning systems;*
 - (iii) Support development and use of indigenous knowledge to compliment the conventional system in weather and climate information gathering and use;*
 - (iv) Develop ICT infrastructure to support efficient communication in the County;*
 - (v) Promote the use of GIS in identifying hotspots for early mitigation and adaptation strategies;*
 - (vi) Package and communicate climate information using appropriate channels for different audience; and,*
 - (vii) Provide gender-sensitive early warning and alerts of extreme weather and climate events; such as droughts and floods, for the safety of life and optimisation of weather and climate dependent natural resources.*

5.3 Transition towards a low carbon development pathway

Kenya seeks to undertake an ambitious mitigation contribution towards the 2015 Paris Agreement to achieve a low carbon, climate-resilient development pathway. Kenya, therefore, seeks to abate its GHG emissions by 30% by 2030 relative to the BAU scenario of 143 MtCO₂eq; and in line with its sustainable development agenda. Turkana County will make its contribution to reducing the Country's greenhouse gas emissions by following the low carbon development pathway. To achieve this, Turkana County shall:

5.3.1 Manage drylands for carbon sequestration

Addressing land degradation in dryland ecosystems presents two complementary ways of mitigating climate change. First, by slowing or halting degradation, associated emissions can be similarly reduced. Second, and arguably of more considerable significance, changes in land management practices can lead to higher carbon sequestration, that is, to removing carbon from the atmosphere.

Policy statement

To manage drylands for carbon sequestration, the Turkana County Government shall:

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- (i) Increase tree cover through an aggressive afforestation Programme with clear targets to be achieved annually;*
 - (ii) Establish a soil and water conservation programme for erosion control and soil fertility management;*
 - (iii) Promote woodland regeneration through community-managed natural regeneration approach;*
 - (iv) Promote indigenous tree management systems such as ekwar (plural ngikwarin);*
 - (v) Promote water conservation and harvesting;*
 - (vi) Promote evidence-based land-use change from crop to grass/trees;*
 - (vii) Promote agroforestry and use of legumes; and,*
 - (viii) Increase carbon stocks in the soil by promoting biochar application to increase soil fertility, workability and water holding capacity.*

5.3.2 Urban planning and waste management

Climate change presents a range of socioeconomic implications for town planning on two counts: First, town planning is a process by which vulnerability to climate change impacts can be mitigated. Second, town planning influences the level of emissions produced by human settlements by changing fuel and energy consumption patterns. To adapt to the impacts and to achieve the objectives of climate change mitigation, there is a need to introduce changes to town planning and building systems.

Policy statement

In waste management, the Turkana County Government shall:

- (i) Develop and implement a waste and sanitation master plan;*
- (ii) Ensure appropriate siting of waste disposal sites;*
- (iii) Make provision for the management of sensitive waste, e.g. medical waste;*
- (iv) Community participation in waste management;*
- (v) Promote Reduce, Reuse, Recycle (3Rs) in waste management.*
- (vi) Develop sewer systems in viable areas not served currently;*
- (vii) Make installations of wastewater treatment plants an integral part of industrial waste disposal;*
- (viii) Ensure separate collection, disposal and recycling of recyclable, composite and biodegradable waste preferably at source; and,*

(ix) Sensitise of the public on the importance of waste management.

In urban planning, the County Government, in this regard, shall take the following measures:

- (i) Ensure proper land use planning and where possible encourage vertical instead of horizontal expansion of urban housing projects;*
- (ii) Undertake hazard mapping and zoning of areas before construction;*
- (iii) Ensure that rural housing particularly especially in flood-prone areas are climate resilient;*
- (iv) Implement the Energy (Solar Water Heating) Regulations, 2012 in all new and old buildings;*
- (v) Update town planning design principles for lower carbon footprints;*
- (vi) Promotion of waste septation at household level;*
- (vii) Promotion of 3Rs at household level;*
- (viii) Promotion of conversion of waste to energy or manure at household level;*
- (ix) Provision/ support the provision of reliable collection of domestic waste; and,*
- (x) Promote provision, use and protection of open spaces within towns.*

5.3.3 Transport

The transport sector is a significant source of GHG emissions, directly accounting for about 13% of Kenya's total GHG emissions in 2015. Transport emissions are increasing at a faster rate than other sectors and are projected to rise to 17% of total national emissions by 2030.

Policy statement

To reduce emission from the transport sector, the Turkana County Government shall on land transport:

- (i) Promote the adoption of fuel-efficient vehicles that produce fewer emissions;*
- (ii) Develop infrastructure for motorised and non-motorised transport systems;*
- (iii) Promote the adoption of cleaner fuels to reduce GHG emissions per kilometre travelled, e.g. use of biofuel for local transport;*

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- (iv) Support the private transport sector by providing incentives for reducing emissions and adopting environmentally friendly transport services, e.g. electric/hybrid vehicle for urban use;*
 - (v) Secure financing for technology innovations for urban planning and the transportation sector, specifically to address the mitigation issues; and,*
 - (vi) Reductions in driving through reducing both the distances travelled per trip and the number of trips.*

On water transport, the County Government will:

- (i) Develop and promote in-land waterways transportation;*
- (ii) Develop a maritime safety system through innovation in ICT driven monitoring and warning systems to reduce weather-related accidents;*
- (iii) Design and implement water transport safety by-laws;*
- (iv) Increase water transport surveillance to enforce safety measures; and,*
- (v) Promote the use of fuel-efficient vessels and boats.*

5.3.4 Clean energy

Kenya's energy sector contribution to GHG emissions is expected to increase sharply from 2015 to 2030. The energy sector (excluding transport and industry) accounted for 7.1% of total emissions in 2015 and is projected to rise to 29.7% of total emissions in 2030. Transition to clean cooking is a priority action that presents an opportunity for technological leapfrogging with energy and GHG emissions savings, and health and cost-saving benefits compared to the business-as-usual incremental improvements.

Women and children are disproportionately affected by this challenge; suffering from toxic smoke, time poverty, and the consequences of deforestation. The use of clean cooking technologies should be integrated into community development initiatives and activities involving women. They are the most affected and have the potential to drive the achievement of the desired outcomes.

Policy statements

To develop clean energy technologies in the County, the Turkana County Government shall:

- (i) Promote the development of renewable energy resources and technologies such as solar, wind, geothermal and biofuel energy;*

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- (ii) Promote the use of clean lighting technologies and set targets for the phasing out of kerosene for lighting;*
 - (iii) Promote efficient lighting and energy efficiency in buildings to improve energy efficiency and energy conservation in the County;*
 - (iv) Conserve and rehabilitate water catchment areas;*
 - (v) Promote low carbon technologies in agricultural systems such as solar-powered irrigation;*
 - (vi) Promote the transition to clean cooking with alternative fuels, such as LPG, ethanol and other clean fuels in urban areas;*
 - (vii) Promote the uptake of clean biomass (charcoal and wood) cookstoves and alternatives in rural areas;*
 - (viii) Ensure gradual introduction of low carbon technologies in all sectors of the economy to achieve the carbon emission reduction objectives; and,*
 - (ix) Conduct training and public awareness programmes on the importance of clean energy.*

5.3.5 Extractive industry

Turkana County is endowed with mineral resources as well as oil and gas. Oil and gas discoveries have the potential to constitute a significant positive exogenous shock to a nation's wealth and hence its economic growth. On the other hand, scholars argue that continued expansion of oil, coal, and gas is only serving to hinder the inevitable transition while at the same time exacerbating conflicts, fueling corruption, threatening biodiversity, clean water and air, and infringing on the rights of Indigenous Peoples and vulnerable communities. This argument is based on the fact that oil production in Africa does not necessarily translate to economic development. As has been witnessed in many cases, especially in Africa, the “*resource curse*” hypothesis suggests that such discoveries may ultimately prove detrimental to long-run growth if not well thought through as it may put countries on a path to resource dependence or at worse becomes a source of conflict.

Given the contribution of fossil fuel to the global greenhouse gas emission (GHG) emission, CO₂ emissions from fossil fuels will need to decline rapidly, by approximately 6% per year to remain on a 1.5⁰C-compatible pathway, and by roughly 2% per year to stay on a 2⁰C compatible one. The policy recognises that a full transition away from fossil fuels will take decades. There can be no doubt that a zero-carbon world is

possible, but we have choices about how we manage the transition. A just transition ensures environmental sustainability as well as decent work, social inclusion and poverty eradication.

Policy statements

To green the extractive industry and make the industry work for the communities and the environment, the Turkana County Government shall:

- (i) Ensure that natural resources extraction in the County generates earnings and create jobs in the local economy;*
- (ii) Shield the local economy from the economic shocks that accompany commodity booms and bursts;*
- (iii) Develop a clear coordination framework that includes all the actors to reduce tension and suspicion. Information shall be produced and disseminated to all stakeholders;*
- (iv) Ensure that revenues benefit the marginalised people of Turkana;*
- (v) Train local people to make them employable (including advanced driving skills, hospitality and oil industry specialist jobs, construction, mechanics etc.) to enhance local procurement;*
- (vi) Support pastoralism to buffer the communities against land-use changes in the County and avoid destitution by reserving sufficient land for pastoralism including migratory routes and traditional grazing grounds;*
- (vii) Support a just transition to clean energy systems; and,*
- (viii) Ensure that the extractive industry activities meet the National Environment Management Authority (NEMA) threshold, and all the mitigation measures are adhered to.*

5.4 Climate Financing Mechanisms

Climate finance plays a critical role in building resilience to impacts of climate change and variability. Transition to a low carbon and climate-resilient development pathways requires significant financial investment in interventions that will reduce Green House Gas (GHG) emissions from key emitting sectors, climate-proof sectors driving the economy and promote human well-being and ecological integrity. It is therefore imperative that the County establishes adequate and predictable financial resources from domestic, national and international sources.

Policy statements

To sustain climate change interventions, the Turkana County Government shall:

- (i) Establish the Turkana Climate Change Fund for financing climate change actions;*
- (ii) Develop the Turkana County Climate Change Fund Regulations to guide the coordination of the Fund;*
- (iii) Encourage stronger harmonisation and alignment of finance from development partners against the objectives of this policy;*
- (iv) Create an environment for public-private partnerships (PPP);*
- (v) Develop Public-Private-Civil Society partnerships for financing and implementation of climate change adaptation and mitigation projects; and,*
- (vi) Create a domestic carbon tax in the spirit of polluter pays to mobilise resources for climate change activities.*

5.5 Awareness and Capacity Building

Managing the impacts of climate change is particularly difficult for governments, given the scale and uncertainty involved, the complex and cross-cutting nature of climate change, the urgency required and the power asymmetries that exist between the different actors. Most countries are struggling to build the capabilities needed to tackle climate change across central and local governments and non-state actors. As a result, institutional capacity building for managing climate change has gained particular attention at the international level. Capacity building and institutional strengthening is, therefore, priority area for the county government.

Policy statements

To develop capacity and create awareness for climate change action, the Turkana County Government shall:

- (i) Undertake institutional training assessments to identify the specific climate change training needs in the County;*

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- (ii) Establish partnerships with institutions of higher learning to package and support short and long-term training courses on climate change-related issues;*
 - (iii) Ensure institutional strengthening of the existing climate change department, committees, working groups and relevant institutions dealing with climate change matters;*
 - (iv) Build capacity of the County staff to monitor and report to the County Assembly and national climate change directorate as per the provisions of the Climate Change Act 2016;*
 - (v) Develop Knowledge Base Management (KBM) and networking with strategic climate change research establishments to ensure benefits from international scientific advancements;*
 - (vi) Provide training and support, at village, ward, sub-county and County levels to further their knowledge and capacities on climate change issues;*
 - (vii) Explore and provide training opportunities to enhance capacity for preparing projects and implementation of programs in the climate change area;*
 - (viii) Develop capacity for making reliable projections of climate change scenarios, seasonal forecasts and inter-annual forecasts for different parts of the County in collaboration with Kenya Meteorology Department (KMD);*
 - (ix) Develop capacity of key staff to participate in national and international processes actively;*
 - (x) Establish a county resource centre for climate information sharing and networking of regularly updated climate change-related data. This could be linked to the National Climate Change Resource Centre and Maarifa centre at Council of Governors (CoG);*
 - (xi) Develop a County climate change awareness program involving communities, various ministries and departments, civil society and the private sector; and,*
 - (xii) Ensure advocacy and mass awareness regarding the importance of water and energy conservation impacts of climate change on various sectors including the*

forest ecosystem, biodiversity etc. learning/exchange visits, mass media, public-private partnership, civil society, learning institutions and community mobilisation.

5.6 Research, Innovation and Partnerships

Climate change is one of the most challenging and complex threats the world faces and needs innovative technological solutions to solve both mitigation and adaptation challenges. Further, data is critical in understanding the underlying risks and vulnerabilities.

Policy statements

The Turkana County Government understands the need for research and innovation and shall take the following measures:

- (i) Promote the development and use of local technologies in combination with innovation and technological advancement in the field of climate change as an effective way to implement the adaptation and mitigation measures;*
- (ii) Establish infrastructure necessary for promoting innovation at the grassroots level, learning institutions including vocational training institutions, polytechnics, universities and research institutions;*
- (iii) Establish partnerships for technology transfer and development with industries, higher institutions of learning, international research organisations and village polytechnics;*
- (iv) Promote technology transfer for designing and manufacturing of emission monitoring equipment for installation near urban and industrial areas in Turkana County;*
- (v) Establish a system for climate monitoring, modelling and early warning systems connected to all the farmers in the County;*
- (vi) Promote the development and adoption of new breeds of crops and livestock which are early maturing and less vulnerable to the changing climate;*

-
- (vii) Research proper land-use systems and safe carbon emission including strengthening collaboration in indigenous technologies in flood management and water harvesting, crop management and other agrarian best practices;*
 - (viii) Establish a research and innovation fund to support research and innovation activities;*
 - (ix) Develop county GHG emissions inventory and strengthen institutional capacities to ensure regular updates; and,*
 - (x) Develop an institutionalised system to regularly measure and monitor GHG emissions from various sectors, including trans-boundary pollution and maintain a database.*

5.7 Implementation Strategies, Mechanisms and Institutional Frameworks

Governments with weak institutional arrangements have less adaptive capacity than countries with well-established institutions. For example, institutional and managerial deficiencies could contribute significantly in managing climate-related disasters, thus increasing vulnerability to climate change. Collaboration between public and private sectors can enhance adaptive capacities.

Policy statements

On the institutional framework, the Turkana County Government shall:

- (i) Establish the County Climate Change Steering Committee to be chaired by the Governor with Deputy Governor;*
- (ii) Executive Committee Member in charge of the County Treasury as the vice-chairperson;*
- (iii) County Executive Committee Member as Secretary;*
- (iv) The other members to the Council shall include Executive Committee Member in charge of energy, the County Attorney, three executive committee members appointed by the Governor from climate sensitive sectors, one representative of national agencies dealing with climate change, two representatives of operating development partners, two persons representing ward climate*

change planning committees and, the committee may co-opt members with relevant expertise when needed to advise the committee on special matters.

- (v) Appoint a county executive committee member (CECM) in charge of the Climate Change Directorate to be the coordinating body of all climate change activities in the County;*
- (vi) Establish Climate Change Directorate to act as the secretariat for inter-ministerial and inter-departmental decision-making and coordination on climate change issues at the County level;*
- (vii) Publish a Bill to define the roles of the various entities clearly;*
- (viii) Establish a climate change desk in all departments at the county, sub-county and ward levels;*
- (ix) Mainstream climate change response into county planning processes, including economic planning, county development policies and plans, performance contracting, and the short to medium-term budget-making process;*
- (x) Establish the County and Ward Climate Change Planning Committees for coordinating all climate change activities;*
- (xi) Strengthen the county institutional framework for undertaking tasks related to the implementation of national and international obligations; and,*
- (xii) Create sub-county and ward implementing entities to deal with adaptation and mitigation projects at all levels.*

6. MONITORING AND EVALUATION

The Turkana County Government will develop an implementation strategy for the policy. The Strategy will include a comprehensive monitoring and evaluation (M&E) framework with critical milestones over the next five-year planning period as well as an annual implementation plan.

The M&E Framework is linked to the planned outcomes and outputs of the Strategy and is instrumental in ensuring the full implementation of the policy by the various stakeholders involved. The M&E Framework shall specify performance indicators and

targets for each policy priority and strategic action, and propose accountability mechanisms for the actors that are tasked to implement them.

Each department, for which specific responsibilities are identified, has to ensure enforcement of the relevant policy priorities and measures, using means and mechanisms at its disposal as identified in the costed implementation.

7. POLICY REVIEW

The implementation of the policy will undergo an independent external evaluation in 10 years. The recommendations resulting from that evaluation will feed into the revision process for the policy. This revision is to be carried out based on a thorough public consultation process and review of the results at that point in time.

8. EFFECTIVE DATE

This policy will come into force on a date appointed by the County Executive Committee Member for the time being responsible for the Environment, Turkana County.

DEFINITION OF TERMS

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

Adaptive capacity refers to the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (*IPCC, 2014, Fifth Assessment Report (AR5) Glossary*).

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

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

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

The primary greenhouse gases that are measured in a GHG inventory are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

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

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

REDD+ is the acronym for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. It is a mitigation

mechanism that creates a financial value for the carbon stored in forests by avoiding deforestation and increasing the carbon stock in existing forests.

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

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

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