



COUNTY GOVERNMENT OF MARSABIT

Department of Water, Environment, Climate Change, Forestry and Natural Resources

Participatory Climate Risk Assessment Report



Directorate of Environment and Climate Change



Foreword

Marsabit County is extremely susceptible to impacts of changing climate. Most livelihoods and economic activities in the County are reliant on climate sensitive sectors namely agriculture, livestock, water, trade, tourism, forestry and wildlife conservation. Dependence on these natural resources means that recurring droughts, erratic rainfall patterns and floods as a result of climate change will continue to negatively impact livelihoods and community asset in the county.

In order to cushion key sectors against the impact of climate change, the stakeholders conducted a County Participatory Climate Risk Assessment (PCRA). As per the Marsabit Climate Change Policy (2019) and Marsabit Climate Change Fund Act (2020), climate risk assessment is essential to enable to identify climate risks, impacts and priority resilience options to build local capacities through locally led action.

The Participatory Climate Risk Assessment (PCRA) process culminated into the development of a county climate risk assessment report, which identifies the key climate risks for the county as well as strategic investment areas for climate resilience. This county PCRA report will inform the process of coming up with Marsabit County Climate Change Action Plan (2023-2027). The five-year action plan, which will identify specific County and Ward-level investments for building resilience to climate change in Marsabit County.

Indeed, the County Government of Marsabit through the Department of Water, Environment, Climate Change and Natural Resources is committed to implementing the findings of this PCRA report together with the programs proposed in the Marsabit County Climate Change Action Plan (2023-2027). The PCRA report adds to the policy, legal and institutional strengthening efforts aimed at enhancing climate governance in the county. Already, the county has adopted Marsabit County Climate Change Policy (2019) and Marsabit County Climate Change Fund Act (2020) and Marsabit County Climate Finance Framework (2023-2025). It is my hope that this report will help all partners in Marsabit County to mainstream climate change in their interventions for the benefit of the people of Marsabit.

H.E GOV MOHAMUD MOHAMED ALI



**Governor Marsabit and Chairperson Marsabit County Climate Change Steering Committee
County Government of Marsabit**

Acknowledgement

The PCRA is the mechanism to assess the risk and impact of climate change and, from informed perspective design sustainable climate resilience interventions. Marsabit County is guided by locally led and multi-stakeholder approaches aimed to address the worsening climate crisis while strengthening the County's development priorities. The PCRA process was spearheaded by climate change unit where the Technical Working Group (TWG) trained as Trainer of Trainers (ToTs) and thereafter provided technical support. TWG was drawn from different County and National sectors, and non-state actors, that is, from water, environment, livestock, agriculture, planning, ICT/GIS, public participation, administration and natural resources.

I want to acknowledge the political good will and leadership role by H.E. Mohamud Mohamed Ali (Governor, County Government of Marsabit) that led to the successful delivery of the PCRA process, technical support and guidance provided by Director Environment and Climate Change (Mrs. Janet E Ahatho), climate change unit for providing planning service and the TWG for spearheading ward engagement, data collection and report writing. The National Treasury's FLLoCA Program Implementation Unit (PIU) provided technical and substantive inputs to the implementation of the PCRA process, not forgetting our stakeholders CRS-Nawiri, PACIDA, FH-Kenya Rapid, BOMA, LMC-Mercy Corps among others—communities—who actively participated to prove all the data needed and provided guidance to ward climate change actions.

Mr Adan Kanano



CECM - Water Environment, Climate Change and Natural Resources

Executive Summary

Pastoral and agro-pastoral production forms the dominant livelihood in Marsabit County, involving about 95 percent of its population. Major sources of income within this livelihood include sales of livestock, livestock products and crop production which account for 80 percent of all county in-come.

Marsabit County is classified as 95% arid and semi-arid. It hosts Kenya's only desert, Chalbi desert. The County is extremely susceptible to impacts of a changing climate because most livelihoods and economic activities are reliant on climate sensitive sectors. The most vulnerable sectors impacted on by climate change are Agriculture, Livestock, Fisheries, Pastoralism, Forestry, Water Resources, Health, Energy, Rangelands, Tourism, Human settlement and Physical infrastructure. Over the last decades the impacts of a changing climate have become more pronounced in this region leading to a very scarce natural resources base. The extreme climatic conditions continue to exert untold suffering on the residents.

In order to cushion key sectors against the impact of climate change, the stakeholders conducted a County Participatory Climate Risk Assessment (PCRA). As per the Marsabit Climate Change Policy (2019) and Marsabit Climate Change Fund Act (2020), climate risk assessment is essential to enable to identify climate risks, impacts and priority resilience options to build local capacities through locally led action. The participatory county climate risk assessment and action planning approach takes place in three phases:

Phase 1 focuses on the Participatory Climate Risk Assessment (PCRA) process and results in the development of a county climate risk assessment report, which identifies the key climate risks for the county as well as strategic investment areas for climate resilience. This county PCRA report then feeds into;

Phase 2 which focuses on the development of the participatory county climate change action plan (CCCAP) and its adoption by the County Assembly. The CCCAP is a five-year action plan, which will identify specific County and Ward-level investments for building resilience to climate change.

Phase 3 focuses on cross-county/regional bloc planning for climate resilience and integrating the CCCAPs into the national climate change action planning process. Phase 3 provides a pathway for bottom-up integration of counties' climate resilience priorities into national level climate planning.

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Definition of Terms

Weather refers to atmospheric conditions at a particular time in a particular location, including temperature, humidity, precipitation, cloudiness, wind, and visibility. Weather conditions do not happen in isolation, they have a ripple effect. The weather in one region will eventually affect the weather hundreds or thousands of kilometers away.

Climate is the average of weather patterns in a specific area over a longer period of time, usually 30 or more years, which represents the overall state of the climate system.

Greenhouse gases are gases that trap heat in the atmosphere, causing global warming and climate change. The main greenhouse gases released by human activity are carbon dioxide, methane, and nitrous oxide, as well as fluorinated gases used for cooling and refrigeration.

Global warming is an increase in the Earth's average surface temperature that occurs when the concentration of greenhouse gases in the atmosphere increases. These gases absorb more solar radiation and trap more heat, thus causing the planet to get hotter. Burning fossil fuels, cutting down forests, and farming livestock are some human activities that release greenhouse gases and contribute to global warming.

Climate change refers to the long-term changes in the Earth's climate that are warming the atmosphere, ocean and land. Climate change is affecting the balance of ecosystems that support life and biodiversity, and impacting health. It also causes more extreme weather events, such as more intense and/or frequent hurricanes, floods, heat waves, and droughts, and leads to sea level rise and coastal erosion as a result of ocean warming, melting of glaciers, and loss of ice sheets.

The **climate crisis** refers to the serious problems that are being caused or are likely to be caused by changes in the planet's climate.

Mitigation refers to any action taken by governments, businesses, and people to reduce, sequester, or prevent greenhouse gas emissions. Examples of mitigation include transitioning to renewable energy like wind and solar, investing in carbon-free transportation, promoting sustainable agriculture and land use, planting forests to act as carbon sinks, and changing consumption practices and diet behaviors.

Adaptation refers to actions that help reduce vulnerability to the current or expected impacts of climate change. Examples of adaptation include planting crop varieties that are more resistant to drought or changing conditions,

managing land to reduce wildfire risks, building stronger flood defences, relocating infrastructure from coastal areas affected by sea level rise, and developing insurance mechanisms specific to climate-related threats.

Resilience is the capacity of a community or environment to anticipate and manage dangerous climatic events and recover and transform after the ensuing shock, with minimal damage to societal wellbeing, economic activity, and the environment. Examples of increasing resilience in a community include long-term planning, early warning systems, training for new skills, diversifying the sources of household income, strengthening nature-based solutions, and building robust communal response and recovery capacities.

Climate justice means putting equity and human rights at the core of decision-making and action on climate change.

Nature-based solutions support climate change adaptation and mitigation by using natural systems and processes to restore ecosystems, conserve biodiversity, and enable sustainable livelihoods.

Climate finance refers to financial resources and instruments that are used to support action on climate change. Climate finance is critical to addressing climate change because of the large-scale investments that are needed to transition to a low-carbon global economy and to help societies build resilience and adapt to the impacts of climate change.

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

Vulnerability: Propensity or predisposition to be adversely affected. It encompasses sensitivity or susceptibility to harm, and lack of capacity to cope and adapt.

Hazard: is a potential source of harm. Substances, events, or circumstances can constitute hazards when their nature would allow them, even just theoretically, to cause damage to health, life, property, or any other interest of value

Disaster Risk Reduction: systematic approach to identifying, assessing and reducing the risks of disaster. Aims to reduce socio-economic vulnerabilities to disaster and the environmental and other hazards that trigger them

Disaster: the serious disruption of the functioning of society causing widespread human, material or environmental losses, which exceed the ability of the affected communities to cope using their own resources. Disasters occur when the negative effects of the hazards are not well managed.

Disaster risk reduction: is a framework and a tool that determines the degree of risk and describes measures to increase capacities and reduce hazard impact on the elements at risk so that disaster will be avoided.

Risk: is the potential for negative consequences to something that is valued when the occurrence and degree of a future outcome is uncertain. Risks from climate change impacts arise from the interaction between a hazard (triggered by an event or trend related to climate change), vulnerability (susceptibility to harm) and exposure (people, assets or ecosystems at risk).

Risk assessment: qualitative and/or quantitative scientific estimation of risks.

Risk management: plans, actions, strategies or policies to reduce the likelihood and/or consequences of risks or to respond to consequences.

Acronyms

AU	African Union
ADP	Annual Development Plans
AMCEN	African Ministerial Conference on Environment
ASAL	Arid and Semi-Arid Lands
BMU	Beach Management Unit
CFA	Community Forest Association
CSA	Climate-Smart Agriculture
CLMC	Community Land Management Committee
CIDP	County Integrated Development Plan
CIMES	County Integrated Monitoring and Evaluation System
COP	Conference of Parties
CSA	Climate Smart Agriculture
CSP	County Spatial Plan
LPG	Liquefied Petroleum Gas
LULC	Land Use Land Cover
EAC	Intergovernmental Authority on Development
EMC	Environment Management Committee
EDE	Ending Drought Emergencies
FLLoCA	Financing Locally Led Climate Actions
FFA	Food for Assets
IDDRSI	IGAD Drought Disaster Resilience and Sustainability
IGAD	Intergovernmental Authority on Development
LULC	Land Use Land Cover
MCCCAP	Marsabit County Climate Change Action Plan
M&E	Monitoring and Evaluation
MTP	Medium Term Plan
NCCAP	National Climate Change Action Plan
NDC	Nationally Determined Contributions
NDVI	Normalized Difference Vegetation Index
NIMES	National Integrated Monitoring and Evaluation System
PCRA	Participatory Climate Risk Assessment
PPP	Public-Private Partnerships
PWD	People with Disability
SDG	Sustainable Development Goals
UNFCCC	United Nations Framework Convention on Climate Change
WUA	Water User Association
WRUA	Water Resource User Association

1.0 Context of the Participatory Climate Risk Assessment

1.1 Climate Change in Marsabit County

1.1.1 Geography

Located along the border lines in the furthest of Northern Kenya, Marsabit County has international boundary with Ethiopia to the North, borders Lake Turkana to the West, Samburu County to the South and Wajir and Isiolo Counties to the East. It covers a considerably wider land mass approximated at 70,691km² and therewith making it the largest county in Kenya. The County is divided into four sub-counties namely Saku, North Horr, Moyale and Laisamis. The four administrative zones also serve as political units comprising 4 constituencies and 20 wards. There are also 100 village units—representing the lowest administrative structures under the devolved governance system.

Much of the county's landmass comprises an extensive plains lying between 300m and 900m above sea level, sloping gently towards the southeast. The plains are bordered to the west and north by hills and mountain ranges, occasionally broken by volcanic cones and calderas. The most notable topographical features of the county include Ol Donyo Ranges (2066m above sea level) in the South West; Mt. Marsabit (1865m above sea level) in the Central part of the county; Hurri Hills (1685m above sea level) in the North-Eastern part of the county; Mt. Kulal (2235m above sea level) in North West; and Sololo-Moyale escarpment (up to 1400m above sea level) in the North East.

The distinct physical feature for which the county is famous is the Chalbi Desert. The desert forms a large depression covering an area of 948 Km² and lies between 435m and 500m elevation. The depression is within the Great Rift Valley and is separated from Lake Turkana by a ridge that rises to 700m. There are no permanent rivers in the county, but four drainage systems exist. Chalbi Desert is the largest of these drainage systems. The depression receives run-off from Mt. Marsabit, Hurri Hills, Mt. Kulal and the Ethiopian plateau. The seasonal rivers of Malgis and Merille to the extreme south flow eastward and drain into the Sori Adhi Swamp. Other drainage systems include the Diid Galgallu plains which receive run-off from the eastern slopes of Hurri hills and Lake Turkana into which seasonal rivers from Kulal and Nyiro Mountains drain. There are springs and oasis Korolle, Medate, North Horr, and Maikona. There exists several shallow wells and lakes holding water seasonally around Mt. Marsabit including Haite, Badasa, Sagante, Hulahula, Ilchuta, and Lake Paradise—only permanent Crater Lake in the county.

1.1.2 Administration, Demography and Urbanization

Administratively, the County is divided into four sub-counties namely Saku, North Horr, Moyale and Laisamis. Politically it is divided into four (4) Constituencies of Laisamis, North Horr, Saku and Moyale, 20 Assembly Wards and 100 Village Units.

According to the 2019 Kenya Population and Housing Census, The National population was 47,564,296 persons, with Male population consisting of 23,548,056 and female population consisting of 24,014,716 persons and 1,524 inter-sex, while the County population was 459,785 consisting of 243,548 males, 216,219 females and 18 inter-sex, as indicated in table 1.4. Compared to the national population, the county constitutes 1% of the Total population. The county has a population growth rate of 3.4%, while nationally the growth rate is at 2.2%, with a population projection of 539,101 and 565,091 by the end of the year 2025 and 2027 respectively.

The majority of the population in the county is between 0-24 years. This is an indicator of a young and growing population, which will potentially exert pressure on the county's resources in the future if the trend continues. Major towns in the county include Moyale and Marsabit while the main urban centers are Sololo, Loiyangalani, North Horr, and Laisamis.

1.1.3 Socio-economic characteristics

Economic activities in Marsabit County include agriculture, cottage industries, wholesale and retail trade, quarrying and artisanal mining. Agriculture is the main economic activity in the county including livestock keeping, crop production, bee keeping, fishing and agroforestry. Agricultural production in the county is predominantly livestock-based. Approximately 81, 16, and 3 percent of the population is engaged in pastoralism, agro-pastoralism, and other livelihoods respectively. The livestock types reared in the county include cattle, goats, sheep, camels, donkeys, and poultry. Bee keeping is also practiced, and fishing is mainly done along the shores of Lake Turkana. Crop production is limited to a few areas given the low and erratic rainfall in most parts of the county. The main crops grown include maize, green grams, wheat, teff, beans, millet, vegetables and fruits. Fruit trees are considered as part of agroforestry, a practice limited to areas around Mt. Marsabit and Sessi.

The sale of livestock & livestock products are the main sources of cash income in the Pastoral and Agro Pastoral livelihood zones contributing 82 and 60 percent of cash income respectively. Food crop production contributes 20 percent of cash income in the Agro Pastoral livelihood zone while in the Pastoral livelihood zone, formal waged labour and petty trade contribute 11 percent of cash income. The proportion of population that is below the poverty line was 80 and 69 percent in the Pastoral and Agro Pastoral livelihood zones respectively.

The social landscape of the county is characterized by chronic food shortage, insecurity, high levels of and dependency on food aid and rapidly changing livelihoods owing to climate change. The latest SMART survey conducted in January 2023 indicated an overall critical nutrition situation in Marsabit County that ranged from Alert levels in Saku (8.4percent), Critical levels in Moyale (15.2percent) and North Horr (29.6 percent) and Extremely Critical levels in Laisamis counties at 32.6percent. The monetary poverty rate for Marsabit is 63.2% which is 36-percentage point higher than the national rate of 35.7% with approximately 290,358 people in Marsabit being monetarily poor. Marsabit has a multi-dimensional poverty rate of 85.8%, which is 22-percentage point higher than the monetary poverty rate of 63.2% with a total of 394,561 people being multi-dimensionally poor. Access to water remains low and is often impacted by climate change. For instance, only about 2% of the households have access to improved latrines, 20% pit latrines with the majority of 78% practice open defecation (Kenya National Bureau of Statistics 2010).

1.1.4 Water resources

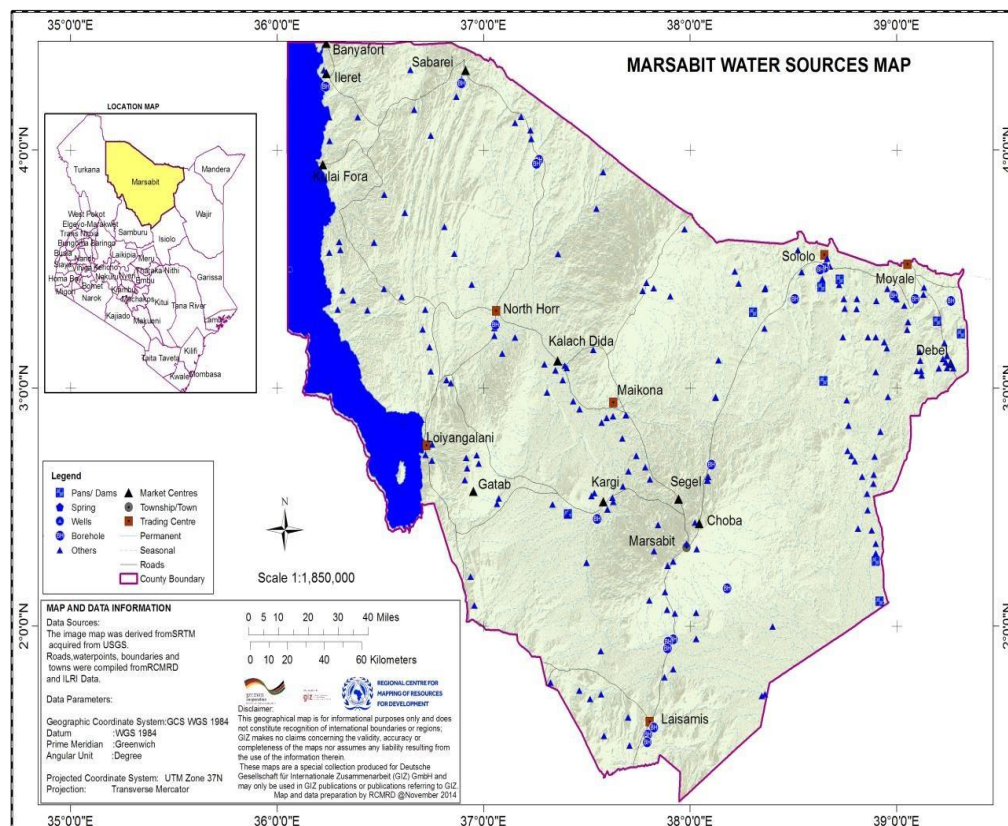


Figure 1: Marsabit water resource distribution

Water resources are generally sparsely distributed in the county. Household's access to piped water is 2.8% while 53.1% rely on protected springs. The area under forest cover is 12%. Average return household trekking distances are 3-10

km across the livelihood zones against a normal of 1-6 kilometers. Longer household water distances of 10-15 km have been recorded in other parts of the county. Waiting time in the agro-pastoral livelihood zone varied between 60 and 75 minutes from the normal of 10-30 minutes while in pastoral livelihood zone, average waiting time is around 45-60 minutes against a normal of 20-30 minutes thus average waiting time has increased. Longer waiting time ranging between 2 and 2 half hours was observed in other areas. However, for all areas with exceptionally longer trekking distances, average waiting time ranged from 4-6 hours.

1.1.5 Agro-ecological zones

Ecological Zone II - Forest Zones (Sub-Humid): The zone is characterized by high rainfall amounts of up to 1,000mm per annum, low evapotranspiration and high suitability for agricultural activities. The soils are suitable for agricultural production. The zone includes parts of Mt. Marsabit above 1,500m and Mt. Kulal above 1,700m which supports dense evergreen forests. This is an important water catchment area, covering just about one per cent of the county.

Ecological Zone IV - Woodland Zone (Semi-Arid): The zone is semi-arid with medium potential. It has become an area of sedentarized agro-pastoral activities. It constitutes the lower slopes of Mt. Marsabit, the middle slopes of Mt. Kulal and the top of Huri Hills. Areas of Sololo and Moyale are also included in this zone.

Ecological Zone V - Bushland Zone (Arid): This zone includes the lower slopes of volcanic and basement piles lying between 700 and 1,000m. The soils are shallow and stony clay loams with rock outcrops. The flatter areas are covered by grass. The zone consists of the plains of Dida Galgallu, Bure Dera, Milgis and parts of the slope of Mt. Marsabit and Huri Hills. These areas are characterized by steeper slopes which may favour greater surface run-off and hence may experience greater sheet wash erosion.

Ecological Zone VI - Dwarf Scrubland Zone (Very Arid): This is the most extensive zone in the county. The typical vegetation is dwarf-shrub grassland or a very dry form of bushed grassland. The extremely dry areas may be properly termed "bushed stone land". The zone includes all the hills and plains below 700m. Grazing season in these areas is extremely short, lasting not more than two months after the rains. When the rain fails, the only vegetation available in this area is dwarf-shrub, which supports goats and camels, but not cattle.

1.1 Policy Context

1.1.1 International Policy Context

The United Nations Framework Convention on Climate Change (UNFCCC) sets an overall framework for intergovernmental response to climate change, recognizing that the climate system can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The UNFCCC was adopted on May 9th, 1992 and opened for signatures at the United Nations Conference on Environment and Development the same year. Among others, the conference also adopted the Agenda 21, the Convention on Biological Diversity and the United Nations Convention to Combat Desertification. It is a non-binding agreement. Currently, there are 197 state parties to the Convention, including Kenya.

Through its Conference of the Parties (COP), the UNFCCC provides a platform for state parties and other key stakeholders to take stock of the status of implementation of climate change actions as well as recommendations necessary to promote the effective implementation of the Convention. Decisions made and agreed to by Parties at the COP are binding to all the UNFCCC Party States, and therefore to sub-national governments under the Party States. This is the relevance of the Convention to Marsabit County for Kenya is a Party to the Convention.

Intergovernmental Panel on Climate Change (IPCC): The UN Environment Programme and the World Meteorological Organization (WMO) jointly established the IPCC in 1989 to provide broad and balanced information about climate change. The IPCC fulfils this role by reviewing and assessing the most recent scientific, technical and socioeconomic information produced worldwide relevant to the understanding of climate change and translating this information into IPCC Assessment Reports and other periodic releases. IPCC's mandate to member states such as Kenya and its sub-national entities such as Marsabit County Government enables provision of scientific, technical and other relevant information that informs climate change actions that entities should adopt. Such information includes projected temperature and rainfall changes and associated spatial and temporal socio-economic impacts.

The Paris Agreement: The Paris Agreement to the UNFCCC, just like the Kyoto Protocol is an instrument of the UNFCCC. The Convention is a consensual, non-binding agreement that must be implemented by politically binding agreements such as the Kyoto Protocol, the Paris Agreement and others that will be agreed to, under the COPs. The Paris Agreement was adopted in Paris, France in 2015 in COP 21 and came into force on November 4th, 2016. To date, 187 Parties of the 197 Parties to the UNFCCC have ratified the Agreement. Kenya ratified it on December 28th, 2016.

The Paris Agreement mandates all Parties to the UNFCCC to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. This is achieved primarily through the Nationally Determined Contributions (NDCs), which are country-specific and owned action plans detailing mitigation, adaptation and other related actions individual countries intend to undertake in order to combat climate change. NDCs are implemented at both national and sub-national levels, and many actions in Kenya's first NDC relate to a number of devolved functions of interest to Marsabit County.

1.1.2 Regional Policy Context

African Ministerial Conference on Environment: The African Ministerial Conference on Environment (AMCEN) was established in December 1985, following a conference of African ministers of environment held in Cairo, Egypt. AMCEN is a platform that brings together African ministers for environment to deliberate on common environmental and sustainable development issues of the continent. AMCEN has increasingly played a key role in advancing Africa's common positions on climate change, particularly with respect to the COPs and is therefore of relevance to sub-national governments like Marsabit. For instance, issues that inform the common positions that AMCEN advances at the COPs are discussed at both national and county levels. Kenya has particularly been active as well as played a key role in AMCEN given its role as the host of the United Nations Environment Programme (UNEP) that provides secretariat services for the platform.

The East African Community (EAC) Climate Change Policy (2010) guides Partner States on the preparation and implementation of collective measures to address climate change in the region. The African Union's Agenda 2063 commits to climate change action that priorities adaptation and calls on member countries to implement the Programme on Climate Action in Africa including a climate-resilient agricultural development program. Moreover, AU's Agenda 2063 commits to building climate-resilient economies and communities.

The Intergovernmental Authority on Development (IGAD) has also prepared the **IGAD Drought Disaster Resilience and Sustainability (IDDRS) Strategy**. IGAD Member States, Kenya included, developed Country Programming Papers (CPPs) for the Ending Drought Emergencies (EDE) interventions to be undertaken at the national level, from which the County Governments can now draw on for their drought resilience initiatives. Lastly, the African Union (AU) Policy Framework for Pastoralism in Africa aims to secure, protect and improve the lives, livelihoods, and rights of African pastoralists.

1.1.3 National Policy Context

The Constitution of Kenya 2010 forms the foundation of the institutional and legal framework for climate change action. Article 10 sets out the National values such as sustainable development. Article 42 provides the right to a clean and healthy environment for every Kenyan. The constitution created 47 devolved County Governments which have a key delivery role in climate response. For instance, the Fourth Schedule to the Constitution mandates counties to intervene on climate-sensitive sectors such as water and sanitation, agriculture, forestry, public works, health, and tourism.

Kenya Vision 2030 and its Medium Term Plans: The Vision 2030 presents opportunities to identify climate-related actions and priorities through its implementation tools; the medium term plans (MTPs). The Fourth MTP (2023-2027) thus has a dedicated section on climate change, in addition to treating the same as a crosscutting theme in all sectors of the economy including governance and the rule of law. This is a key lesson for counties on how to mainstream climate change. The MTP IV identifies actions to address climate change, including implementation of the second National Climate Change Action Plan (NCCAP 2018-2022) and the Green Economy Strategy and Implementation Plan (GESIP 2016-2030) as well as mainstreaming of the Climate Change Act 2016 into sector policies, programs and projects formulation.

Green Economy Strategy and Implementation Plan 2016-2030: The Green Economy Strategy and Implementation Plan (GESIP) 2016-2030 aims at providing guidance to all development actors to adopt pathways with higher green growth, cleaner environment and higher productivity relative to the business as usual growth scenario. It will aid Kenya's transition to a low carbon development path through promotion of economic resilience and resource efficiency, sustainable management of natural resources, development of sustainable infrastructure and providing support for social inclusion. Similar to the other plans, policies and strategies for green growth/climate change response, GESIP recommends for mainstreaming of its proposed actions into development planning at both national and county levels, complemented by sound inter-governmental coordination for creating synergies.

Climate Smart Agriculture Strategy 2017-2026: The Climate Smart Agriculture Strategy 2026 was developed to address the effects of climate change on the agricultural sector, taking cognizance of the importance of the sector to the country's economy. Agriculture being a devolved function, implementation of the strategy largely rests with county governments. The strategy thus recommends that each county develops CSA policies, strategies and plans to guide implementation or integrate County specific strategies into its County Integrated Development Plans (CIDPs) and other plans.

Public Finance Management (Climate Change Fund) Regulations, 2018: The draft Public Finance Management (Climate Change Fund) Regulations, 2018 aim at operationalizing the Climate Change Fund. The Regulations provide for the disbursement of the Fund's resources in the form of loans, grants or equity to eligible implementing agencies including county governments, as provided for in Section 25, for development of innovative actions that benefit climate change responses in Kenya.

The Climate Change Act (2016) provides the regulatory mechanisms to implement climate change resilience and low-carbon actions in both public and private sector development activities and has enshrined the National Climate Change Action Plan (NCCAP) – to be developed in 5-year cycles and aligned with the Medium Term Expenditure Plans (MTP IV)—as its principal implementation instrument. It requires County governments to domesticate the Act. The National Adaptation Plan (2015-2030) aims to integrate climate change into national and county level development planning and budgeting, as well as enhance the resilience of vulnerable populations to climate shocks. Section 19 of the act has given Counties role to integrate and mainstream climate actions into County planning, that, County Integrated Development Plan, Sectoral plans) it also allows Counties to designate CECM in charge of climate actions/affairs to coordinate and submit progress report on County climate actions. It also allows Counties to enact legislation to implement Climate Change Act of 2016

1.1.4 County Enabling Legal & Policy Framework

The Marsabit County Climate Change Action Plan (2018-2022) identifies the most vulnerable sectors negatively impacted by climate change, associated action plans, implementing agencies, and indicative budget. Among others, the plan recommends the following adaptation actions: promoting climate-smart agriculture, livelihood diversifications, and water catchment protection, building the resilience of at-risk communities, rangeland rehabilitation, and stakeholders' awareness on climate change and mainstreaming adaptation actions across all county departments.

Marsabit County Climate Change Adaptation Policy (2019) is a major milestone in addressing county residents' vulnerability to climate change. The policy's overarching objective is to reduce vulnerability to the impacts of climate change by building adaptive capacity, enhancing climate change resilience and strengthening capacities for disaster risk reduction. The policy also provides a framework for mainstreaming climate change adaptation in county planning and budgeting cycle, promotes climate change awareness, mechanisms for mobilizing climate finance, and mainstreams gender in the county's climate change adaptation and mitigation efforts. The policy also creates a robust

institutional framework for climate change response, recommends the adoption of specific legislation to better implement locally-led climate change response activities in Marsabit County.

Marsabit County Climate Change Fund Act (2020) creates a Fund that will, among others, finance climate change programs in the county, mainstream climate response in the county planning and budgeting cycle, domesticate national climate change policies, support climate change awareness in the county, and create various institutions including community-level structures such as Ward Climate Change Planning Committees. The Act offers guidance on how to access additional finance for climate change interventions, including but not limited to the National Climate Change Fund and mechanisms to leverage Public Private Partnerships (PPPs) as a vehicles for implementing low carbon climate resilient development activities in the county.

Marsabit County Climate Finance Framework (2023-2025). Section 14 of Marsabit County Climate Change Fund Act (2020) mandates the County Government to publish a County Climate Finance framework every three (3) years. Among other objectives, the Framework seeks to unlock financial resources necessary for the implementation of the County Climate Change Policy and County Climate Change Fund Act, establish an optimal mix of policy and financing tools thereby making climate change investments more attractive to private investors, provide assurances that the climate funds are used effectively and guarantee that climate change activities are undertaken as efficiently, mainstream climate change response into county planning and budgeting cycle and promote balanced and fair access to climate funds available so that vulnerable communities have equal access through affirmative action.

1.2 Purpose of the PCRA Report

Community and larger stakeholders active participation is very crucial for any sustainability engagement processes. The UNFCCC and PA is to strengthen the global response to the threat of climate change by keeping a global temperature rise below 2 degrees Celsius. Hence to contribute to global focus, the purpose of the PCRA report is to identify major climate risks, sources of vulnerability and priority adaptation actions to address the identified risks. Marsabit County is at high risk to impact of climate change because of their aridity nature where 87% of the land is arid. Therefore the PCRA process helps communities identify climate change hazards in their wards, impacts of the hazards and prioritized response actions for incorporation into the county Climate Change Action Plan (CCAP) and the County Integrated Development Plan (CIDP). PCRA is also one of the requirements for any climate finance projects since the assessment helps in designing climate change adaptation

and mitigation from informed perspective, for instance, it requirement accessing the Climate Resilience Investment Grants from the National Treasury's Financing Locally Led Climate Action, (FLLoCA).

The PCRA report outcome which feeds into County climate change action planning embraced multi-stakeholders engagement during assessment hence it will guide to climate change programs and project implement by various government agencies like non-governmental organization, faith based organization, and community based organization, civil society organization in the County.

1.3 Key steps in the county's PCRA process

The PCRA process has guide which has 8 steps. The process is guided by 8 steps which are Formation of the technical working group; training of the technical working group; mapping of stakeholders; preparation for community engagements; conducting participatory risk assessment at ward level; preparation of ward level risk assessment reports; data analysis and preparation for county level multi-stakeholder workshop; multi-stakeholder climate change risk assessment workshop and final report writing. The steps were done as below

Step 1: Formation of technical working group (TWG): Marsabit County TWG was constituted on 27th April 2023 where the members were selected from different climate sensitive sectors. Their appointment was done by CECM Water, Environment and Climate Change. TWG were 15 members drawn from Water, Livestock, Agriculture, Gender, Administration, Public participation, Economic Planning, ICT/GIS and Natural resources. Kenya Metrological Department and National Drought Management Authority and NGOs/CSOs were also adopted. Multi-sectoral approach was considered since climate change cut across all sectors

Step 2: Training of Technical working Group: The TWG appointed were trained on PCRA process and knowledge gain was used as ToTs to train other stakeholders at lower level for effective PCRA process. The team was trained by climate change unit spearhead by Director Environment and Climate Change, NDMA and representative from CSOs climate change expert. TWG was trained on PCRA guide for 4 days where they were trained on how to engage stakeholders actively to identify climate risk/hazards, historical climate hazards occurrence, and climate change trend, current and future scenarios and how to use PCRA tools to engage communities and stakeholders at ward to collect information. The team was also trained how to link the ward data collected and put to PCRA reports which guide climate change planning.

Step 3: Mapping of Stakeholders: Marsabit County has various stakeholders who are active in climate change matters. For ease of knowing who they are, where

they work, programs and projects they are implementing stakeholders mapping is important for effective coordination, good synergy, avoid overlapping and for equal distribution of resources. With this objective in mind below are the stakeholders who directly and indirectly influence climate change actions in the County (see annex3)

Table 1: Stakeholder analysis (Annex3)

Step 4: Preparation for ward level engagements: Marsabit County has 20 wards. The County is vast hence call for proper planning to ensure everyone ward is engaged. The illiteracy level stand at 68% in the County thus the TWG was trained on translating key climate information to different ethnic communities' languages like Borana, Rendille, Samburu and Kiswahili). The team was clustered in to 5 teams for ease of movements considering the distance of the furthest ward (illeret ward) is over 1,000km to and from County headquarters. During clustering TWG members were distributed to wards they can provide facilitation in local languages for effective communication. The climate change unit who played great role in coordination of the process did mobilization using different platform like local FM radios, through ward administrators and chief offices and through different active community groups.

The team prepared the two days program to engage ward, consolidated the tools to engage ward stakeholders, format to capture ward reports, minutes and format to capture details of the ward participants. For ease of communication apart from emails the TWG formed Whatsapp PCRA group

Step 5: Engagement of Communities at Ward Level on PCRA: The TWG engaged 20 wards member whose memberships were drawn from Ward Climate Change planning committee, Chairs of water, grazing, peace, environment committees, beach management units, community forest association, gum and resins cooperative, CSO, FBO among others. Other participants included ward administrators who are secretary to WCCPC, sub county livestock, agriculture, environment officers, foresters and other technical officers with ward level mandate. More time was taken to introduce PCRA process and its importance in addressing climate risk/hazards. Step by step engagement was done, that is community mapped resources they have, identification of hazards/risk and prioritize them in terms of how it affect different livelihoods', consolidated historical timeline and trend of different prioritized risk/hazards, vulnerability analysis and level of vulnerability, identify existing adaptation strategies and the County and identify future adaptation strategies based on existing one and see if there is scale up. With TWG guidance the communities were able to identified key climate change risks and hazards and, priority response measures.



Figure 2: Obbu Ward Community drawing resource map Figure xxx Central, Sagante and Karare Ward PCAR Engagements



Figure 3: Marsabit Central Ward Resource Map

Step 6: Data Analysis and Preparations for County Level Participatory Climate Change Risk Assessment: During the planning on how to engage ward participants the TWG come up with simple format to formulate ward PCRA report that will feeds into County PCRA report. The TWG organized for planning meeting to strategies on how to capture and analysis data collected from ward engagements. Looking at section of the report, groups were formed to work on the section of the reports to areas that can add value, for instance socio economic part of the report was given to economic planning, historical timelines, trend, hazards assessment and future climate projection, current and future adaptation strategies was given to NDMA , KMA and Directorate of Climate Change. The team planned for the workshop with clear TORs for each sector teams

Step 7: County Level Validation Workshop on Participatory Climate Change Risk Assessment Outcomes: The TWG organized for two days stakeholder validation meeting/workshop. The meeting was attended by 43 members from various categories of stakeholders. They were taken through the introduction of PCRA process, prioritized hazards/risk, existing adaptation strategies in the County and future adaptation strategies. More time and discussion was given to prioritized hazards and its impact to different livelihoods and how that link to prioritized future adaptation strategies in the County. Also more discussion is given to how the PCRA if feeding to County climate change action plans that will guide the County of climate change adaptation and mitigation programs and project for the last five years.

Step 8: Participatory Climate Risk Assessment Report: After the validation workshop the TWG now embarked on report writing as per guideline provided putting into consideration comments/suggestions during validation meeting. The team took special consideration how the report will feed into CCAP

2.0 County Climate Hazard Profile

2.1 Current and Historical Climate Hazards and Trends

Marsabit County fall within arid and semi-arid area, and as such can be classified as a dryland county. The County, with a total area of 70,961.2 sq. km is located in the extreme end of northern Kenya and it lies between latitude 02o 45o North and 04o 27o North and longitude 37o 57o East and 39o 21o East. It shares an international boundary with Ethiopia to the north, borders Turkana County to the west, Samburu County to the south and Marsabit and Isiolo counties to the east with a population of 459,785 persons (Kenya National Bureau of Statistics, 2019 Population Census. The county has arid climatic condition with the exception of the areas around Mt. Marsabit, Mt. Kulal, Hurri Hills and the Moyale-Sololo escarpment which represent typical semi-arid condition. The temperature ranges from a low of 15oC to a high of 26oC, with an annual average of 20.5oC (World Weather and Climate Information, 2015). It has a bi-modal rainfall pattern. The long rain season fall between April and May while the short rain season falls between November and December. Rainfall ranges between 200mm and 1,000mm per annum and its duration, amount and reliability increases with rise in altitude. North Horr (550m) has a mean annual rainfall of 150mm; Mt. Marsabit and Mt. Kulal experience 800mm while Moyale receives a mean annual rainfall of 700mm. (Marsabit CIDP 2018-2022).

Drought, ethnic conflict, livestock pest and diseases are the most pressing hazards that are experienced in the agro-pastoral livelihood zone almost every year in the last 10 years. Besides, crop pest and diseases and flooding are ranked at position 4, 5 and 6 respectively. Other hazards that are experienced every year but are not as important as those stated above include human wildlife conflict, high variable food prices, and shortage of food in the market, shortage of drinking water among others

Table 2: Risk and Hazard ranking in Marsabit County

Name of Hazard	Risk	Rank of importance	No of years experienced in last 10 years	Wards
Drought	<ul style="list-style-type: none"> ✓ Scarcity of water ✓ Food insecurity/shortage of food ✓ Animal theft ✓ Human wildlife conflict ✓ Scarcity of pasture ✓ Erratic rainfall ✓ Bush fire during dry spell ✓ Prolong dry spell 	1	4	Township, Hellu Manyatta, Butiye, Golbo, Ubbu, Uran, Sololo, N.horr, Maikona, DuKana, Illeret, Turbi/Bubisa, Laisamis, Logologo/Kamboe, Korr/Ngurunet, Kargi, Loiyangalani/Mt Kulal, Mountain, Sagate/Jaldesa and

				Karare/Songa
Resources based conflict	<ul style="list-style-type: none"> ✓ Land degradation ✓ Shortage of human and livestock water use ✓ Unclear boundary issues ✓ Ethnicity/tribalism ✓ Political incitement 	2	3	Logolo/Kamboe, Mountain, Karare, Sagante/Jaldesa, Kari, Maikona, Turbi,Uran Dukana, Loiyangalani/Mt Kulal and Illeret
Human and livestock Diseases	<ul style="list-style-type: none"> ✓ Weak livestock body condition during drought ✓ Water borne diseases due to water scarcity ✓ Terminal illness 	3	10	Kargi/S. horr, Sagate/Jaldesa, Logologo/Kamboe, Laisamis, Dukana, Illeret
Flooding	<ul style="list-style-type: none"> ✓ Destruction of properties ✓ Human and livestock deaths ✓ Increase in water borne diseases ✓ High winds/cyclones 	4	10	Obbu, Sololo, Logologo/Kamboe, Uran, Butiye, Dukana

The major threats and hazards that has affected Marsabit County are drought, human and livestock diseases, conflicts, floods and retrogressive cultural practices and coping strategies like cattle rustling and charcoal burning respectively. In recent times, frequency, severity and magnitude of these hazards have increased. Other emerging threats that have increased the vulnerability of the community are loss of, and extinction of indigenous flora and fauna i.e. shrub and grasses which were resilient to the local environment. change in land uses, emergence of invasive plant species such as *Prosopis Juliflora*, emergence of foreign pests such as fall army worms and desert locusts, and politically instigated resource-based conflicts also poses a challenge to sustainability of the livelihood systems in the county.

- The county experiences both Natural and Man-made hazards
- Marsabit County hazards are: Drought, Conflict, Floods, Desert Locust Invasion, Lake Turkana surge, fire outbreak, pest and diseases and COVID-19 pandemic.
- Disasters are increasingly becoming a common phenomenon in Marsabit County. This may be attributed to changes in the ecosystem driven by many factors such as increased population growth that puts pressure on many resources and climate change among others.

Natural disasters, such as drought, floods can dramatically affect food supply and distribution. These kinds of disasters can destroy existing food rations, agriculture crops and livestock, leading to severe shortages. When roads are

flooded, or power infrastructure is destroyed, the ability to both access and prepare foods is impacted and the government must distribute safe water and food (or nutritional supplements) to its population. The historical timeline below illustrates the major hazards and their changing trends dating thirty years back.

YEAR	EVENT/HAZARD	NEGATIVE EFFECTS/IMPACTS	POSITIVE EFFECTS/IMPACTS
1990-1992	Drought	Livestock deaths, human starvation, conflicts and migrations	Active butter trade, for example (Somali Posh) Rendile (goats)
1993-1994	Conflicts	Diminished source of livelihood as result to drought had led to community conflict hence leading Displacements, loss of life and property	Currently the some areas serves as livestock grazing fallback area, it also falls under national reserve with wildlife i.e. elephants, Lions, Giraffe etc.
1997-1998	El -Nino	Outbreak of livestock diseases, destruction of infrastructure, shortage of food supplies, interrupted communication channels, loss of livestock, human diseases	Upsurge in mudfish, enhanced pasture regeneration and crop production/yields, (maize, Beans, Sorghum)
1999-2000	Human diseases (Cholera outbreak)	Loss of human lives, closure of schools and business enterprises particularly eateries and hotels, markets medicine stock-out at major health facilities	Response from Government with medicines, water treatment chemicals, relief food supplies by NGOs, temporary employment for CHWs to sensitize communities, (the present day CHVs)
2001-2004/5	Drought	Conflicts, migrations, outbreak of diseases, livestock diseases, shortage of food due to loss of livelihoods (Livestock)	Initiation of Government relief programme (EMOP)
2005-2006	Conflict-Turbi Massacre/plane crash	-Massive human deaths, loss of livelihoods/livestock, closure of businesses - All the four-constituency member of parliaments for Marsabit county perished	Initiation of the Kenya Police reservists (KPR) currently National police Reservists (NPR) Peace prevailed among the warring communities, formation of ambassador positions in the region
2008-2011	Drought	Conflicts, migrations, outbreak of diseases, livestock diseases, shortage of food due to loss of livelihoods (Livestock), massive school drop-outs to join bird shooting as a livelihood	Construction of water harvesting infrastructure, livestock market-based and slaughter-based offtake, bird-shooting as a livelihood, establishment of NDMA through a legal notice to manage issues of drought
2009	Human diseases(Cholera)	Loss of human lives, closure of schools and business enterprises particularly eateries and hotels, markets medicine stock-out at major health facilities	Equipment of medical facilities by government

2014-2015	Drought	Conflicts, migrations, outbreak of diseases, livestock diseases, shortage of food due to loss of livelihoods (Livestock), massive school drop-outs to join bird shooting as a livelihood	Development of integrated county drought contingency plan
2019-2020	Covid-19	Closure of businesses, movement restrictions,	Improvement in health centers
2019-2020	Desert locusts, Fall armyworms	Destruction of crops and vegetation cover	-Youth employment to monitor locust
2019-2022	Drought	Massive livestock deaths, estimated at over50% of the total herd	Formation of the national steering committee on drought response bringing together the public and private sectors at the national level
2023	Flood	Destruction of farm land/crops/rangeland. Human and livestock deaths	Productive rangelands, emerging of wild fruits

Table 3: Historical hazard timeline

2.2 Exposure and vulnerability profiles of the county

Pastoral livelihood zone is the largest and widespread across the county. It consists of 14 wards in 4 sub counties (figure 5). Pastoral livelihood zone supports 81% of the county population of 459,785 persons (KNBS, 2019). Pastoralism is the preferred pattern of livelihood, and livestock is the main source of food and cash income. The main source of income and food for the better off and middle households was 60 percent and poor and very poor households had 48 and 40 percent respectively. The increase in better off and middle percentage is attributed to increased livestock ownership compared to poor households. Agro pastoral is the second largest livelihood zone in Marsabit County covering 10 wards and 3 sub counties. Agro pastoral livelihood zone supports 16percent of the county population of 459, 785 people (KNBS Census, 2019). The sale of livestock and livestock products are the main sources of cash income in the Agro Pastoral livelihood zones contributing 60 percent of cash income respectively. Food crop production contributes 20 percent to cash income in the Agro-pastoral livelihood zone. Livestock and land area owned are the most important factors determining wealth in the livelihood zone. Better off households are about 10percent, middle 40 percent while poor and very poor had 30 and 20percent respectively.

The main crops grown in the Agro Pastoral livelihood zone of Moyale and Saku sub counties are maize, beans, green grams and cowpeas. Horticultural crops such as tomatoes, kales, and spinach are mainly grown under Irrigation. The acreage under crop production in Agro pastoral livelihood zones is negligible with less than 10 percent of area under cultivation and average yield for both short rain and long rains with most of the farmers adapting the nomadic

pastoralism due to the climatic conditions which are not favorable for crop farming.

Livestock production is the main source of income for all types of households in agro pastoral zone. Dependence on livestock increases with wealth where 50 percent of middle and 70 percent of better off households rely on livestock sales for income. Very poor and poor had 35 and 30 percent as the main source of income for Livestock. Food crop production and firewood/charcoal burning were the other major source of income for the Agro pastoral livelihood zone. the poor and very poor households had the highest percentage income from Fire wood/charcoal burning with 12 and 15 percent compared to nine and two percent for the middle and better off wealth category. Charcoal burning and sand harvesting are environmentally unsustainable economic activities and contributes to serious environmental degradation, increased health risks and additional workload for women and girls, and increased emissions of greenhouse gases (GHG).

2.3 Differentiated impacts of climate trends and risks

As a society, we have structured our day-to-day lives around historical and current climate conditions. We are accustomed to a normal range of conditions and may be sensitive to extremes that fall outside of this range. Climate change could affect our society through impacts on a number of different social, cultural, and natural resources. For example, climate change could affect human health, infrastructure, and transportation systems, as well as energy, food, and water supplies. Some groups of people will likely face greater challenges than others. Climate change may especially impact people who live in areas that are vulnerable to drought, flood or conflict, people who live in poverty, older adults, and marginalized communities

Women: Drought disproportionately affects women and girls in Marsabit County. Pastoralist women find that with drought and other climate risk their family responsibilities increase. The job of fetching weak livestock left behind in the old homestead falls to them; they must go back and forth, ferrying the weakened livestock on donkey, and must somehow find the means to feed the animals. Without pasture, the same grain that feeds their families is also used to feed the weak animals, further straining the household budget. To cope, the women skip meals, making do with a meal a day and sometimes none at all. Drought also forces girls out of school. To help ease the burden at home, they forfeit their education for work as house-helps in urban areas

Youth: Among the youths, 83.3% are multi-dimensionally poor compared to a national average of 48.1%. For youths aged 18-34, the core drivers of multidimensional poverty are housing (79.9%), nutrition (76%), education (74.5%),

sanitation (71.4%) and economic activity (55.8%). Climate change, political and economic instability, the effects of the COVID-19 pandemic plus the damage caused by the desert locust infestation have also intensified and blatantly exposed, the vulnerability of the populations in the county. Youths drop out of school, engaged in crime like cattle rustling, rural-urban migration and poor performance in school

Elders: for the elderly population, 91% are multi-dimensionally poor compared to a national average of 55.7%. Among adults aged 35-59, the core drivers of multidimensional poverty are education (90.2%), housing (80.2%), economic activity (80.4%), and sanitation (69.9%). Among the elderly aged 60+, the core drivers of multidimensional poverty are education (95.9%), housing (88.9%), nutrition (88.6%), and sanitation (78.5%). At the same time, climate change risks such as droughts tend to increase elder's vulnerabilities: appropriate foods may be unavailable, their mobility might be reduced and their dependence on others may increase. Droughts also negatively affect the traditional roles of older people, and perhaps more specifically their social position, as communities and power and support structures are dismantled, leaving older people with less influence and power.

Children: 85.3% of children in Marsabit are multi-dimensionally poor. This is 33-percentage points higher than the national average of 52.5%. Among children aged 0-17, the core drivers of multidimensional poverty are nutrition (87%), housing (83.8%), information (79%) and water (60.4%). Children are among the most vulnerable to the climate risk hazard such as drought. Families have been driven to an increased reliance on negative coping mechanisms and strategies, which indirectly or directly affects children. When families are faced with difficult decisions in order to survive, they may be forced to leave their children, including at streets/relatives, so they can search for work or pasture; reduce the mouths they need to feed by engaging their children in forced marriage; or rely on their children for financial support and essential household activities. Negative coping mechanisms and strategies involving children have long-term repercussions, especially as children often do not have the same agency as adults, making them vulnerable to the decisions taken by their caregivers. High rate of malnutrition has been also recorded among children in the county.

Persons with Disability (PWDs): Water scarcity has limited access to safe water for drinking and for practicing basic hygiene at home, in schools and in health-care facilities. Person living with disability and terminally sick people is affected as there is inadequate food, water, insecurity and increase in diseases such as urinary tract infections among others. The assets livelihood is wiped away by prolonged drought; people with terminal illness often exposed to lack of medication and this in long run might cause death.

Other vulnerable groups: As the climate continues to change, hundreds of marginalized people face increasing challenges in terms of extreme events, health effects, food, water, and livelihood security, migration and forced displacement, loss of cultural identity, and other related risks.

Groups	Characteristics	Risk faced	Productive activities/Livelihood
Women	In many cases, women are restricted in owning or inheriting land or wealth. Lacking power or control over household or communal resources makes women subservient to men and relatively powerless in negotiating, including in the realm of sexual relations, thus increasing their vulnerability to infections and other hazards	-Early marriage -Trekking long distance to face water -Inaccessibility to maternal care -Premature deliverance and deaths -Family separation -Malnutrition	-Casual labourers such as house help, washing clothes at fees, - Miraa business, -Beading -Selling of firewood
Children	They are young depend on caregivers and thus more vulnerable to climate risk hazard	-Child labour -Malnutrition -street children -Forced marriage -School dropout -Drug abuse	Mainly depends on others for livelihood except some cases where they are engaged in child labour such as house help
Youths	-The common issues a young person's is low self-esteem and a poor self-image. -	-Drop out of school, -Engaged in crime like cattle rustling, -Rural-urban migration -Early marriages -poor performance in school - Young people who run away from home are recognized as being more at risk of being targeted as a victim of sexual exploitation. -High rate of drug abuse	-Charcoal burning -Logs selling -Water vendors -Boda boda operators -Herding for cash -Casual labourers
Elders	-They are weak, have health crisis, mobility low and depends on others for living	-Emaciated -Deaths -Poor eye sight -Malnutrition -Lack of care	No engagement in productive activities. They mainly rest.
Person living with disability	They are weak and requires assistant	-Deaths -Starvation -Emaciated	No engagement in productive activities. Some engage in activities like shoe shining, kiosks owning among others

Table 4: Differentiated impacts of climate change

2.4 Spatial Distribution of Risks

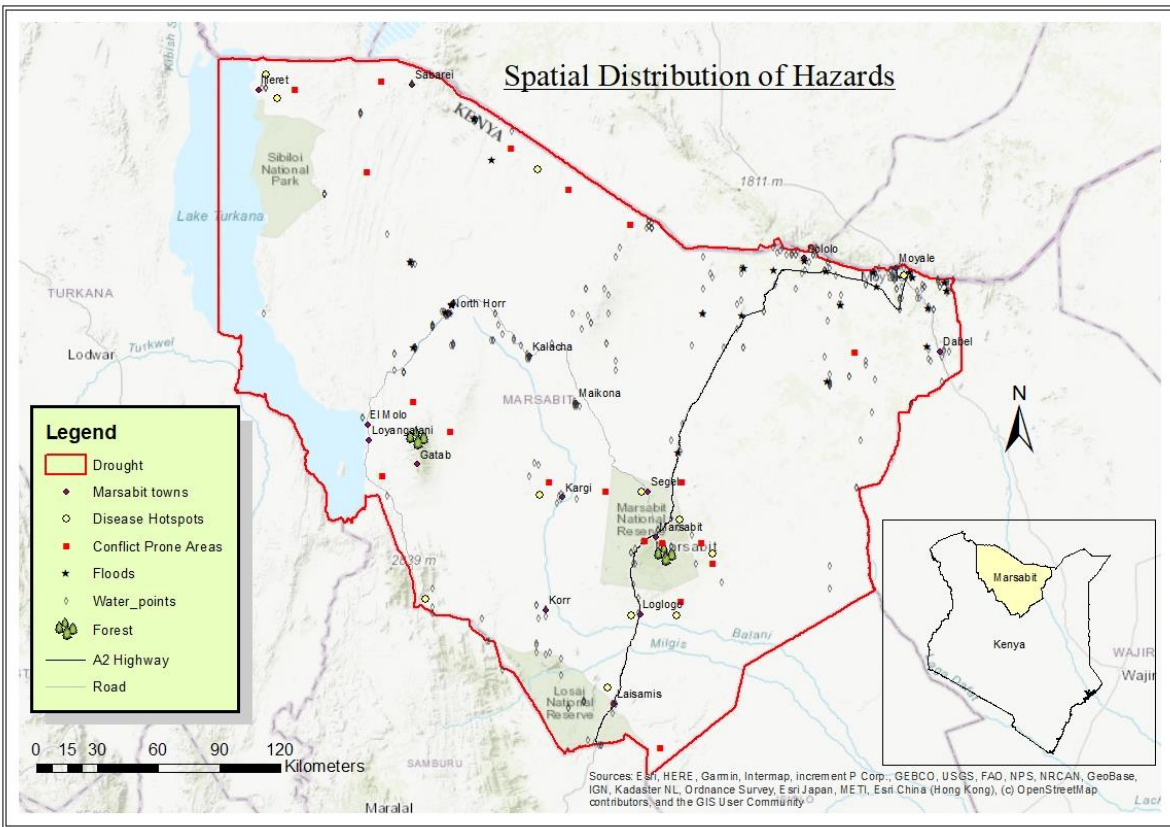


Figure 4: Spatial distribution of hazards in Marsabit County

Drought: As shown in the hazard map, drought is experienced in the entire county with its intensity of effect varying according to sub county vulnerability exposure. Laisamis and North Horr Sub Counties are mostly affected due to their aridity and over-dependence on pastoralism.

Disease outbreaks: With changing climate, some regions have also experienced unique disease outbreaks like Kalaazar (disease caused by sand flies) which has mainly affected herders. The cases of kalaazar have been reported in Laisamis Sub county (Gudas, Logologo, Kargi, Laisamis among other areas), North Horr Sub County (shurr) and Saku Sub County (Kupiqalo and Segel). Marsabit County has been known as a malaria free-zone. However, there have been recent reported cases of malaria in Kargi, causing the deaths of 10 people in a span of two weeks, immediately following the short rains of 2023. Other malaria cases were reported in Dukana, illeret and Saku.

Resource conflicts: resource-based conflict is another hazard mostly caused by competition for scarce rangeland resources (water and water). Recurring drought and keeping of large number of livestock has led to environment degradation that sustains competition for the scarce resources. Where proper

negotiation on utilization those resources has not been met, conflict occurs leading to loss of lives and livelihoods. Climate change is increasing the rate of rangeland degradation and associated conflicts while political incitement and boundary disputes remain other triggers. Conflict hotspots include Saku, Songa Badasa, Shurr, Jaldesa, Gudas, Orender, Yel, Kambimye/Segel, Arapal/Gas, Sarima, Kom, Elebor/Eledimtu, Funanqubi, Forole, Illeret and North Horr among others.

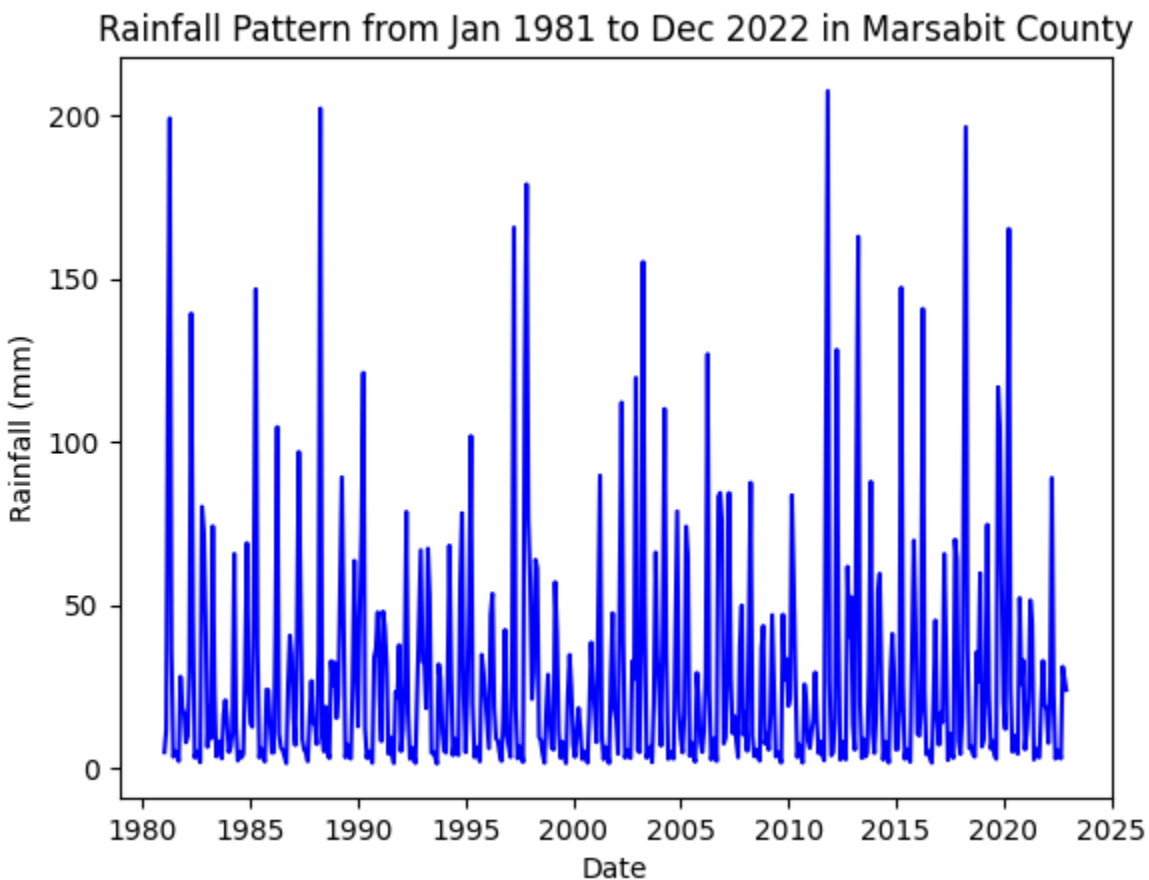
Floods: After a prolonged drought, the County is always visited by flash floods following heavy down pour. The ongoing short rains of 2023 has led to widespread flooding in areas like Moyale Sub County (Dabel, Kinisa, Godoma, Watiti) Sololo (Anona, Watiti, Bori, Antut, Qate, Madowadi, Uran and elebor, Bathanareno, Ambalo), Saku town, Balesa, Milgis and Kargi. This has led to destruction of property, social infrastructure, loss of livehoods and disease outbreaks.

3.0 Future Climate Scenarios for the county

3.1 Climate trends and projections

Rainfall is erratic and highly variable with high evaporation rates that exceed rainfall more than 10 times. The county experiences tropical climatic conditions with extreme temperatures ranging from a minimum of 15° C to a maximum of 26° C, with an annual average of 20.5° C (World Weather and Climate Information, 2015). Rainfall ranges between 200 mm and 1,000 mm per annum and its duration, amount and reliability increases as altitude rises. The lowest part of the County like North Horr (550 m asl) has a mean annual rainfall of 150 mm while Mt. Marsabit and Moyale receive a mean annual rainfall of 800 mm and 700 mm respectively (CIDP 2013)

Figure 5: Rainfall pattern from Jan 1981 to Dec 2022 in Marsabit County (Source: NDMA)



The Intergovernmental Panel on Climate Change (IPCC) 2007, recommended indicators that can be used to detect climate change. Some of these indicators include the “number of nights with temperature below/above certain threshold values”, cold and warm spells indicators, the daily temperature range, extremely wet days, and the number of heavy precipitation days; among

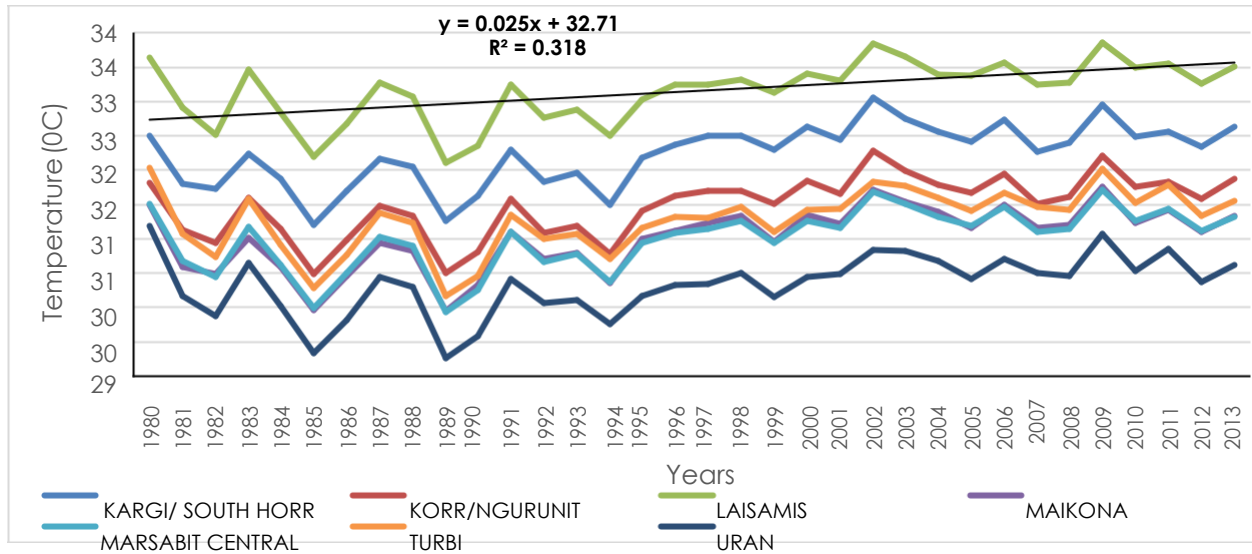
others. Several approaches can be used for the analysis of climate change, including statistical and graphical techniques. Modelling is one technique used to simulate climatic variables to generate projections of climatic conditions in the future. However, these projections are based on assumptions and have high uncertainties, to inform responses and address current and future climate-related impacts.

3.2 Temperature Change Trends and projections

Climate change is expected to cause global average surface temperature to increase some 1 to 2.5 °C by 2030 and it is predicted that during this period, billions of people, particularly those in developing countries will face changes in rainfall patterns and extreme events, such as severe water short-ages, droughts or flooding. These events will increase the risk of land degradation and biodiversity loss. Climate change will also affect the length of growing seasons, and crop and livestock yields, and bring about increased risk of food shortages, insecurity, and pest and disease incidence, putting populations at greater health and livelihood risks.

The mean annual temperature in Kenya has increased by 1.0°C since 1960 and daily temperature observations show a significant upward trend in the frequency of hot days, and an even larger upward trend in the frequency of hot nights. The frequency of cold days has decreased significantly, and the frequency of cold nights has decreased even more rapidly and significantly, in all seasons. It is largely assumed that temperatures will continue to increase. Long term temperature change trends for Marsabit (1980-2014) revealed an increase in average temperatures of about 1.5°C. The trend demonstrates that while temperature is increasing with time, the rainfall does not follow the same trend.

Figure 6: Marsabit County temperature trends maps (1980 – 2014): Source REGAL IR 2016

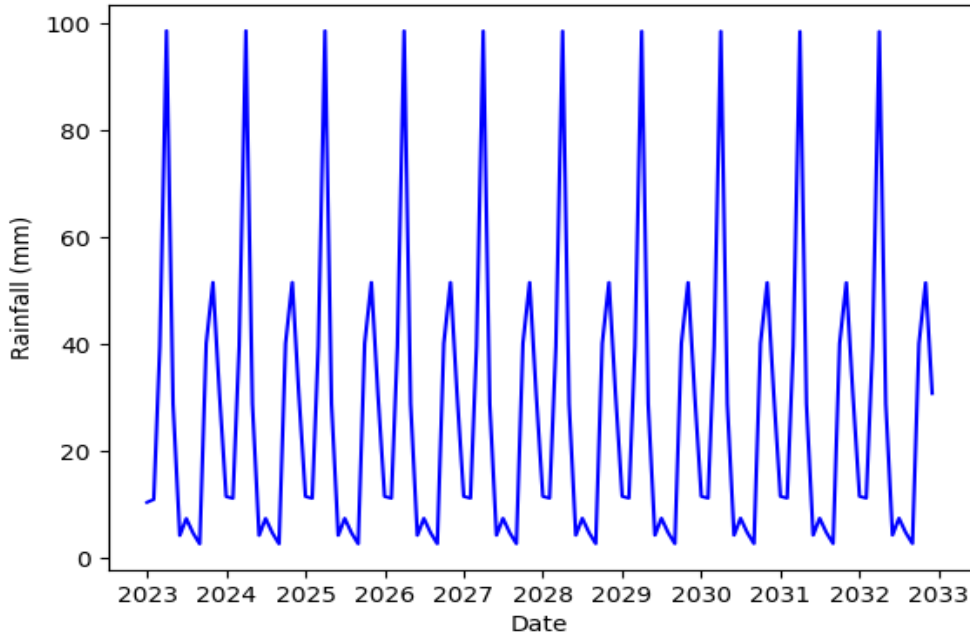


3.3 Rainfall trends and projections

Rainfall projections for the future in Kenya are inconsistent. A range of models and scenarios suggest both increases and decreases in total precipitation (www.cimatewizard.com). The large influence of El Niño Southern Oscillation (ENSO), as well as uncertainties, and inaccuracies for county levels in climate models make it very hard to find scientific evidence that the climate is going to change in Marsabit County. It is however, largely taken that temperatures continue to increase, and rainfall will even be more erratic than it already is today.

Figure 7: Forecasted rainfall pattern from Jan 2023 to Dec 2032 in Marsabit County (Source: NDMA)

Forecasted Rainfall Pattern from Jan 2023 to Dec 2032 in Marsabit County_S

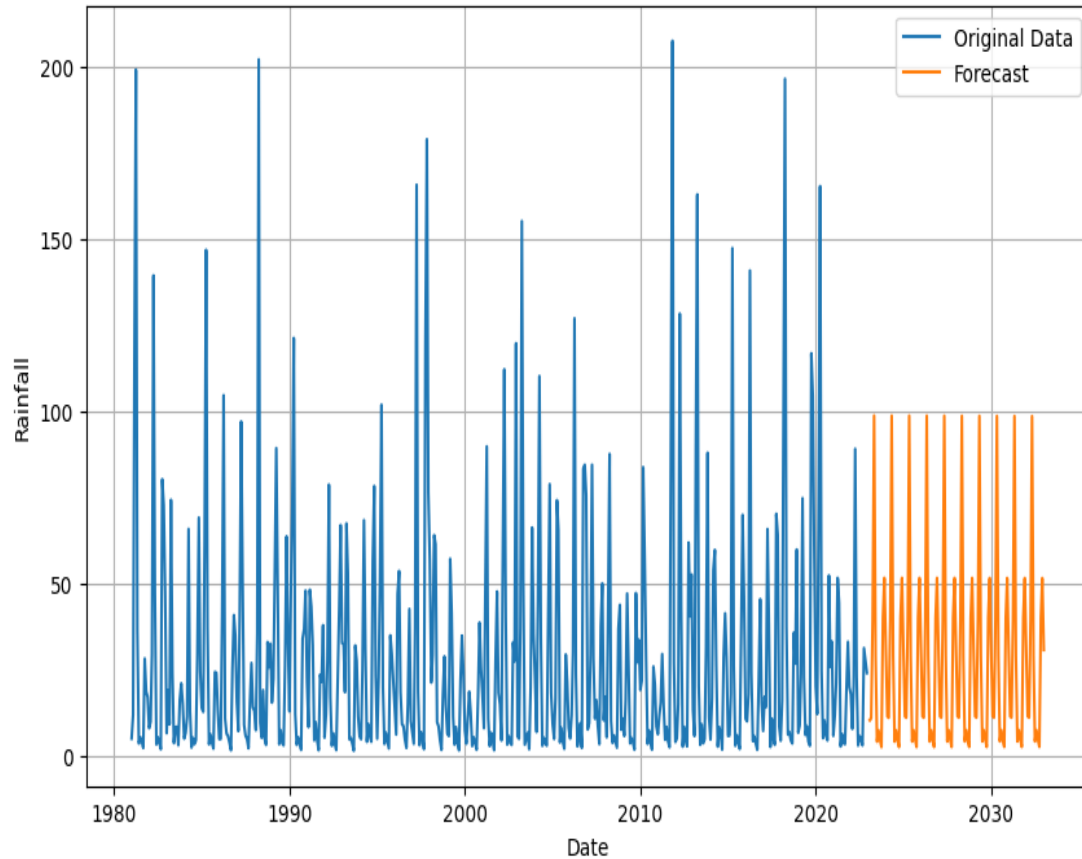


The forecasted rainfall for Marsabit County shows a trend with the highest peak experienced in April followed by November, then October, March, December and finally May. These are the 6 months with notable high rainfall ranging from 30.75mm in Dec to 98.62mm in April. This can be translated to long rains from March, peaking in April with an average of 98.56mm across the decade and ending in May and short rains starting in October, peaking in November at an average of 51.50mm across the years and ending in December.

Subsequently, April and November are the months with the highest rainfall all through the years, whereas September is the month with the least rainfall at an average of 2.58mm over the decade followed by June at 4.16mm.

Figure 8: Marsabit County Rainfall data from Jan 1980 to Dec 2021 and forecast from Jan 2023 to Dec 2032

Marsabit County Rainfall Data from Jan 1980 to Dec 2021 and Forecast from Jan 2023 to Dec 2032



(Source: KMD and NDMA)

Comparably, the months with the highest rainfall in the previous decade were April, November, October, March, December and May each averaging at 115.28mm, 52.56mm, 44.05mm, 43.74mm, 30.41mm and 28.72mm respectively and across the decade. On the other hand, September and June were also the driest months with 3.11mm and 3.88mm monthly average across the last 10 years. The forecast data gives a similar trend as the most dry and wet months of both decades, mirror.

Table 5: Next Decade and Last Decade Comparison (Source: KMD and NDMA)

Next Decade and Last Decade Comparison												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Last Decade	11.34	11.08	39.49	98.56	28.78	4.16	7.65	4.65	2.58	40.09	51.50	30.74
Next Decade	9.68	11.18	43.74	115.28	28.72	3.88	7.68	4.54	3.11	44.05	52.56	30.41

In the coming decade, Marsabit County will experience a monthly average rainfall of 27.55mm and a decade sum of 3306.14mm compared to the previous decade that had a decade sum of 3548.23mm and 29.57mm monthly mean rainfall. Taken together, this represents a 6.82% reduction in the amount of rainfall in Marsabit County for the coming decade.

3.4 Vegetation Cover Changes and productivity trends

Monitoring vegetation productivity is important in assessing threats to environment and to ensure feed and food sustainability to humans and animals. Past studies have estimated vegetation productivity using normalized difference vegetation index (NDVI) which is an indicator of photosynthetic activity in a living plant. NDVI has also been used as an indicator (proxy) for vegetation vigor and vitality. Droughts are caused by precipitation well below normal averages and a major climatic condition which affect vegetation and livelihoods in the ASALs. Among the effects of drought is the low vegetation quality and quantity. Indeed, vegetation productivity during the dry seasons is one of the most limiting factors to pastoral livelihood sustainability in Marsabit County and the entire the ASALs.

A time series vegetation cover studies (1990-2015) by REGAL-IR in 2016 for Marsabit confirmed a shift from forests, woodlands, bushlands and herbaceous cover to grasslands and shrub land marking the beginning of the disappearance of the typical savannah vegetation in Marsabit. In 1979, for instance, shrub land covered an estimated area of 4,076,584.71 Ha followed by grassland at 2,839,840.64 Ha cropland covering an estimated area of 11,469.19 ha with the least dominant LULC type then being a settlement which covered an estimated area of 44.51 Ha. Major changes were recorded in Marsabit between 1979 and 2014 across nearly all LULC types, with a total of 380,001.52 Ha immersed bare land over the 35 years. It is noteworthy to mention that a huge fraction of this change (90.33 percent; 343,260.82 Ha) was gained during the 2010 and 2014 window. Conversely, grassland registered the highest losses within the same period. Again, most (394,867.73 Ha) of this loss occurred between the 2010 and 2014 period. It will be remembered that Kenya has experienced successive drought episodes beginning late 2009 through 2017, only varying in intensity.

4.0 Analysis of Existing Adaptation Strategies to Current and Future Climate Risks

4.1 Overview of existing adaptation/resilience strategies and their effectiveness to current climate risks

Recurring Droughts: Drought is one of the major hazards in Marsabit County and therefore the choice of the right adaptation strategy and its effectiveness is extremely important. Adaptation strategies proposed during the PCRA: Investing in water harvesting and ground water structures, investing in climate smart agriculture and diversification of livelihoods.

Effectiveness of adaptation strategies: Investing in water harvesting and ground water structures has been working well in the drought emergency hotspots within the County. In areas where these interventions have been implemented, return trekking distances to water sources has reduced and waiting time at water sources has also reduced. Water consumption per household per day has increased and the cost of water for a 20 liters jerry can has reduced. While this strategy has been effective, due to the vast geographical coverage of the County, the scope of this work needs to be up-scaled to cover more household and institutions in the far flung areas of the County.

Resource-based Conflicts: Most conflicts within Marsabit County are due to scarce water and pasture resources that are located within communally owned rangelands. Adaptation strategies proposed during the PCRA include: investment in water harvesting and ground water structures, promotion of participatory rangeland management and investing in peace building initiative.

Effectiveness of adaptation strategies: Through rain water harvesting and ground water structure, conflicts over scarce water and pasture can be reduced when more rain water is harvested and utilized through dams and pans, rock catchments, underground tanks and other appropriate rain water harvesting technologies. Rangeland management and investment into peace building activities can reduce conflicts over shared natural resources and improve communal co-existence and harmony. More of such investment needs to be replicated elsewhere in the County as adaptation strategies for reducing natural resource based conflicts. Human and wild life conflicts can also be reduced when investment into water harvesting infrastructures takes into consideration water for wild-life too.

Environmental degradation: Environmental degradation has remained one of the major challenges in Marsabit County. Adaptation strategies proposed during the PCRA include: Proper land management (contours, terraces, bridges,

promotion of participatory rangeland management and Sustainable waste management.

Effectiveness of adaptation strategies: Intervention into soil and water conservation structures can improve soil moisture content, soil water retention potential and this will greatly contribute to improving the vegetation cover of the degraded rangelands.

Livestock and human diseases: Livestock and human diseases affect large population of both the people their livestock in the County. Adaptation strategies proposed during the PCRA include: Control of livestock movement, promotion of participatory rangeland management, mass vaccination of livestock and equipping of health centers with drugs.

Effectiveness of adaptation strategies: Control of livestock movement limits transmission of livestock and human diseases. Participatory range management gives the community the ownership of their land resources and therefore sustainability of rangeland management become a collective responsibility of every local person living within that ecosystem. Through vaccination, immunity of both livestock and young children would be strengthened and deaths reduced.

Flash floods: In addition to other hazards, we also have major flush flood hotspots in the County. Adaptation strategies proposed during the PCRA include: Timely early warning disseminations, Proper land management and capacity building of communities.

Effectiveness of adaptation strategies: Through use of early warning bulletins and advisories provided by Kenya Meteorological Department and National Drought Management Authority to those who are living within flush flood prone areas, lives and livelihood have been saved. Continuous capacity building of the local communities to cope with hazards such as flush floods have increased chances of resilience and building their adaptive capacities during emergencies.

4.2 Effectiveness of adaptation/resilience strategies to future climate risks

Table 6: Effectiveness of adaptation/resilience strategies to future climate risks

Current Locally Experienced Trend and Impact	Relevant Climate Projection – National (e.g. 2050)	Adaptation strategies	Likely Future Hazard Scenario
Prolonged dry spell leading to depletion of water, pasture and browse conditions for livestock	Frequency of prolonged dry spell expected to increase by 2050	Investing in water harvesting and ground water structures. Investing in climate smart agriculture	Increased frequency and duration of long dry spells may lead to severe drought conditions with increased acute water shortages and increased food and nutritional

Current Locally Experienced Trend and Impact	Relevant Climate Projection – National (e.g. 2050)	Adaptation strategies	Likely Future Hazard Scenario
		Diversification of livelihood	insecurity. Depletion of pasture and browse leading to poor livestock body conditions and market prices worsening the already existing vulnerability
Erratic rainfall pattern with poor temporal and spatial distribution	Rainfall expected to be unpredictable both in space and time with projected emission scenario by 20250 in the county	Investing in water harvesting and ground water structures Investment in climate smart agriculture Afforestation and re-afforestation strategies	Erratic rainfall projection both in space and time increases vulnerability and severity to drought affecting main livelihoods in the county
Increasing length of drought periods, which are reducing browse and pasture and water availability fueling natural resource based conflict	Frequency and severity of drought with high temperature projections to worsen by 2050	Investment in water harvesting and ground water structures Promotion of participatory rangeland management Investing in peace building initiative	With temperature increment of 1.5 to 2.0 degree Celsius more drier conditions expected to worsen scarcity of water and browse conditions leading to increased resource based conflict.
Human-wildlife conflict over scarce water and pasture conditions experienced mostly around national parks	With increased frequency and duration of drought projected by 2050, more human and wildlife conflict to be realized both within and outside protected areas	Restoration of forest habitat Capacity building of the communities on conservation education Compensation of communities	Human-wildlife conflict prevalence to increase affecting both lives and livelihoods of communities bordering protected areas
Depressed rains and increase in temperature leading to land degradations and loss of biodiversity	With projected increment of temperature by 1.5 to 2.0 Celsius and long periods of dry season, environmental degradation to worsen by 2050	Proper land management (contours, terraces, bridges) Promotion of participatory rangeland management Sustainable waste management	Land degradation and loss of biodiversity worsens community's resilience to climate change and coping mechanisms

Current Locally Experienced Trend and Impact	Relevant Climate Projection – National (e.g. 2050)	Adaptation strategies	Likely Future Hazard Scenario
Increase in average temperature created environment for vector borne livestock and human diseases	With projected increment of average temperatures by 2.0 Celsius more favorable conditions for vectors expected to increased	Establishment of Livestock laboratory and veterinary services Promotion of participatory rangeland management Mass vaccination of livestock Equipping of health center with drugs	Human and livestock diseases expected to increase with increase in temperature as projected by 20250 emission scenario
Torrential rainfall with short duration with increased intensity causes floods	With unpredictable and torrential rainfall pattern projection more flood situation expected to be witnessed by 2050	Timely early warning disseminations Proper land management Capacity building of communities	Unpredictable and increased torrential rains with high intensity expected to worsen hence affecting lives and livelihoods of communities

Prolonged dry spell leading to depletion of water, pasture and browse conditions for livestock: The likely future hazard scenario is that we will have increased frequency and duration of long dry spells that may lead to severe drought conditions with increased acute water shortages and increased food and nutritional insecurity.

Adaptation strategies: The choice of our adaptation strategies involving rain water harvesting and ground water structures have to be improved to cope with the extreme and potential disastrous future emergencies. Our coordination mechanism involving both the National and County Government as well as partners and communities have to be strengthened further to save lives and livelihood. Adaptation strategies that have worked well now could be up-scaled and utilized in the likely future hazard scenarios as more as we invest also into more research on emerging technologies for improved water, food security and other livelihood options.

Erratic rainfall pattern with poor temporal and spatial distribution: Erratic rainfall projection both in space and time increases vulnerability and severity to drought affecting main livelihoods in the county.

Adaptation strategies: Investment into improved water harvesting and ground water structures, climate smart agriculture, afforestation and re-afforestation strategies along with other new strategies have to be deployed to maximize

potential for rain water harvesting and improvement of the ground water potential to maintain a healthy hydrological balance. Accuracy of the seasonal forecast and early warning bulletin information from Kenya Meteorological Department and National Drought Management Authority have to be improved to enhance community's future level of preparedness to the likely future hazard scenarios involving erratic rainfall patterns.

Increasing length of drought periods, which are reducing browse and pasture and water availability fueling natural resource based conflict: With temperature increment of 1.5 to 2.0 degree Celsius drier conditions expected to worsen scarcity of water and browse conditions leading to increased resource based conflict, future adaptation strategies have to be improved and enhanced accordingly with the rapidly deteriorating likely future scenarios. Adaptation strategy: Improved adaptation strategies on rain water harvesting and ground water structures, promotion of participatory rangeland management and Investing into peace building between waring communities have worked well in saving lives and livelihood during the current drought periods. In the likely future hazard scenarios which are expected to be more severe and intense, we need to invest into better adaptation strategies. In the likely harsh future hazard scenarios, the public-private sector engagement could be extremely critical in the development of new adaptation strategies involving innovation and technologies for strengthening communally owned and managed natural resources.

Human-wildlife conflict over scarce water and pasture conditions experienced mostly around national parks: Human-wildlife conflict prevalence to increase affecting both lives and livelihoods of communities bordering protected areas and this calls for improvement in better adaptation strategies in the likely future hazard scenarios. Adaptation strategies: Adaptation strategies on restoration of forest habitat, capacity building of the communities on conservation education and compensation of communities have to be improved in the likely frequent future hazard scenarios involving human-wildlife conflicts. Increased synergy and collaboration of all stakeholders working in the conservation of our biodiversity for both flora and fauna is extremely important.

Depressed rains and increase in temperature leading to land degradations and loss of biodiversity: Land degradation and loss of biodiversity worsens community's resilience to climate change and coping mechanisms. Adaptation strategies: In the likely future hazard scenarios involving severe land degradation and loss of biodiversity that worsens community's resilience to climate change and coping mechanisms, improvement into future investment similar strategies and other strategies have to be developed and deployed in all major hotspots across the County.

Increase in average temperature created environment for vector borne livestock and human diseases: Human and livestock diseases expected to increase with increase in temperature as projected by 20250 emission scenarios. Adaptation strategies: Improvement in the current adaptation strategies involving establishment of livestock laboratory and veterinary services, promotion of participatory rangeland management, mass vaccination of livestock, equipping of health center with drugs have to be done along with new medical researches on human and livestock diseases.

Torrential rainfall with short duration with increased intensity causes floods: Unpredictable and increased torrential rains with high intensity expected to worsen hence affecting lives and livelihoods of communities. Adaptation strategies: In the likely future flush floods hazard scenario, improvement in the timely early warning disseminations, proper land management, capacity building of communities need to be adequately supported and strengthened. Improvement in climate science and hazard predictions needs to be explored. Collaboration with IGAD Centre for Climate Science other regional bodies working on climate related matters needs be strengthened to increase our coping mechanism to rapidly likelihood of future climatic scenarios.

5.0 County Climate Strategic Adaptation Investment/Action Priorities

The County is extremely susceptible to impacts of a changing climate because most livelihoods and economic activities are reliant on climate sensitive sectors. The most vulnerable sectors impacted on by climate change are Water and Sanitation, Agriculture and Livestock, Fisheries, Environment, Forestry, Education, social infrastructure.

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
Drought					
Water and Sanitation	Increased scarcity of water	Erratic rain Prolong dry spell Water over abstraction Inadequate Environmental destruction (wetlands)	Invest in water development infrastructure Proper water governance Implement water related policies/frameworks Clear rapid response plan during drought Invest in technology in water provision	-Storm water harvesting through construction of 5 mega dams -Investment technologies to reduce water loses and increase revenue into 12 replicable and scalable business models (Water ATMs 12No) -Purchase of 1000 plastic water tanks for each ward in the county; -Promotion of water harvesting, retention and re-charge technologies –check dams/weir construction -Establish 8 strategic and contingency boreholes in rangelands fall back grazing areas; - Strengthen capacity building of 15 water resource user associations / WUAs -Development of 3 sub catchment management plans -Review and update 1 water & sanitation training manuals to strengthen WUAs/WRUAs	Sololo, Obbu, Township, Hellu Manyatta, Golbo, Sololol, Uran, Maikona, Illeret, Dukana, N.horr, Turbi, Laisamis, Korr/ngurunit, Kargi/south horr, Logologo, Loiyangalani
	Increase of water borne diseases	Prolong dry spell; shortage of water	Provision of water through water structure investment Promotion of	-Conduct regular/quarterly water quality testing & monitoring based on WRA / NEMA guidelines -Increasing urban & rural domestic water supplies &	Sagante, Township, Illeret, Hellu Manyatta,

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
			<p>hygiene practices; community led total sanitation (CLTs)</p> <p>Support home based and institution water treatments</p>	<p>urban sewage services to help combating water borne diseases, their social & economic impacts by connecting 5000 household to tap water</p> <p>-Conduct 8 Community awareness for promotion of better hygiene campaigns</p>	
Agriculture Livestock	<p>Reduction in yield</p> <p>Increase in household food</p> <p>Increase in livestock/human diseases</p> <p>Loss of livestock</p>	<p>Low soil moisture</p> <p>Delayed onset of rain</p> <p>Poor farming techniques</p> <p>Late planting</p> <p>Recurring drought</p> <p>Harvesting losses</p> <p>Inadequate farming techniques and skills</p> <p>Inadequate livestock markets</p>	<p>Initiate modern and tradition soil erosion/conservation techniques</p> <p>Promotion of climate smart agriculture</p> <p>Invest in early warning systems and infrastructure</p> <p>Investment in strategic livestock markets</p> <p>Establish markets days</p>	<p>-Promotion of 4 community based adaptation strategies, like seed bulking of drought tolerant traditional food crops</p> <p>-Development of canals and water harvesting/irrigation accessories to facilitate irrigation in high yielding boreholes</p> <p>-Promote flood based irrigation in six sites</p> <p>-Promoting Climate Smart Agriculture (CSA)</p> <p>-Promoting improved post-harvest storage and management of crops; and</p> <p>-Supporting weather indexed crop insurance to cushion farmers against crop failure and livestock loses due to drought.</p> <p>-Promotion of 2,500 appropriate water harvesting technology for household level crop production; sack gardens, shade nets, sustainable green houses, Zai Pits; and</p>	<p>Saku, Sagante, Karare, Logologo, Sololo and Uran</p>

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
				-Train 80 extension officers on agricultural extension services	
	Loss of livestock	Weak livestock body condition - Environmental degradation Overgrazing	-Strengthen natural resources governance systems -Investment in livestock production -Strengthen disease surveillance -Support livestock market during normal conditions	-Construction of one livestock laboratory and 4 cattle dips -Construction/completion of 1 abattoir -Strengthening of 400 disease reporters -Strengthen disease surveillance and regular vaccination to reduce disease outbreaks;500,000,000 livestock's vaccinated -Support 4 Livestock value chain addition -Management and conservation of drought tolerant livestock breeds suitable for the County ecosystems; 500 herders capacity built -Promotion of economic diversification among pastoral communities (emerging livestock / game farming;220 WCCPC capacity build -Capacity building on livestock / livestock by-products value addition and production system that is orientated to market. -Strengthen the strategies (e.g. grazing reserves, communal fodder enclosures) used by communities to adapt to climate variability to reduce and manage the risks of natural disasters; -Strengthen indexed based livestock insurance schemes for 10000 HH against adverse effects of droughts shocks -Support regular livestock marketing systems to cushion	Laisamis, North Horr, Moyale and Saku

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
				<p>pastoralists against drought;</p> <ul style="list-style-type: none"> -Construction of 4 livestock market -Assess status of strategic infrastructure along major stock routes for rehabilitation -Promote 50 Ha commercial pasture production, seed banks and strategic feed reserves including alternative feed resources as part of contingency planning; -Strengthen grazing management committees, environmental management committees for enforcement of good grazing practices; and -Landscape/rangeland restoration, reseeding, and fodder production 	
Environment, Forestry and Land use	Loss of biodiversity Human wildlife conflict Environmental degradation	Delayed onset of rains Overgrazing Water over abstraction Emerging/spread of invasive species Illegal charcoal burning/logging Extreme flooding	Environment conservation awareness Restoration of degraded rangelands Increase County tree cover Storm water management Investment in locally led climate action structures Develop and actualize environment and climate change related	<ul style="list-style-type: none"> -Protect and conserve 4 water catchment areas/watersheds, rivers banks, spring / water ways and flood plains from degradation and contamination; -Establishment of 3 mega nurseries and initiate tree growing campaigns - Promote environment clean up days -Develop Marsabit County Climate Finance Framework -Formation, training and induction of Ward Climate Change Planning Committees all the wards -Develop and implement locally-led climate resilience actions -Disseminate early warning information by ward to enhance preparedness -Identify and assess pockets of 	Central, Loiyangalani/Mt Kulal, Sololo, Sagante, Karare, Logologo, Uran

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
			<p>polices/legal frameworks</p> <p>-Increase public awareness campaigns on natural resource and ecosystem management for communities in key biodiversity ecologies</p>	<p>degraded forest areas in county for rehabilitation ;</p> <p>-Restoration of forests/woodlands on the degraded rangelands through planting of suitable tree species and in-situ conservation and regeneration of indigenous tree; and</p> <p>-Promote greening program in schools through establishing 5 trees nurseries and planting over 10,00 seedlings; and</p> <p>-Strengthening capacity of community-based forest management committee/associations (CFAs, EMCs) for the conservation of close canopy forests and woodlands</p> <p>-Support communities of interest to gazette 5 fragile ecosystems like springs, forest buffer zones, riverine, watersheds etc.</p> <p>-Support alternative livelihood opportunities to charcoal/firewood as a source of income (distribution of energy saving jikos to 1000 households</p>	
Fisheries (Blue economy)	Low fish catch	<p>Over harvesting of fish</p> <p>Fishing from breeding sites</p> <p>Overgrazing of livestock at fish breeding sites</p>	<p>Investment in cold chain to increase fish shelf life</p> <p>Provision of fishing gears</p> <p>Protection of breeding sites</p>	<p>-Supporting livelihood diversification strategies which add value within the fisheries sector, promotion of formal and informal job creation, self-employment and entrepreneurship relevant to the need of both women and men;</p> <p>-Training of 15 Beach Management Units (BMUs) to carry out fisheries monitoring, control and surveillances;</p>	Illeret and Loiyangalani

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
		Increase in water temperature during prolonged dry spell		<ul style="list-style-type: none"> -Identifying and protecting 4 core fish breeding sites to minimize unsustainable fisheries practices and habitat destruction; and -Strengthening community participation in fisheries resources management and value addition. -Domesticate National fisheries policies, and regulation -Provision of appropriate fishing technologies -Conduct fisheries resources survey -Develop 5 cold storage and drying facilities to reduce post-harvest losses -Local campaigns on fish utilization and marketing fish products -Training fisher folks on hygiene handling of fish and fish products 	
Education	Low school enrollment	<p>Pupils move with livestock during migration when looking for pasture and water</p> <p>Water scarcity at school</p> <p>Food availability at school</p> <p>Lack of fees</p>	<p>Investment in mobile schools</p> <p>Support school feeding programs during drought</p> <p>Initiate food for fees programs during hard times</p>	<ul style="list-style-type: none"> -100 Climate-proofed construction of ECDE classrooms -19 Uni-huts installed for mobile ECDE schools to cover pastoralist families moving with their children -40 Energy-saving stoves and equipment supplied to ECDE schools -24 Plastic/collapsible water tanks installed -Water pipeline extension from the nearest source to 7 ECDE school -Construction of 4 sub-county ECDE food stores for enhanced supply chain management -Capitation of 83,000 ECDE learners to ease school fees 	

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
		Destruction of schools infrastructure by wind and floods		payment on parents -Expansion of ECDE school feeding program to reduce malnutrition in the county 80,000 learners fed on nutritious CSB+ -Expansion of empowerment programs for 470 vulnerable youth	
Health	Increased spread of human and livestock diseases Increase in pest diseases- Locus Increase in malnutrition rate among under 5, Pregnant and Lactation mothers	Food insecurity at household level Loss of livelihood- livestock Poor hygiene practices	Conduct SMART survey to inform the intervention Spray mosquitos breeding ground Link nutrition to homegrown vegetables/crops -kitchen gardening	-Strengthened capacity of emergency response, early detection, prevention, and treatment of wasting. -Support health facilities to conduct mass screening of malnutrition cases -Training of health workers to deliver effective nutrition services -Strengthening evidence-based nutrition planning, information, budgeting and implementation through SMART surveys -High-level nutrition advocacy at the county level to enhance budgetary allocation -Integration of nutrition and climate change concerns in the training and service delivery by CHVs -Enhance surveillance of climate-related diseases and manage outbreaks including the development of Malaria Outbreak Preparedness Plan -Formulate Marsabit County Environmental Health and Sanitation Policy -Train healthcare workers on malaria case management -Procure and distribute mosquito nets (LLiTN) -Trigger villages on the CLTS model as a means of improving	Sololo, Obbu, Towship, Hellu Manyattta, Golbo, Sololol, Uran, Maikona, Illeret, Dukana, N.horr, Turbi, Laisamis, Korr/ngurunit, Kargi/south horr, Logologo, Loiyangalani

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
				sanitation especially in the flood-prone areas	
Social infrastructures	Infrastructure destruction	Loss of life Transport destructions Increase in food prices	Provide guidelines on standard climate proof infrastructure Construction of climate proof infrastructure Cleaning of drainage before onset of rain Proper solid waste management	-Strengthening disaster preparedness through improved public health systems (including personnel, infrastructure, medicine and equipment); -Support spatial planning in urban centers and areas prone to disasters; -Formation and strengthening of resident / committees Units that can respond to emergencies and involving them in key decision making; -Establishment of disaster management response committee in towns and municipalities; -Develop disaster response plans based periodic assessments and surveillance reports -Formulate County Climate-Proofing Strategy to enhance compliance when designing and developing county infrastructure projects	Central, Township, Sololo, Uran Obbu, Loiyngalani, Korr and Laisamis
Resources based conflict					
Water and Sanitation	Water insecurity	-Ethnicity indifferences -Land degradation -Shortage of human and livestock water use -Unclear boundary issues - Ethnicity/trib	Strengthen water governance systems Map and Equip strategic water structures in conflict zone areas Invest in resources	-Promotion of tradition governance system in resource management to reduce conflict -Development of by-laws in resource benefit sharing -Organizing for peace meetings in worrying communities -Investment in water structures to increase water availabilities for livestock and household use -Resolve boundary issues -Fast track of community land registration	

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
		alism Political incitement	sharing agreement among worrying communities Rehabilitate degraded rangeland		
Agriculture and Livestock	Loss of livestock Loss of lives	Competition over scarce water and pasture resources Unclear boundaries Bad cultural practices	Initiate grazing patterns Strengthen tradition governance systems Conduct community resources mapping and clean plan on sustainable utilizations	-Develop wet and dry grazing patterns -Facilitate 10 community perception resource maps -Digitalization of 10 community perception resources maps -Initiate reseeding in degraded land and establish pasture farms to have more pasture during drought	Saku, Sagante, Karare, Logologo, Sololo and Uran
Environment , Forestry an Land use	Loss of bio-diversity	Over harvesting in few areas to avoid conflict zone areas Illegal charcoal during Increase in climate change immigrant-destruction in resettling	Initiate grazing patterns Environmental conservation awareness	-Develop wet and dry grazing plans -Support natural resources governance system -Environmental awareness programs -Trainings on environmental conservation	Saku, Karare, Sagante, Loiyangalani/Mt Kulal, Sololo, Hurri hills
Education	Loss of live	Increase trauma in learners	Support peace ambassador Initiate peace	-Initiate and support peace ambassador program -Provide security to schools	Laisamis, N.horr, Moyale and Saku

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
		Destruction of leaning sessions Loss of loves ones	talks among learners	that are affected during hash times -Support food programs	
Human and Livestock Diseases					
Water and Sanitation	Loss of lives	-Water borne diseases through contamination of water from livestock carcass	Water treatment Hygiene promotion Proper solid and liquid waste management	-Support household and institution water treatment -Promote home based water treatment -Carrying of hygiene training and promotion activities – Community led total sanitation	N.horr, Laisamis, Moyale, Saku
Agriculture and Livestock)	Low yield production Livestock mortalities	-Weak livestock body condition -Terminal illness - weak livestock immunity -increased vector population or new/emerging pathogens -crop infestation by pest	-Mass vaccination and strategic treatment -Livestock and crops disease surveillance -Strengthen diseases reporters -institute vector control measures -control of pests in crop field	-Mass vaccination and strategic treatment - livestock and crop disease surveillance	Saku,Sagante, Karare, Logologo, Sololo and Uran
Education	Low turn up in school	-Loss of live	Water treatment Hygiene promotion Proper solid and liquid waste management	-Support water treatment -Installation of hand washing facilities and improve sanitation facilities -Carrying of hygiene training and promotion activities – Community/school led total sanitation	Saku, Laisamis, North horr,

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
Flooding					
Water and Sanitation	-Destruction of water structures -High winds/cyclones	-Soil erosion -	-Proper site location to avoid construction of water structure in flood prone areas -Soil erosion control measures	-Construction of dykes and dams to harvest storm water -Practice construction of gabions in water structure at risk of erosion	Sololo, Uran, Korr, Laisamis, Logologo, loiyangalani
Agriculture and Livestock)	Loss of crops/yield Livestock mortality	-Crops washed away by flush floods - livestock being drown by flooding water -Outbreak of diseases related to flooding e.g. Rift Valley Fever -Increase in population of vectors and other risk factor -Animals getting stuck in mud following flooding episodes	- livestock vaccination against RVF and other flood related diseases' -Adopt flood based irrigation for crop/pasture production in flood hot spot areas -vector control to protect livestock from disease transmission - pastoralists/local community awareness creation on flood and its effects	-Adoption of flood based irrigation system for crop and fodder production - Vaccination of livestock and vector control to prevent outbreak of RVF	Saku, Sagante, Karare, Logologo, Sololo and Uran
Education	Low turn	Destruction of school infrastructure Disruption of learning Loss of lives	Diversion of water Proper inclusion of social and environment risk assessment to identify anticipated risk	Storm water harvesting to reduce intensity Construction of dykes/check dams to divert water	

Sector	Risk	Stressor/shock/cause/what is behind the risk	Adaptation strategies	Climate action Priorities	Wards
Social infrastructure		Infrastructural destruction Road transport interference Market destruction	Provide guidelines on construction of climate proof infrastructure	-Construction of dykes and dams to harvest storm water -Practice construction of gabions in high risk erosion site	Sololo, Uran, Korr, Laisamis, Logologo, loiyangalani

6.0 Conclusion

As indicated in Chapter One, Marsabit County's economy is highly dependent on pastoralism, rain fed agriculture, small scale trade, fisheries and exploitation of natural resources such as forests or woodlands. As a result, the economy is highly exposed to climatic hazards including drought, floods, resource conflicts, disease outbreaks and other emerging hazards. These hazards coupled with human activities such as deforestation, unsustainable sand harvesting, encroachment of riparian zones and destruction of catchment areas further compounds the impacts on people and the environment

According to KNBS 2019 over 80% of Marsabit County population draws its livelihood from pastoralist. With the current climate trend that manifest in erratic rainfall and pro-long drought there is low rangeland productivity hence leading to poor livestock productivity which affect household food security. This led to high case of malnutrition among vulnerable groups and resource based conflict.

Various actors including national and county government, local communities and CSOs are already implementing a number of climate change response actions, even though the efforts are largely disjointed and currently not achieving much in terms of resilience building. Based on the consultation with diverse actors within the county ranging from the affected communities, county and government officials, research and higher learning, CSOs, private sector representatives and learnings from these experiences, several adaptation strategies have been proposed to address these challenges going forward. These proposals should bring into consideration promotion of climate resilience livelihoods and emphasis tradition governance system in resolving resource based conflicts

These include protection of catchment areas, promotion of climate smart agriculture, capacity building, strengthening early warning systems and strengthening disaster management institutional framework. These have to be done in a more coordinated manner while paying attention to the changing climate through use of climate information in prioritizing and designing the interventions.

Annexes

Annex 1: List of Participants

Table 7: List of participants

List of Participants –Ward Engagements										
Moyale Sub-County										
No	Township Ward Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
1	Abdo Ala	Sub-county Admin	0721712636	M						
2	Boru Qalla	WCCPC	0769985573	M				✓		
3	Ibrahim Adan	WPCCPC	0724405950	M				✓		
4	Sadam Adan Hassan	EMC	0727891144	M				✓		
5	Abdirahman Amin	EMC	0710368320	M				✓		
6	Hussein Tarry	Peace committees	0726270397	M				✓		
7	Ibrahim Tacho	WCCPC chair	0718337535	M						
8	Ismail Alinoor		07116022492	M				✓		
9	Zamzam Adan	Women rep	0700530050		F			✓		
10	Nura Sharif	Elder	0719751117	M						
11	Aisha Hussein	Women rep	0720888439	F	F			✓		
12	Hassan Ibrahim	Youth	0724445522	M						
13	Habiba Haro	Women rep	0724720186		F					
14	Halima Huka	WCCPC	0721257635		F					
15	Hassan Mohamed	Youth	0720888830	M						
16	Ismail Alinur	Youth	0792733399	M				✓		
17	Amin Mohamed	CHVs	0705601118	M				✓		
18	Mohamed Issack	Ward manager	0722731615	M				✓		
19	Ismail Ibrahim	Elder	0722437804	M						✓
20	Abdikarim Abdirahman	Environmental activist	0727641036	M				✓		
21	Boru Abdirahman	EMC	0706167267	M				✓		
22	Mohamed Guyo	CGM	0726614293	M					✓	
23	Mohamed Abdikadir	Ward manager	0727523018	M					✓	
Sololo										
1	Mathew Lechipan	Dep. Sub-county admin	0719677119	M					✓	
2	Bonaya Guyo Digo	Elder	0724958052	M						✓
3	Hussein Dima Huga	Youth	0714926381	M				✓		
4	Dido Charfi Roba	WCCPC	0725477683	M				✓		
5	Galma Dabaso	Peace committee	0728852596	M						✓
6	Abdi Halkano	Youth	0720166410	M					✓	
7	Wario Salla Galgallo	EMC	0712322679	M					✓	
8	Abkul Wario	WCCPC	0715011848	M						✓

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
9	Guyo Jillo	WUA	0726452284	M				✓		
10	Abdirahman Bonaya	Youth	0729932252	M				✓		
11	Shama Alio	Elder	0710419261	M					✓	
12	Diba Bidu	Elder	0707802188	M						✓
13	Ibrahim Abduba	EMC	0712342046	M						✓
14	Qabale Guyo	Qabale Guyo	0717403288		F				✓	
15	Rukia Hussein	WCCPC	0727514746		F				✓	
16	Asli Dera	WCCPC	0111250036		F					✓
17	Hussein Galgallo	EMC	0723666434	M				✓		
18	Buke Kuno	CGM	0705503671		F			✓		
19	Diramu Abduba	Women rep	0720090561		F			✓		
20	Dida .T. Wario	Youth	0727792816	M						✓
Uran										
1	Mustafa Jarso	WCCPC	0713561510	M				✓		
2	Qalicha Guyo	Elder	0718024359	M					✓	
3	John Boru Jirmo	Elder	0799980671	M					✓	
4	Galgallo Guyo	EMC	0722723327	M					✓	
5	Roba Tacho	Youth	0723712831	M				✓		
6	Buke Jillo	EMC	07075558596		F				✓	
7	Said Jarso	WCCPC	0727078084	M					✓	
8	Halakhe Dabaso	Youth	0758927251	M					✓	
9	Henry Halkano	Chief	0716654539	M					✓	
10	Darmi M. Dabasa	Women rep	0708660181		F			✓		
11	Ware Boru	DRR	0700830802		F				✓	
12	Liban Waqo Fora	Youth	0706929525	M				✓		
13	Diba H. Huqa	Chair EMC	0791736522	M					✓	
14	Osman Jillo	Clerk	0113366287	M				✓		
15	Kula Galgallo	Women rep	0768640387		F			✓		
16	Wario A Halakhe	Office of ward Admin	0743607393	M				✓		✓
17	Bonaya G Dido	Elder	0796613370	M						✓
18	Guyo Khina	PWDs	0725030357	M						✓
19	Diba C Alio	Ward manager	0723899978	M				✓		
20	Qalla J karayu	Youth	0718090684	M				✓		
21	Hassan J Kotote	Chief	0720579570	M					✓	
22	Lokho Jarso	WPCCPC	0705179605		F			✓		
Butiye										
1	Tume Doti	Ward Admin	0720463970		F				✓	
2	Habiba Arero	WCCPC	0720564923		F				✓	
3	Abdikadir Doyo	Elder	0726933294	M					✓	
4	Halakhe Galma	Elder	0721707181	M					✓	
5	Rukia Gulam	WCCPC	0723296272		F				✓	
6	Ali Apulo	Chairman WCCPC	0724408795	M					✓	
7	Abdirahman	Youth	0114425055	M				✓		

List of Participants –Ward Engagements										
Moyale Sub-County										
No	Township Ward		Mobile No	Gender		PLWD		Age Bracket		
	Name	Position		M	F	Yes	NO	18-35	35-60	>60
	Ibrahim									
8	Adan Guyo	Opinion leader	0741213678	M					✓	
9	Ibrahim Guyo	Opinion leader	0720497139	M					✓	
10	Adan Tadicha	Ward manager	0745412906	M				✓		
11	Morme Konsole	PPI	0790410158		F			✓		
12	Jillo Haro	WCCPC	0712230618		F				✓	
13	Adannur Abdu	WCCPC	0714450379	M					✓	
14	Hassan Halakhe	WPCCP	0723416817	M					✓	
15	Aisha Ibrahim	Women rep	0718968790		F				✓	
16	Lokho Sora	Youth	0753137863		F			✓		
17	Abdi Gonjobe	Elder	0721970718	M					✓	
Hellu/Manyatta										
1	Kadra Mohamed	Chair WCCPC	0727876480		F			✓		✓
2	Abdikadir Galgallo	WCCPC	0725321771	M					✓	
3	Issack Tulicha	WCCPC	0727642121	M					✓	
4	Hawo Ibrahim	WCCPC	0708492176		F			✓		
5	Hassan Maalim	WCCPC	0723943619	M					✓	
6	Hadija Tulicha	WCCPC	0720235312		F				✓	
7	Mohamed Galma	WCCPC	0720814875	M					✓	
8	Kache Buno	WCCPC	0720799706	M					✓	
9	Abdulkadir Hassan	WCCPC	0726622504	M					✓	
10	Mohamed Bayana	Elder	0727352431	M				✓		
11	Hassan Adan	Grazing committee	0722326472	M					✓	
12	Borayo Duba	EMC	0743737299		F			✓		
13	Jama Ngatia	Elder	0723555004	M					✓	
14	Mamud Hassan	Youth	0792194611	M					✓	
15	Sara Guyatu	Women rep	0725592563		F			✓		
16	Sahara Golicha	Women rep	0720709008		F					✓
Obbu Ward										
1	Lydia Learamo	Ward Administrator	0768059969			✓			✓	
2	Emurensiana Lepajat	Woman	0717710945						✓	
3	Angelo Leurare	Youth Representative	0710236723						✓	
4	Daniel Ekai	Elder	07288428475						✓	
5	Lydia Learamo	Ward Administrator	0768059969			✓			✓	
6	Emurensiana Lepajat	Woman	0717710945						✓	
7	Angelo Leurare	Youth Representative	0710236723						✓	
8	Garbich Boru Arero	WCCPC	0713381228						✓	
9	Abdinassir Boru	Ward Admin							✓	
Golbo										

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
1	Hassan Ali Dido	Chairman WCCPC	0729371922						✓	
2	Abdi Abular Kura	WCCPC Member	07077257874					✓		
3	Nuria Adan Dararo	Youth Member	0718154564		✓				✓	
4	Mohammed Boru Sabare	WCCPC	0700386142			✓				
5	Bagaja Guyo Ade	EMC	0707130203					✓		
6	Sora Ali Duba	WCCPC	071773562						✓	
7	Hassan Borbor	EMC-Youth	0721989439						✓	
8	Hassan Kalich Golicha	WCCPC	0722727329					✓		
9	Hassan Aliow Galgallo	Elder	0712767834						✓	
10	Jaldes Wako Jarso	Elder	0711687515						✓	
11	Tadich Chukri	WCCPC	0705790098						✓	
12	Chuli Dika Hindi	Woman	0112706038		✓				✓	
13	Halima D	WUA	0700376442						✓	
14	Makai Abdullahi	Woman	0701449953		✓		✓		✓	
Dukana Ward										
1	Tuye Katelo	Area Chief	0726713704						✓	
2	Ali Edema	Elder	0718815774							✓
3	Yara Mola	WCCPC	0792677223						✓	
4	Ali Musa	WRUAS	0712232917						✓	
5	Gumato Guracha	WCCPC	0704825793		✓				✓	
6	Simpire Ali	Youth Rep	0726230408		✓			✓		
7	Yara Sharamo	Traditional elder	0701715437						✓	
8	Denge Wario	Minority representative.	0706056297						✓	
9	Diba Wario	Youth representative.	0715720722					✓		
10	Ali Guyo Huka	EMC	0723628387					✓		
11	Guyo Adhi Barako	PLWD representative	0728653032			✓			✓	
12	Bugato Shama	Chair WCCPC	0794154323					✓		
13	Bone Ibrae	Women representative.	0701715474		✓			✓		
14	Gumato Wario	Ward manager.	0700929786		✓			✓		
Northorr										
1	Ibrae Damocha	Chief	0713865223						✓	
2	Chuluke Duba	PLWD	0712829624		✓	✓			✓	
3	Guyo Gonjoba Godana	Ward manager	0741726266						✓	
4	Abdi Wario Jillo	Minority representative	0727528027						✓	
5	Guyo Diba Bili	Youth	0799788330					✓		

List of Participants –Ward Engagements											
Moyale Sub-County											
No	Township Ward	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
					M	F	Yes	NO	18-35	35-60	>60
6	Boya Mamo	EMC representative	0728994137								✓
7	Ahmed Rakaw	WCCPC	0710771638					✓			
8	Jacinta Jillo Diba	Women representative	0700458413		✓			✓			
9	Alexander Diba	Grazing committee	0714341422					✓			
10	Denge Galgallo	EMC	0712476789						✓		
11	Yattane Sori	Youth representative	0110172767		✓			✓			
12	Abudo Sharamo	Conservancy Representative	0720370024					✓			
13	Sallo Buri	WCCPC	0722809355		✓					✓	
14	Abdub Ukur	WRUAS	0740726912							✓	
Illeret Ward											
1	Ambrose Oita	PWD member	0769123150				✓		✓		
2	Michael Moroto	Youth EMC	0746740766					✓			
3	Abara Ajiko	Grazing committee	0725171412							✓	
4	Gila Ariswe	EMC	0795147973							✓	
5	Nicanor Nyiria	BMU	0757919449					✓			
6	Joseph Naliye	Ward manager	0799151554					✓			
7	Boniface Yierar	Assistant chief	0717184754					✓			
8	Nashere Lomabok	Women	0718684032		✓					✓	
9	Koriye.M. Koriye	Ward administrator	0714478858								✓
10	Arthur Wanyoike	ACC	0715046046							✓	
11	Samuel Siyel	Chief	0723088392							✓	
12	Gosh kwanyang	WCCPC	0745586561								✓
13	Iyayo siroro	Youth	0714526604		✓			✓			
14	Abraham konibok	Community health volunteer	0795725775					✓			
15	Goosh Claudia	Youth	0791254079		✓			✓			
16	Michael moroto	Chair WCCPC	0712871968								✓
TURBI WARD											
1	Guyo Roba	WRUAS	0705231403								✓
2	Roba Bonaya	Chair – WCCPC	0110278813							✓	
3	Abdub Galiye	Chief	0720914645							✓	
4	William Damballa	Chair-EMC	0728729226								✓
5	Pius Roba	Elder/opinion leader	0712671543								✓
6	Roba Kampure	WRUAS	0717020469							✓	
7	Mohamed Wario	Grazing committee	0700074267								✓
8	Ali Omar	EMC	0702151570								✓
9	Qallo Ibrahim	WCCPC	0791077216		✓		✓			✓	

List of Participants –Ward Engagements										
Moyale Sub-County										
No	Township Ward Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
10	Adan Sharamo	Chair-PWD	0713630549	<input type="checkbox"/>			<input type="checkbox"/>			
11	Boru Malicha	EMC	0700517219	<input type="checkbox"/>					<input type="checkbox"/>	
13	Yattani Boru	PWD	0728211376	<input type="checkbox"/>			<input type="checkbox"/>			
14	Katelo Diba	Peace committee	0724058539							✓
15	Diko Barako	Women	0708599797		✓					✓
16	Elema Denge	Youth	0715631224					✓		
17	Saituna Osmail	Community health volunteer.	0716465272		✓			✓		
Maikona										
1.	Ali Katello	20275677	0724948470	✓					✓	
2.	Katelo Demo	8151852	0703813480	✓					✓	
3.	Gumato Jarso	24041938	0726678352		✓			✓		
4.	Hadija Molu	29392221	0719294391		✓			✓		
5.	William Diba Doti	26089055	0758959548	✓				✓		
6.	Barile Duba	21573282	0710948152	✓				✓		
7.	Abudo Nurr	35335532	0740866135	✓				✓		
8.	Bati Diba	26509016	0712990129		✓			✓		
9.	Orge Dido	21739929	0711656324		✓			✓		
10.	Tume Adano	0592694	0728440314		✓					
11.	Salo Tuye	20803584	0723059215		✓		✓			
12.	Roba Dima	21571637	0717326279	✓			✓			
13.	Molu Wato	0594701	0713606952	✓				✓		
14.	Qaballe Qalla	24416390	0717820175		✓		✓			
15.	Bone Gonche	09560628	0716771034		✓			✓		
Loiyangalani										
1	Sebastian Leparas	Ward chair WCCPC	0714877843							✓
2	John Orbora	Area Chief	0723746534						✓	
3	Lucy Kentho	WCCPC Member	0796228771`		✓				✓	
4	Alexander Lenadir	Fisheries Cooperatives	07264700021					✓		
5	Stephen Leborkwe	EMC	0710236622			✓			✓	
6	Singilan Lepalo	WRUA	0729534179							
7	Esterina Boniface	WCCPC	0715237805					✓		
8	Arupe Lucy	WCCPC	0790007805		✓					✓
9	Rosa Mirkalkona	FBO-Youth	0791153370		✓					✓
10	Maria Lekapana	CBO-	0711311604		✓					✓
11	Lydia Learamo	Ward Administrator	0768059969		✓					✓
12	Emurensiana Lepajat	Woman	0717710945							✓
13	Angelo Leurare	Youth Representative	0710236723							✓

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
14	Daniel Ekai	Elder	07288428475						✓	
Kargi/South-horr										
1	Alkoro Galsaracho	03646108	0716698168	✓			✓			✓
2	Umuro Borano	20641619	0726248244	✓			✓		✓	
3	Matahwen Gobanai	09847457	0710101429	✓			✓		✓	
4	Mbore Mifo	0631595	0706587789	✓			✓		✓	
5	Safi Mifo	24984131	0791279478		✓		✓	✓		
6	Fatuma isandap	37482033	0746080883		✓		✓	✓		
7	Sabthiyo Matacho	24075999	0717463164		✓		✓	✓		
8	Gisewa Obeile	24076307	0745735748	✓			✓	✓		
9	Mohamud Arbelle	20641425	0720178624	✓			✓		✓	
10	David T Wambille	3421037	0710519533	✓				✓		
11	Bulyaar J Bayo	12754400	0703816932	✓				✓		
12	Gabriel Galmato	37169899	0707225283	✓			✓			
13	Simion Swari	30008983	0746262061	✓			✓			
14	Francis Kirinya	23319430	0727257614	✓			✓			
15	Samuel Dokle	21508358	0706776002	✓			✓			
16	Solomon Sahado	26822380	0725549160	✓			✓			
Korr/Ngurunit										
1	Obeddy eydimole	Chair youth	0703628753						✓	
2	Simon L. Arabolya	Chief	0703814819							✓
3	Fabiano Wamile	Catholic faith	0741315866							✓
4	Mohamed Isandap	Islam faith	0727666624							✓
5	Lmeriwan Kochale	Community elder	0721738420							✓
6	Pius W. Lokuru	Ward Manager	0712729538							✓
7	Joseph Ltajaran	Minority	0714865941							✓
8	Emmanuel Erot	youth	0745343643							✓
9	Thomas Harugura	youth	0792398620						✓	
10	Ntoison Amiyo	Women rep	0728028594		✓					
11	Ali OChe	PWD	0717079750				✓		✓	
12	Abdulai GUmathi	Youth	0716122255						✓	
13	Moses MAro	WCCPC	0797127603							✓
14	Daniel Dokhe	Ward Administrator	0729323696							✓
15	Zulekha Harun	WCCPC	0720133181		✓					
16	Hambue Chupale	AD Conservation	0706173166							✓
18	Bakari Mwachakure	AD NDMA	0720071070				✓			
Logologo /Kamboe										
1.	Mohammed Adisomo	Wccpc chairman	0722875137	✓					✓	

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
2	Job Marleni	Elder	0725482423	√					√	
3	Annet Bagajo	Women rep	0715070062		√				√	
4	Ltodowa Learapo	Wccpc	0705347400	√						
5	Sabdiyo Salgiyo	Women rep	0748502631		√				√	
6	Marleni Bichowlo	Wccpc	0729441177	√						
7	Jacomino Kalaile	elder	0723394518	√				√		
8	Samuel Moga	CBO representative	0741901973	√					√	√
9	Peter Lepakajo	Conservancy representative	0708969446	√						√
10	Somo Abdulai	Marginalized group	0768162863	√				√		
11	Fabiano Lepati	WCCPC	0726257667	√				√		
12	Daniel Lekapina	Ward Manager	0701356261	√					√	
13	Andrew Korole	Chief	0725860207	√					√	
14	Jonathan Eysimirdana	Youth	0701270604	√				√√		
15.	Susan Aleya	Wccpc	0725002893		√					√
16	Francis Kiriri	AD Agriculture								16
17	Hambule chupale	AD conservation								17
18	Yattani Tura	Program coordinator Boma								18
19	Bakari Mwachakore	AD NDMA								19
	Laisamis									
1.	Peter Galwersi	9559530	0717423142	√			√		√	
2.	Joseph Iseuloi	11386086	0721585005	√		√			√	
3.	Samuel Basele	33319989	0705702062	√			√	√		
4.	Francisca Ntesekwa	21658453	0704805825		√		√	√		
5.	Nasaru Alyoro	12752855	0712851341		√		√		√	
6.	Shadrack Iebuliar	38188152	0759005022	√			√		√	
7.	Emmanuel Leupare	29158543	0726602019	√				√		
8.	Kaltuma Hassan	12439270	0725658261		√		√		√	
9.	James Basele	11386074	0705702062	√		√			√	
10.	Elius Kanapal	30192102	0727371097	√		√		√		
11.	John Lemerkech	36060169	0757614255	√				√		
12.	Paul Machan	20474529	0726262958	√					√	
13.	Augustine Lsuper	20097626	0724116612	√					√	
14.	Antonino Adurai Kaldale	2311540	0727963028	√					√	
15.	Paul Machan	20474529	0726262958	√					√	
	Sagante/Jaldesa Ward									
1.	Guyo Katelo	Ward	0713615874	×			×	×		

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
		Administrator								
2.	Fatuma Wario WCCPC	Women Group chair person	0717314525		x		x		x	
3.	Jillo Molu	Member	0729660931		x		x		x	
4.	Bokayo Malicha	Water committee	0720533667		x		x		x	
5.	Guyo Somo Ali	Chairperson-Indigenous group	0721306593	x			x		x	
6.	John Waqo	CFA-Chairperson	0704719245	x			x		x	
7.	Mohamed Halakhe	Water Committee	0728808966		x		x		x	
8.	Dub Halakhe	Community member	0724666513	x			x		x	
9.	Amina Guyo	WCCPC member	0758803950		x		x	x		
10.	Rob Dida	Youth	0796506492	x			x	x		
11.	Boru Wario	WCCPC member	0727962734	x			x		x	
12.	Jillo Roba	Community member	0718355832		x		x		x	
13.	Guyo Halakhe	Chairperson-WCCPC	0705438393	x			x		x	
14.	Wato Shalu	Peace Committee	0703487730		x		x			x
15.	Dalach Halakhe	Peace Committee	0715256700	x			x			x
16.	Sofia Golicha	Women Group	0728808833		x		x		x	
Central Ward										
1.	Diqa Halakhe	WCCPC member	0725003134	x			x		x	
2.	Dida Rigatu	Peace, Council of Elder, rangeland committee	0727687264	x			x		x	
3.	Mikelina Nashagai	WCCPC member	0718274695		x		x		x	
4.	Hussein Bagajo	Water Committee	0715853161	x			x	x		
5.	Roba Wario	Youth	0742630036	x		x		x		
6.	Hussein Mohammed	Farmer and conservationist	0787842406	x			x		x	
7.	Jillo fugicha	CEO- Inua Dada Initiatives- CBO	0798798596		x		x	x		
8.	Abdikarim Liban	Youth leader	0797767839	x			x	x		
9.	Jillo Waqo	Chairperson-	0727962729	x			x		x	

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
		WCCPC								
10.	Halkano Hallo	Ward Administrator	0725914707	x			x		x	
11.	Arbe Umuro	WCCPC member	0712316615		x		x	x		
Karare Ward										
1.	Douglas Daudi	Ward Manager	0725756749	x			x		x	
2.	Tony Ngurusi	Songa Conservancy, rangeland coordinator	0716352601	x			x	x		
3.	Rosylin Defardai	Women Group	0740688870		x		x	x		
4.	Mike Neepe	Water committee	0713550151	x			x		x	
5.	Mathew Neepe	Ward Administrator	0727689681	x			x	x		
6.	Geofrey Basele	Community member	0799905714	x			x		x	
7.	Amitha Pokopou	Women group chairperson	0741810359		x		x	x		
8.	James Asogu	WCCPC member	0729693471	x			x	x		
9.	James Marleni	WCCPC member	0799905714	x			x		x	
10.	James Lengoya	WCCPC member	0796506492	x			x	x		
Uran Ward										
1	Mustafa Jarso	WCCPC	0713561510	M					✓	
2	Qalicha Guyo	Elder	0718024359	M						✓
3	John Boru Jirimo	Elder	0799980671	M						✓
4	Galgallo Guyo	EMC	0722723327	M						✓
5	Roba Tacho	Youth	0723712831	M					✓	
6	Buke Jillo	EMC	07075558596		F					✓
7	Said Jarso	WCCPC	0727078084	M						✓
8	Halakhe Dabaso	Youth	0758927251	M						✓
9	Henry Halkano	Chief	0716654539	M						✓
10	Darmi M. Dabasa	Women rep	0708660181		F				✓	
11	Ware Boru	DRR	0700830802		F					✓
12	Liban Waqo Fora	Youth	0706929525	M					✓	
13	Diba H. Huqa	Chair EMC	0791736522	M						✓
14	Osman Jillo	Clerk	0113366287	M					✓	
15	Kula Galgallo	Women rep	0768640387		F				✓	
16	Wario A Halakhe	Office of ward Admin	0743607393	M					✓	✓
17	Bonaya G Dido	Elder	0796613370	M						✓
18	Guyo Khina	PWDs	0725030357	M			✓			✓
19	Diba C Alio	Ward	0723899978	M					✓	

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
		manager								
20	Qalla J karayu	Youth	0718090684	M				✓		
21	Hassan J Kotote	Chief	0720579570	M					✓	
22	Lokho Jarso	WPCCPC	0705179605		F			✓		
	Butiye									
1	Tume Doti	Ward Admin	0720463970		F	✓			✓	
2	Habiba Arero	WCCPC	0720564923		F	✓			✓	
3	Abdikadir Doyo	Elder	0726933294	M					✓	
4	Halakhe Galma	Elder	0721707181	M					✓	
5	Rukia Gulam	WCCPC	0723296272		F				✓	
6	Ali Apulo	Chairman WCCPC	0724408795	M					✓	
7	Abdirahman Ibrahim	Youth	0114425055	M				✓		
8	Adan Guyo	Opinion leader	0741213678	M					✓	
9	Ibrahim Guyo	Opinion leader	0720497139	M					✓	
10	Adan Tadicha	Ward manager	0745412906	M				✓		
11	Morme Konsole	PPI	0790410158		F			✓		
12	Jillo Haro	WCCPC	0712230618		F				✓	
13	Adannur Abdu	WCCPC	0714450379	M					✓	
14	Hassan Halakhe	WPCCP	0723416817	M					✓	
15	Aisha Ibrahim	Women rep	0718968790		F				✓	
16	Lokho Sora	Youth	0753137863		F			✓		
17	Abdi Gonjobe	Elder	0721970718	M					✓	
	Hellu Manyatta									
	Kadra Mohamed	Chair WCCPC	0727876480		F			✓		✓
	Abdikadir Galgallo	WCCPC	0725321771	M					✓	
	Issack Tulicha	WCCPC	0727642121	M					✓	
	Hawo Ibrahim	WCCPC	0708492176		F			✓		
	Hassan Maalim	WCCPC	0723943619	M					✓	
	Hadija Tulicha	WCCPC	0720235312		F				✓	
	Mohamed Galma	WCCPC	0720814875	M					✓	
	Kache Buno	WCCPC	0720799706	M					✓	
	Abdulkadir Hassan	WCCPC	0726622504	M					✓	
	Mohamed Bayana	Elder	0727352431	M				✓		
	Hassan Adan	Grazing committee	0722326472	M					✓	
	Borayo Duba	EMC	0743737299		F			✓		
	Laisamis									
16.	Peter Galwersi	9559530	0717423142	✓			✓		✓	
17.	Joseph leseuloi	11386086	0721585005	✓		✓			✓	
18.	Samuel Basele	33319989	0705702062	✓			✓	✓		
19.	Francisca Ntesekwa	21658453	0704805825		✓		✓	✓		
20.	Nasaru Alyoro	12752855	0712851341		✓		✓		✓	
21.	Shadrack lebuliar	38188152	0759005022	✓			✓		✓	

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
22.	Emmanuel Leupare	29158543	0726602019	√				√		
23.	Kaltuma hassan	12439270	0725658261		√		√		√	
24.	James Basele	11386074	0705702062	√		√			√	
Korr/Ngurunit										
1	Obeddy eydimole	Chair youth	0703628753						√	
2	Simon L. Arabolya	Chief	0703814819							√
3	Fabiano Wamile	Catholic faith	0741315866							√
4	Mohamed Isandap	Islam faith	0727666624							√
5	Lmeriwan Kochale	Community elder	0721738420							√
6	Pius W. Lokuru	Ward Manager	0712729538							√
7	Joseph Ltajaran	Minority	0714865941							√
8	Emmanuel Erot	Youth	0745343643							√
9	Thomas Harugura	Youth	0792398620						√	
10	Ntoison Amiyo	Women rep	0728028594							√
11	Ali OChe	PWD	0717079750				√		√	
12	Abdulai GUmathi	Youth	0716122255						√	
13	Moses MAro	WCCPC	0797127603							√
14	Daniel Dokhe	Ward Administrator	0729323696							√
15	Zulekha Harun	WCCPC	0720133181				√			
16	Hambue Chupale	AD Conservation	0706173166							√
17	Francis Kiriri	AD Agriculture	0722892214				√			
18	Yattani Tura	Program coordinator	0715888686				√			
19	Bakari Mwachakure	AD NDMA	0720071070				√			
Logologo/Kamboe										
1.	Mohammed Adisomo	Wccpc chairman	0722875137	√					√	
2	Job Marleni	Elder	0725482423	√					√	
3	Annet Bagajo	Women rep	0715070062		√				√	
4	Ltodowa Learapo	Wccpc	0705347400	√						
5	Sabdiyo Salgiyo	Women rep	0748502631		√				√	
6	Marleni Bichowlo	Wccpc	0729441177	√						
7	Jacomino Kalaile	Elder	0723394518	√				√		
8	Samuel Moga	CBO representative	0741901973	√					√	√
9	Peter Lepakajo	Conservancy representative	0708969446	√						√
10	Somo Abdulai	Marginalized group	0768162863	√				√		
11	Fabiano Lepati	WCCPC	0726257667	√				√		
12	Daniel Lepakina	Ward Manager	0701356261	√					√	

List of Participants –Ward Engagements										
Moyale Sub-County										
Township Ward										
No	Name	Position	Mobile No	Gender		PLWD		Age Bracket		
				M	F	Yes	NO	18-35	35-60	>60
13	Andrew Korole	Chief	0725860207	V					V	
14	Jonathan Eysimirdana	Youth	0701270604	V						
15.	Susan Aleya	Wccpc	0725002893		V					V

Annex 2: Ward Adaptation Priorities

Table 8: Ward adaptation priorities

No	Ward Adaptation Priorities	Location
Moyale Sub-County		
Butiye Ward		
1	Water piping from Mansile to Butiye	Butiye ward
2	Mega dam at Antut and Somare	Butiye ward
3	Tree planting at Holale,Arosa,Somare,Bori at Individual homestead	Butiye ward
4	Water piping from Mansile to Butiye	Butiye ward
5	Storm water harvesting,; Mega dam at Antut and Somare	Butiye ward
Hellu Ward		
1	Desilting and fencing of Arbol dam	Hellu/Manyatta
2	Piping of water from Mansile to Hellu/Manyatta	Hellu/Manyatta
3	Purchase and supply of 1000 plastic water tanks for vulnerable household in the ward to harvest rain water	Hellu/Manyatta
Uran ward		
1	Drilling of borehole at Uran Goda to provide water for farm irrigation	Uran
2	Rehabilitation of irrigation farm at Walda	Uran
3	Repair of major water pans for recharge	Uran
4	Construction of borehole for irrigation	Uran
Township ward		
1	Piping of water from Mansile borehole to Moyale town	Township

2	Purchase and supply of 1000 plastic water tanks for vulnerable household in the ward to harvest rain water	Township
3	Tree planting in public places including streets and homestead	Township
4	Community empowerment project like business grants for vulnerable households	Township
Sololo ward		
1	Mega dam between Ramole and Aria; between Anona and Aria	Sololo
2	Tree planting on Borelo mountain and individual farms	Sololo
3	Restocking	Sololo
4	Beekeeping (purchase of 1000 beehives)	Sololo
Golbo Ward		
1	Purchase of plastic tanks for vulnerable households	Golbo Ward
2	Establishment of Irrigation scheme	Odda,Dabel,Godoma and Nana
3	Investment grants to women, youth and person living with disability	Golbo Ward
4	Capacity development for climate risk adaptation	Golbo Ward
5	Purchase of hybrid cattle and goats that can endure harsh climate conditions to selected residents of Golbo ward	Golbo Ward
Obbu Ward		
1	Construction of new water pan and irrigation system at Sololo Makutano	Sololo Makutano
2	Provision of 400(10,000) litres plastic tanks at Dambala Fachana	Dambala Fachana
3	Investment grants to women,youth and person living with disability	Obbu
4	Desalinization of Amballo borehole and piping	Anballo
North-Horr Sub-County		
North Horr Ward		
1	Facilitate movement of people to permanent water points instead of water trucking	North Horr
2	Storm water harvesting at Burra, Lag Massa and Horr Dika for Large scale pasture and fodder production	North Horr
3	System strengthening of community livestock disease reporters	North Horr
4	All stakeholder sensitization, awareness creation on conflict resolution mechanism between waring communities	North Horr
5	Facilitate movement of people to permanent water points instead of water trucking	North Horr
Maikona Ward		
1	Fodder production in Maikona	Maikona
2	Establishment of Desalinization plant at Maikona,Kalacha and Elgathe	Maikona
3	Investment grants for youth, Women group and small scale business people	Maikona
4	Alternative source of livelihood such as poultry and bee keeping	Maikona
5	Strengthen and support Community Livestock Disease Reporters, surveillance and roll out routine yearly mass livestock vaccination programmes	Maikona
Illeret Ward		
1	Investment into desalination plant using water from Lake Turkana in collaboration with Turkana Basins Institute and other Partners so permanently solve perennial lack of clean water shortage	Illeret
2	Construction of storage tanks and piping to settlements and institutions	Illeret
3	Sensitize leadership on the need to create harmony and co-existence by spearheading this process and cascade it to the lower levels mitigate ever evolving resource based conflicts	Illeret
4	Train and strengthen grazing committees for Dassnach, Turkana and Hamarkoke to build worrying communities trust and initiate peace	Illeret

	building initiative talks	
5	Strengthen and support Community Livestock Disease Reporters, surveillance and roll out routine yearly mass livestock vaccination programmes	Illeret
Dukana Ward		
1	Drilling and equipping of a new borehole in Dukana Trading Centre for large scale crop, pasture production	Dukana
2	Automation of all major water supplies in Dukana Ward and revenues collected to support food security and institutional support during drought emergencies	Dukana
3	Wide stakeholder sensitization on peace building and conflict resolution mechanism between waring communities	Dukana
4	Wide stakeholder sensitization on peace building and conflict resolution mechanism between waring communities	Dukana
Turbi-Bubisa Ward		
1	Storm water harvesting for large scale food, pasture production	Turbi
2	Governance and system strengthening of all major water supplies in the ward through innovation and technologies	Turbi
3	Wide multi-sectoral engagement targeting all stakeholders in all major conflict prone areas of Borana and Gabbra	Turbi
4	Strengthening of community livestock disease reporters	Turib
Laisamis Sub County		
Korr-Ngurunit		
1	To initiate alternative livelihoods by capacity building programs on climate change adaptability through training and provision seed money for projects like; Poultry keeping, bee keeping,	Korr, Ngurunit, llaut,Balah
2	Establish water harvesting for livestock and irrigation by building dam/pans Kuyea.	Korr, Ngurunit
3	Start a conservancy to operationalize grazing patterns and implementations by strengthening the EMC and creating effective by-laws. This can be supported and well s implemented by starting a Korr/Ngurunit conservancy,	Korr, Ngurunit, llaut , Namarey
4	Stock control/destocking by improving market and road infrastructure	Korr, Ngurunit,Namarey,llaut
5	Conduct capacity building training on livestock management	
Loglogo Ward		
1	Alternative livelihoods	Loglogo, Kaboye
2	Establishment of livestock market	loglogo
3	Establishment of Loglogo unit conservancy	Loglogo,
4	Grazing pattern management.	Loglogo ,kamboe,
5	Improved livestock breeds.	loglogo
Laisamis Ward Adaptation Priority		
1	Introduction of alternative livelihood i.e. poultry keeping, camel keeping, kitchen gardening, bee keeping, gum and resins, beadwork and other programmes i.e. ujuzi manyattani	Laisamis, lontolio,koya ,merille
2	Grazing pattern strengthened and destocking	Laisamis, lontolio,koya ,merille
3	Milk-shed/Milk value chain enhancement (camel milk joint marketing	Laisamis,lontolio,koya

	through formation of cooperatives, storage facilities and market linkages)	Merille
4	Construction/rehabilitation/revival of the Laisamis abattoir	Laisamis
5	Water harvesting for vegetable production at Merille, Sakardala and Nairibi Merille,koya,laisamis	Merille, Nairibi, Lontolio
Loiyangalani Ward		
1	Improved health facilities	Loiyangalani Ward
2	Investment grant for specific small scale business groups	Loiyangalani Ward
3	Establishment of livestock Market and Fodder production/irrigation	Gatab Location
4	Construction of Fish store(cold store) further away from the lake due to concern of rising water level	Loiyangalani town
5	Distribution of pipeline scheme to villages in loiyangalani	Loiyangalani town
Kargi Ward		
1	Investment in conflict resolution mechanisms especially at the hotspot areas	Kambinye, Yel
2	Alternative livelihood options such as kitchen gardening, poultry	Kargi Ward
3	Establishment of flood control structures at	Halam,Bohisi Guthan,Kambinye and Dakhane
4	Regular deworming and vaccination	Kargi Ward
5	Collection centers for solid waste across the town centres	Town centers(Kargi and South Horr)
Maikona Ward		
1	Cash transfer programme for children headed ,PWDs and old age households	Maikona Ward
2	Vegetable production	Maikona Ward
3	Fodder production	Maikona Ward
4	Restocking programme for hybrid	Maikona Ward
5	Establishment of Desalinization plant	Maikona, Kalacha, El gade
6	Investment grants for youth, Women group and small scale business people	Maikona Ward
7	Alternative source of livelihood such as poultry and bee keeping, Fish farming	Maikona Ward
8	Utilization of Prosopis for animal feeds and charcoal	Maikona, Elgade
Saku Sub- County		
Sagante-Jaldesa		
1	Construction of two mega dam at Mado chubicha and Malka Lakole; and establishment of irrigation scheme in Kupi Qallo, Jaldesa, Dololo Dokatu, and Badassa	Qilta, Jaldesa, Sagante, Dirib
2	Undertake community land registration and promotion participatory rangeland management; range restoration, rehabilitation, and tree nursey per location	Qilta, Jaldesa, Sagante, Dirib
3	Promoting alternative livelihood (Bee keeping, kitchen gradening and alternative source of energy- LFG gas, improved Jiko, and Solar	Qilta, Jaldesa, Sagante, Dirib
4.	Establishment of livestock laboratory and cattle dip within the ward.	Dirib
Central Ward		
1	Damming of Gotu Gardi to harvest storm water for the purpose of irrigation and domestic water supply.	Jirime
2	Livelihood diversification	Dakabaricha, Mountain, Jirime, Nagayo
3	Infrastructural development- Road and bridges; Jirime, Harobota, Haro	Dakabaricha, Mountain,

	Gumi, shrine, Manyatta Ote, Manyatta Ginda, Manyatta Gar mata Arba, Wako Keyate, Manyatta Duriye, Ajaa Tisa, Nyayo road	Jirime, Nagayo
4	Range land/ landscape restoration and rehabilitation- tree nursery establishment for all locations; Rangeland restoration/reseeding- Jirime	Jirime, Dakabricha, Nagayo, Mountain
Karare Ward		
1	Drilling of a borehole at Hula-hula Center and Kituruni location for livestock, domestic and irrigation.	Songa, Hula Hula
2	Rangeland restoration and reseeding	Karare, Songa, and Hula Hula
3	Establishment of tree nurseries close to water points in Kituruni, Songa, and Leyai	Songa
4	Purchase of 80pcs 10,000 Litre and underground tank for Parkishon, Lekartinya, and Hula Hula community	Hula Hula and Karare

Annex 3; List of Stakeholders

No	Name of CSO	Contact details	Location	Founding Objective	Vulnerability Disaggregation	Operational scope
1	PACIDA (Pastoralist Community Initiative Development and Assistant	+0202656947 pacida@pacida.org	Marsabit Central	-To build community resilience through water project, trainings, livelihoods, climate justice and education program -To support in Policy framework development and dialogue	Women, Men, Youth, herders	Across the entire County
2	Caritas Marsabit	caritasmarsabit.org; info@caritas-dom.org +254113458289	Marsabit Central	-To build resilience of the most poorest through charitable service, water, programs, health, livelihood, peace and justice, Disaster risk reduction among other programs	Women, Youth, Children , elderly	Entire County
3	CRS-Nawiri; Marsabit	www.crs.org +25470241698	Marsabit Central, Laisamis, north harr sub counties	-To reduce malnutrition by supporting food systems/production through sustainable livelihoods	Children under 5, pregnant and lactation mothers, women groups, youth among others	Northhorr, Saku, Laisamis
4	FHI-Kenya, Kenya Rapid	+2542027310023; +254714932605 www.fh.org	Marsabit central	To reduce hunger through provision of sustainable livelihood	Women and youth groups, children herders among others	Entire County
5	WFP	www.wfp.org +254800722446 +254727524893	Marsabit Central	-To promote food system to achieve suitable food production to address climate resilience -To address malnutrition To build County capacity to address sustainable good systems	Farmers, women, men, herders, children, men	Entire County
6	Wealth Hunger Hilfe (WHH)	www.welthungerhilfe.de +254721977837	Marsabit Central	To support local organization through funding to support	Women, youth	

		PhilipEwoton@welt hungerhilfe.de		sustainable livelihood by funding water, school programs, agriculture, livelihoods among others		
7	NDMA	www.ndma.go.ke john.ougo@ndma +254712888749		To manage drought through disaster risk reduction programs and also to share EWI for ear actions to reduce loses		Entire County
8	IREMO-Indigenous Resource Management Organization	+254725808541	Marsabit Central	To work with women to manage and developed natural resources for economic benefits	Women and youth	Kargi, Maikona, Saku
9	Mercy Corps-LMS	+254203864454 +254722168426	Marsabit Central	To increase community resilience through implementing sustainable livelihoods projects	Women, youth, farmers, herders among other	Entire County
10	Kenya Forest Services	+254726611234	Marsabit central	To manage and increase tree cover	Men, women, youth,	Mt Marsabit gazetted forest
11	Kenya water towers	+254723805913		To manage and protect water towers	Women and youth	Mt Marsabit, Mt Kulal, Hurri hills , Northhorr,
12	National Environmental Management Authority	+254723956270	Marsabit central	To safeguard environment through enforcements	All	Entire County
13	Kenya Metrological Department	+254723996886 +254(069)2102028	Marsabit central	To provide/generate climate data for planning		Entire County
14	Center for research Development in Dryland	+254721839306; info@crdd- kenya.org	Marsabit Central	To work on the research gaps in areas of resilience building, sustainable livelihoods and rangelands	Herders, farmers, education institutions among others	Entire County
15	Kenya red cross - Marsabit	+254-692102065	Marsabit Central	To build capacity of local communities to any anticipated hazards, Disaster risk reduction To respond to emergencies to affected farm land incase disaster strikes	Women, children, youth, elderly	Entire County
16	USAID Kuza	+254721992254	Marsabit Central	To strengthen County/institutions in	Women, Youth,	Entire County

				<p>policy/legislation development</p> <p>To equip groups with finances † start sustainable livelihood</p> <p>To support private/local institution access grants/soft loans to involve sustainable livelihood</p>	children	
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County Government of Marsabit
Department of Water, Environment, Climate Change, Forestry and Natural Resources
Directorate of Environment and Climate Change
P.O. Box 384 - 60500 MARSABIT
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