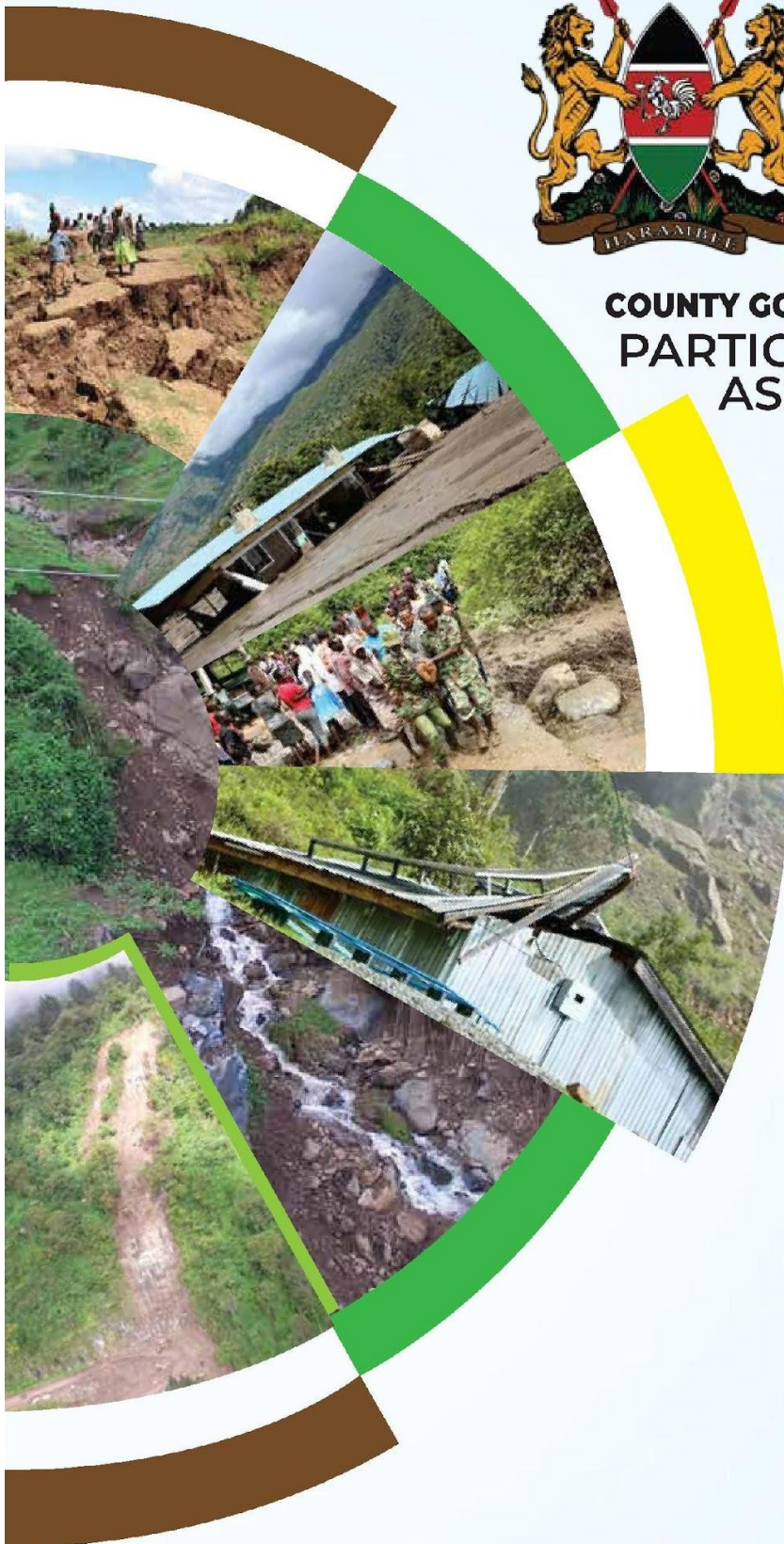




**COUNTY GOVERNMENT OF ELGEYO MARAKWET  
PARTICIPATORY CLIMATE RISK  
ASSESSMENT REPORT  
MAY 2023**



## FOREWORD

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Climate change is increasingly posing a threat to socio-economic development and environmental sustainability both at the national and county level. It is negatively impacting the lives of Elgeyo Marakwet people and the environment at an increasing rate. It has led to more frequent extreme weather events like droughts, floods, irregular and unpredictable rainfall and increasing temperatures. The effects of these climate changes have resulted in many challenges affecting agriculture and livestock, environment, commerce, and health.

In order to mitigate these adverse effects and/or impacts of climate change, the national government with the support of the World Bank launched the Financing Locally-Led Climate Action (FLLoCA) Program looking at both enabling environmental activities and an innovative decentralized approach for tackling climate change impacts. The objective is to strengthen local resilience to the impact of climate change, natural hazards, and other shocks/stressors by building the country's capacity to plan, implement, and monitor resilient investments in partnership with county governments and communities.

The program, as part of design, was supported by the World Bank to conduct Participatory Climate Risk Assessment (PCRA) at the community/ward levels that would underpin monitoring and evaluation aspects as well as county climate resilience measurement. The PCRA process consisted of three main steps; (a) Conducting of community/ward-level sensitization and participatory climate risk assessments informed by climate scenarios at the ward level; (b) Development of prioritized ward-level climate action plans; and (c) Proposition of County Climate Resilience Investment (CCRI) plans.

Elgeyo Marakwet County has adopted the FLLoCA program and embraced its bottom-up approach where the community (Ward-Level) identify hazards, propose mitigation measures and prioritize them and link with organization and/or institutions for urgent interventions and financing.

I therefore, call upon all stakeholders to offer Elgeyo Marakwet County a shoulder to lean on and form a formidable team that would address climate change challenges/effects and provide a lasting solution.



**JASON LAGAT,  
COUNTY EXECUTIVE COMMITTEE MEMBER,  
WATER, ENVIRONMENT AND CLIMATE CHANGE**

## ACKNOWLEDGEMENT

---

The Participatory Climate Risk Assessment (PCRA) report outlines the climate risks identified by the local community from the twenty (20) wards of the County Government of Elgeyo Marakwet. It has been prepared in compliance with Article 42, 66, 69, 71 and 72 of the Constitution of Kenya 2010, Public Finance Management Act, 2012, County Government Act, 2012, Kenya Climate Change Act, 2016, Elgeyo Marakwet County Public Participation Act, 2014, Elgeyo Marakwet County Climate Change Act, 2021, Elgeyo Marakwet County Climate Change Fund Act, 2021 among other related policies and frameworks on climate change.

The Participatory Climate Risk Assessment (PCRA) was conducted with financial support from GIZ and The National Treasury under Financing Locally Led Climate Action (FLLoCA) programme. It is important to specifically mention the dedicated support received from GIZ working in collaboration with The National Treasury's FLLoCA Programme Implementation Unit (PIU) in training of the County PCRA task team and formation of the Ward Climate Change Planning Committee (WCCPC).

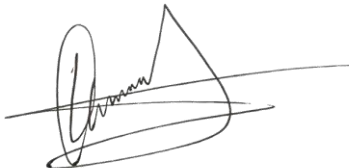
The entire PCRA process would not have been successful without the immense goodwill and guidance of the Governor of Elgeyo Marakwet County, H.E Wisley Rotich, H.E Deputy Governor Prof. Grace Cheserek, all County Executive Committee Members, Chief Officers, Directors and technical officers for their support during the whole process. We sincerely thank the Elgeyo Marakwet County Assembly led by the Speaker, Hon. Philemon Kiplagat Sabulei, County Assembly Sectoral Committee on Water, Environment and Climate Change led by Hon. Joshua Kipruto, all Members of the County Assembly and the technical officers therein for immense support during the entire PCRA process.

The task team consists of officers from the Climate Change Unit led by the County Executive Committee Member for Water, Environment and Climate change Mr. Jason Lagat who provided guidance and facilitated data collection exercise public forums as well as providing leadership to the Technical Working Group. We really appreciate the TWG led by Mr. Chelimo Suter, Director Climate Change for his tireless efforts in consolidating the report.

Our sincere appreciation goes to the team of experts Mr. Winstone Atamba, Director Climate Change Vihiga County, Ms. Caren Olesi, Climate Change Officer, Vihiga County and Ms. Brenda Okongo, ADS-Western Climate Governance, Western Region for their technical expertise, guidance, tireless efforts and support from the onset of the PCRA process up to the finalization of the report.

Finally, our appreciation goes to the citizens, Climate Change Committees at all county levels and all the stakeholders including the National Government institutions among them Kenya Meteorological Department, National Environment and Management Authority (NEMA),GIZ who supported the formation of Ward Climate Change Committees,Capaciticy builing of Climate Change Unit(CCU) and Trainers of Trainers(TOTs) on entire PCRA process Kenya Red Cross Society and Civil Society Organizations (CSOs) for the great participation and contributions in enriching the report during the Ward data collection forums and the multi-stakeholders' forum. Their input has gone a long way to enriching this document as we look forward to the implementation.

Thank you and God bless you all.

A handwritten signature in black ink, appearing to read 'Isaac Koech', with a long horizontal line extending to the right.

**ISAAC KOECH,  
CHIEF OFFICER,  
WATER, ENVIRONMENT AND CLIMATE CHANGE**

## EXECUTIVE SUMMARY

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The Elgeyo Marakwet County Participatory Climate Change Risk Assessment (EMPCRA) was carried out between April and May 2023. The objective of PCRA is to guide the County to identify climate risks and hazards with their associated impacts within Elgeyo Marakwet County in order to inform the climate change action planning; integration of climate issues into the CIDP and the National Climate Change Action Plan. PCRA is also one of the conditions for accessing the Climate Change Resilience Investment Grant from the National Treasury's Financing Locally Led Climate Action, (FLLoCA). The PCRA report documents prevalent climate risks, sources of vulnerability and the prioritized adaptation response actions.

The process of implementing the PCRA process involved: Formation and training of the Technical Working Group, stakeholder's mapping and analysis, community engagements at ward level, collection of data and preparation of stakeholders' workshop by task team, conducting county level workshop on climate change risk assessment as well as final report writing.

The main climate hazards identified during the assessment in the county are prolonged dry spells, intense rainfall, flash floods, emerging pests and diseases, Landslides, Floods and Erosion. The most affected sectors are environment, water, energy, infrastructure, health, forestry and education, with the most vulnerable group being the women, children, PWD, Elderly people, small scale farmers, and those residing along the Escarpment.

The County's rainfall trends have remained consistent over time but its variability has become more pronounced. It is the variability that has made the rainfall quite erratic and unreliable for most County livelihoods. Climate models indicate that unless climate change mitigation measures are enhanced, the situation is likely to worsen by 2035 going into 2070 and beyond.

The County's altitude varies from 900 m to 3000 m above mean sea level giving rise to considerable differences in climatic conditions. Annual mean temperatures on the highland range from 18<sup>0</sup>C to 22<sup>0</sup>C and 25<sup>0</sup>C to 28<sup>0</sup>C on the lowlands. The mean annual rainfall in the county is 700 mm in the valley to 1700 mm on the highlands.

## TECHNICAL WORKING GROUP (TWG)

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## DEFINITION OF TERMS

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**Climate Change:** Change in the climate system that is caused by significant changes in the concentration of greenhouse gases due to human activities, and which is in addition to the natural Climate Change that has been observed during a considerable period.

**Disaster:** A serious disruption of the functioning of a community or society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources.

**Disaster risk reduction:** Systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to prevention or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of sustainable development.

**Ecological Zone:** A zone or area exhibiting broad but relatively homogenous natural vegetation formations and weather patterns.

**Green Energy:** Is any energy type that is generated from natural resources, such as sunlight, wind, or water.

**Mitigation:** Human interventions to prevent or slow down atmospheric GHG concentrations by limiting current or future emissions, and/or enhancing potential sinks for greenhouse gases.

**Spatial Plan:** This is a ten-year GIS-based depiction of the County's socio-economic development vision and program, including the distribution of people and activities, within the context of efficient, productive, and sustainable use of land and other county spaces.

**Tree Cover:** Refers to the extent to which the land surface, gazetted or otherwise, is covered by trees. It can be expressed as a percentage of the total land area and is used as an indicator of forested areas and the amount of vegetation on the land. Tree cover is important for maintaining ecological balance, providing habitat for wildlife, and mitigating the impacts of climate change through carbon sequestration.

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

**Hazards-** Dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

## **ABBREVIATIONS AND ACRONYMS**

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ADP	Annual Development Plan
CCU	Climate Change Unit
CECM	County Executive Committee Member
CIDP	County Integrated Development Plan
CO	Chief Officer
EMCA	Environmental Management and Coordination Act
ESIA	Environmental Social Impact Assessment
FLLoCA	Financing Locally-Led Climate Action Program
ICT	Information Communication Technology
IGA	Income Generating Activities
KMD	Kenya Meteorological Department
OND	October - November - December
PCRA	Participatory Climate Risk Assessment
PWD	Persons Living with Disability
MAM	March - April - May
JJA	June - July - August
NAP	National Adaptation Plan
NCCAP	The National Climate Change Action Plan
NDC	The Nationally Determined Contributions
NEMA	National Environment Management Authority
KNBS	Kenya National Bureau of Statistics
SGBV	Sexual and Gender Based Violence
TWG	Technical Working Group
UNFCCC	The United Nations Framework Convention on Climate Change
ToT	Trainer of Trainers
WCCPC	Ward Climate Change Planning Committee
PCRA	Participatory Climate Risk Assessment

# CHAPTER ONE: BACKGROUND AND CONTEXT OF PARTICIPATORY CLIMATE RISK ASSESSMENT (PCRA).

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## 1.1 Background

Financing Locally-Led Climate Action (FLLoCA) is a program supported by the World Bank, Government of Denmark (DANIDA), Government of Sweden (SIDA), Government of Germany (KfW) and Government of Kenya (GoK). The Purpose of the programme is to deliver locally -led climate resilience actions and strengthen National Governments' Capacity to manage climate risks. It aims to empower communities to adapt to climate change by enhancing their ability to understand, assess, and manage climate risks at the local level.

The core components of the program are to:

1. Strengthen existing policy, legal and regulatory frameworks so as to build climate resilience.
2. Increase access to climate finance to support investments in climate resilience and low carbon emissions at local level.
3. Strengthen institutional and human capacity to enhance delivery on low carbon climate resilience at local level.
4. Enhance capacity of the County governments to support investments in climate resilience at local levels.

The FLLoCA Program required the county to undertake a Participatory Risk Assessment (PCRA) in all its twenty (20) wards to ascertain the climate risk assessment and suggest strategies and interventions that can be integrated in the County Climate Action Plan.

### 1.1.1 Background of Elgeyo Marakwet County

The County government of Elgeyo Marakwet is home to two main communities, the Keiyo and Marakwet, with minority groups such as the Sengwer and Cherangany also residing there. These communities live in specific areas determined by the different ecological zones that support their livelihoods. For example, the minority Sengwer reside in the Cherangany Hills, Embobut, and Kobolet forests, where they practice traditional ways of life.

The County headquarters is Iten, which is known as the "Home of Champions" due to its reputation as a training ground for world-class athletes. The county's high altitude and favorable climate makes it

an attractive destination for sports training. Agriculture is the mainstay of the country's economy, with over 80% of its population engaged in farming and related activities. Additionally, the county is known for its unique tourism offerings, such as a national game reserve, paragliding, and an abundance of cultural experiences, which contribute to its economic growth. (Elgeyo Marakwet County 2023-2027 CIDP).

### 1.1.2 Socio-Economic Characteristics

The county is divided into four sub-counties, namely: Keiyo North, Keiyo South, Marakwet East and Marakwet West. In addition, the county is administratively divided into 20 wards which are distributed into the four sub counties.

### Ecological Zones

Elgeyo Marakwet County has three topographical zones namely; Highlands, Escarpment and Kerio Valley. The highland is suitable for production of milk from dairy cows, wool from sheep, potatoes, maize, wheat, and beans. In the Escarpment, crops such as maize, millet, sorghum, and beans are grown despite the risk of soil erosion, landslides, and rock falls. However, in the semi-arid Valley, farmers raise zebu cattle, poultry, goats, and sheep and grow crops such as fruits, millet, sorghum, groundnuts, and green-grams. Most of the farmers in the county are smallholders, with an average of 1.36 ha. of land, while large-scale farmers have an average of 17.3 ha of land. (Elgeyo Marakwet County 2023-2027 CIDP).

Table 1: County's Electoral Wards by Constituency

Sub County	Ward
Marakwet East	Kapyego
	Endo
	Sambirir
	Embobut/Embolot
Marakwet West	Arror
	Kapsowar
	Moiben/Kuserwo

Sub County	Ward
	Lelan
	Sengwer
	Cherangany/Chebororwa
Keiyo North	Emsoo
	Kapchemutwa
	Kamariny
	Tambach
Keiyo South	Chepkorio
	Kaptarakwa
	Metkei
	Soy South
	Soy North
	Kabimit

(Source: KNBS 2019 and IEBC Report)

### 1.1.3 Energy, Transport, Infrastructure and ICT

Electricity coverage and access is still low within Elgeyo Marakwet County. The main source of lighting and energy used by households include solar (25.7%) and electricity (24.3%). Some regions are using other alternative sources such as paraffin lamps (3.9%), Liquefied Petroleum Gas (0.1%), solar (25.7%), tin lamps (3.9%), fuel wood (9.9%) and diesel-powered generators for lighting and energy.

The county has a total road network of 2,060.6 KM which consists mainly of all-weather road networks (1,496.2 KM). The rural access index stands at 85% owing to the concerted investments in road infrastructure; This means that more than 85% of the households are within 2 KM of a road network.

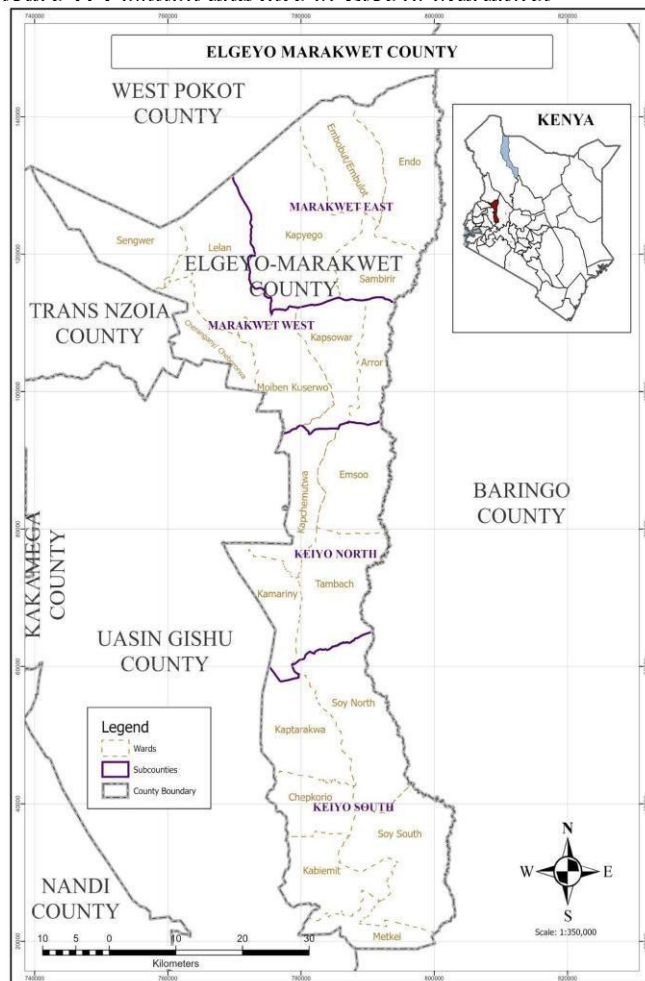
The mobile network coverage stands at 37.6% and the proportion of population with internet/broadband connective is still low (14.2%).

#### **1.1.4 Position and Size of Elgeyo Marakwet County**

The County spans an area of 3029.6km<sup>2</sup>, making up 0.4% of Kenya's total landmass. The county is situated between latitude 0o 10' and 1o 20' North, and longitude 35o 10' to 35o 44' East. It is bordered by West Pokot County to the North, Baringo County to the East, Trans Nzoia County to the Northwest, and Uasin Gishu County to the West.

The county has an elongated shape, located between the Uasin Gishu Plateau to the West and the Kerio River to the East. The Kerio River, which originates in the Southern highlands of the county, flows into Lake Turkana. (Elgeyo Marakwet County 2023-2027 CIDP).

Figure 1: Position and Size of Elgeyo Marakwet



### 1.1.5 Education and Literacy

The county's education levels consist of Pre-Primary school population (3-5) years (38,749) with a teacher learner ratio of 36:1, Primary school age group (6-13) years (100,679), and Secondary school age group (14 - 17) years (47,009). The Gross Enrolment Rate (GER) moved stands at 108.96% while Net Enrolment Rate (NER) rose is 85.51% as at end of 2022. The county has 14 Vocational Education and Training centres across the County with VTC enrollment of 1171 and VTC completion rate standing at 42.27% in 2022. The county also has 4 Technical Training Centres.

### 1.1.6 Agriculture, Livestock, Fisheries and Irrigation

Agriculture is the economic thrive of Elgeyo Marakwet county accounting for about 69% of Gross County Product (GCP) and providing livelihoods to over 90% of households in the county. The county's agro-ecological zones are ideal for both crop and livestock production activities. The Highlands, which constitutes about 49% of the total land area, is suitable for cash crop production, horticulture, dairy farming, and subsistence farming. The escarpment that covers about 11% of county land area is good for livestock farming, cereal crops, horticulture, and cash crops. The remaining 40% of the land area covered by the Kerio Valley is suitable for irrigated agriculture and livestock production.

Crop productivity in the county stands at 276 tonnes per hectare translating to average household income of 1.4 million shillings per hectare and reduction of food insecurity to 15%. Land under

irrigation stands at 8,166 hectares while 3,644 farms are laid with soil conservation structures. In addition, livestock productivity stands at 40% while disease prevalence stands at 8%.

### **1.1.7 Health Services**

The county has a total of 7 hospitals, 27 health centers, 93 dispensaries and 6 private clinics. Generally, the doctor /patient ratio is 0.8 and nurse/patient ratio is 9.1. The life expectancy stands at 57.9 for male and 62.5 for female. The average distance to a health facility is 2.2km with Core Health Worker density per 10,000 Population (Nurses, Doctors, RCOs). The health services have been enhanced at the local levels through engagement of 700 Community Health Volunteers (CHVs).

The most common diseases in order of prevalence are Upper Respiratory Tract Infections, Disease of the Skin, Pneumonia, Arthritis & Joint pain and Confirmed Malaria.

The latrine coverage stands at 96%, however the incidence of diarrheal diseases is 7.7% and TB incidence is 112 persons per 100,000 while Malaria incidence is 12.5 per 1,000.

The prevalence of stunted growth (Height for age) stands at 21.8, whereas the prevalence of wasting (Weight for Height) stands at (4.8) and the prevalence of underweight (Weight for Age) is at (13.9).

The Infant Mortality Rate (IMR/1000) stands at 32.7 and the Maternal Mortality Rate is 435 persons per 100,000 while Immunization coverage across the County stands at 69.8% and the Antenatal Care (ANC) stands at 51.5%. The crude Birth Rate and Crude Death rate are 26.9 and 8.1 respectively.

### **1.1.8 Water, Environment and Climate Change**

The County is endowed with a variety of natural resources which include but not limited to: natural forests and ecosystems, rivers, streams, springs and minerals. The rivers include; Embobut, Kessup, Arror, Moiben, Kimwarer, Kerio river and Torok river. Of these rivers, Embobut, Arror, Kimwarer has the potential for both hydro and irrigated agriculture through development of dams. The Same has been captured under the national water master plan as part of commitment to vision 2030.

The county has 43 permanent rivers, 2837 shallow wells, 791 springs, 262 water pans, 10 dams and 81 boreholes and 15 Water Resource User Associations (WRUA). However, the proportion of

households with access to clean and potable water stands at 37.07%. The County Government has enhanced the access to water to residents by enhancing strategies such as construction of more than 115 intake weirs, 931 km of pipeline extension, drilling of more than 45 boreholes, construction of 361 water storage tanks and rehabilitation of dams and water pans and intake through de-siltation.

The county's tree cover is 29.95% and the forest cover is 20.5%. The county has enhanced the cover through establishment of 47 tree nursery beds across the county and growing of 537,411 assorted exotic tree seedlings as well as introduction of 10,077 bamboo and other environmentally friendly trees.

### **1.1.9 Youth, Gender, Sports and Culture**

Elgeyo Marakwet County is rich in sports, especially athletics. It aspires to identify and develop talents through construction of accessible, safe, sustainable, and environmentally friendly standard fields and organizing thematic events. Skills and abilities developed by sport promote people's well-being and directly improve their physical, mental, and psychological health, hence improved quality of life.

According to the KNBS Population and Census report the youthful population (15-29) years is 150,417. Women of reproductive age (15 - 49) years are 124,411, Labour force is (15-65) years 276,438 and the aged population (65+) is 20,967. Unemployment levels stands at 55.6%. The reported cases on Sexual and Gender Based Violence (SGBV) among women stands at 13.1% which is relatively higher compared to Sexual and Gender Based Violence (SGBV) among men which is at 6.1%.

The county has also focused on the special interest groups by increasing participation and inclusivity in decision making. The number of registered Persons Living with Disabilities (PWDs) (visual, hearing, speech, physical, mental, albinism, self-care) stands at 7,097. The recorded number of Orphans and Vulnerable children (OVCs) (No.) is 13,431 and the prevalence of Female Genital Mutilation (FGM) is at 18.4 %. The county through its Income Generated Activities (IGAs) programme has so far supported 186 youth groups, 268 women groups and 38 PWDs groups.

The County has one (1) rehabilitation center and through collaboration with other partners it has been able to empower 2223 former alcohol brewers and support them with alternative income generating activities.

The county has so far organized 123 thematic events on sport scouting and talent development (tournaments, leagues, meets and championships), trained 3840 on technical and vocational skills).

The county is home to indigenous communities who are rich in culture and tradition. It has so far established 21 cultural sites as well as organized annual cultural events that promote culture preservation and heritage.

## **1.2 Policy Context**

The Elgeyo Marakwet County Participatory Climate Risk Assessment (PCRA) was been guided by a number of policies and legal frameworks that provide guidelines on preparation and implementation of climate change risk management strategies and county action plan.

- i. **Sustainable Development Goals (SDGs):** Goal 13 aims at taking urgent action to combat climate change and its impacts by strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in all countries; Integrating climate change measures into national policies, strategies and planning and Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. Goal 2.4 also aims at ensuring sustainable food production systems and implementing resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality by 2030.
- ii. **The United Nations Framework Convention on Climate Change (UNFCCC)** that outlines commitments expected from parties to the convention. Concerning vulnerability assessments, the convention calls on parties to take climate change considerations into account in their social, economic and environmental policies and actions.
- iii. **The Paris Agreement** that calls on the parties to engage in adaptation planning processes and the implementation of actions including the development of relevant plans and policies that may include, the assessment of climate change impacts and vulnerability with a view to formulating nationally determined prioritized actions, taking into account vulnerable people, places and ecosystems.

- iv. **Green Economy Strategy and Implementation Plan (GESIP) 2016 -2030** which is the country's blueprint in advancing towards a low-carbon, resource efficient, equitable and inclusive socio-economic transformation.
- v. **The Nationally Determined Contributions (NDCs)** which are commitments made by countries who are parties to the Paris Agreement to reduce national emissions and adapt to the impacts of climate change.
- vi. **The Constitution of Kenya 2010** which makes it a right for every Kenyan to reside in a clean and healthy environment.
- vii. **National Climate Change Response Strategy (NCCRS), 2010** that focuses on ensuring that adaptation and mitigation measures are integrated in all government planning and development objectives.
- viii. **National Climate Change Framework Policy, 2016** that identifies the adaptive capacity of individuals and communities as being key to improving their socio-economic situations. It emphasizes on vulnerability assessments as an effective tool for establishing adaptive capacities and therefore proposes appropriate strategies to build community resilience.
- ix. **Climate Change Act, No. 11 of 2016** that guides climate change response and which provides for establishment of climate change governance structures. Section 19 of the Climate Change Act, 2016 requires counties to mainstream climate change in their programmes, plans and functions; undertake climate change action planning as well as establish a climate change governance framework.
- x. **The National Climate Change Action Plan (NCCAP) 2018 -2022** that outlined key actions that the country intended to take to tackle climate change from 2018 to 2022.
- xi. **The National Adaptation Plan (NAP)** that outlines key adaptation actions across various sectors of the economy to enhance resilience of vulnerable populations to climate shocks through adaptation and disaster risk reduction strategies.
- xii. **The County Integrated Development Plan (CIDP)** outlines strategies and programmes facilitating mitigation of climate change risks through mainstreaming of climate change

issues in departmental programmes and strategies.

- xiii. **The County Annual Development Plan (ADP)** gives annual budgetary allocation to climate change Unit activities thus enhancing yearly implementation of climate change strategies and programmes.
- xiv. **The Elgeyo Marakwet County Equitable Development Act 2015** provides for participatory allocation of the county development budget at ward level and involves all stakeholders.
- xv. **The Elgeyo Marakwet County Climate Change policy 2021** puts in place the framework and mechanisms for mobilization and facilitation of the county government, communities and other stakeholders to respond effectively to climate change through appropriate adaptation and mitigation measures and actions and for connected purposes.
- xvi. **The Elgeyo Marakwet Climate Change Fund Act, 2021 Section 3** outlines the objective of Act which is to “create a fund in the county for the purpose of facilitating establishment of a mechanism to finance climate change activities, programs and projects in the county”. Section 42(a) of this act states that the allocation shall not be less than 2% of the development expenditure in a financial year.

### **1.3 Purpose of the PCRA Report**

Climate change has impacted negatively on our daily activities and livelihoods resulting in loss of lives and property. In order to address these risks, the Financing Locally-Led Climate Action (FLLoCA) Program is striving to provide support and/or avenues for mitigating challenges/problems/risks caused and to build community resilience.

The report contains the identified local climate risks and hazards, the impact of the climate hazards to the vulnerable groups and the local capacities in relation to risk factors. The report also includes climate change adaptation strategies which were identified by communities at ward level across the county. It will guide the county government in planning for climate change response actions across various sectors and provide a basis for the county CCAP.

The PCRA process accords community’s opportunity to identify and prioritize climate risks facing them and identifies plans to mitigate, prevent and manage the identified risks.

In addition, it informs development of the Elgeyo Marakwet County Action Plan (EMCAP) which incorporates stakeholders from various sectors at the county and national level including Civil Society Organizations and development partners.

*Table 2: Elgeyo Marakwet County Factsheet*

INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
COUNTY AREA		
Total area (Km2)		3,029.6
Non-arable land (Km <sup>2</sup> )		856.3
Arable land (Km <sup>2</sup> )		2652.2
Size of gazetted forests (Ha)		93,691.28
Size of non-gazetted forests (Ha)		33,831.2
Approximate forest cover (%)		20.53
Approximate tree cover		29.95
Water mass (Km2)		82.39
No. of rivers, lakes and wetlands protected		18
Total urban areas (Km2)		271.2
No. of quarry sites rehabilitated		43
No. of climate change adaptation projects/programmes		120
TOPOGRAPHY AND CLIMATE		
Lowest altitude (meters)		900
Highest (meters)		3,300
Temperature range:	High (0C)	28
	Low (0C)	18
Rainfall	High (mm)	1,700
	Low (mm)	700
Average relative humidity (%)		69
Wind speed (Kilometers per hour/knots)		8 knots(15kph)

INFORMATION CATEGORY	COUNTY STATISTICS (AS AT 2022)
<b>DEMOGRAPHIC PROFILES</b>	
Total population	488,300
Total Male population	242,226
Total Female population	246,073
Total intersex Population	12
Sex ratio (Male: Female)	0.984
<b>POVERTY INDICATORS</b>	
Absolute poverty (%)	12.2
Rural poor (%)	
Food poverty (%)	44.8
Contribution to National Poverty (%)	43.4
<b>HEALTH</b>	
Five most common diseases (in order of prevalence)	Upper Respiratory Tract Infections
	Diseases of the Skin
	Pneumonia
	Arthritis & Joint pain
	Confirmed Malaria
<b>AGRICULTURE, LIVESTOCK &amp; FISHERIES</b>	
<b>Crop Farming</b>	
Average farm size (Small scale) (acres)	5.6
Average farm size (Large scale) (acres)	35.0
<b>Main Crops Produced</b>	
Food crops (list)	Beans, Finger millet, Maize, Potatoes, Sorghum
Cash crops (list)	Beans, Cotton, Finger millet, green- gram, Groundnuts, Macadamia nuts, Maize, Mangoes, Potatoes, Pyrethrum, Sorghum, coffee, tea, tomatoes, avocado,

INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
		temperate fruits
Total acreage under food crops (acres)		90,514
Total acreage under cash crops (acres)		130,052
Main storage facilities (Maize cribs, store and warehouses)		Cereal stores, cold stores
Extension officer farmer ratio		1:1840
Livestock Farming		
Number of livestock	Dairy Cattle	176,695
	Beef Cattle	100,784
	Goats	300,601
	Sheep	362,907
	Camel	237
	Donkey	12,535
	Poultry	499,321
	Bee hives	57,224
Irrigation Infrastructure		
Irrigation schemes	Large (>5 Acres)	4
Type of Livestock, Population and Value		
Dairy cattle	Quantity (Total Population)	176,695
	Value (Kshs.)	4,844,712,000
Beef cattle	Quantity (Total Population)	100,784
	Value (Kshs.)	2,015,680,000
Goat	Quantity (Total Population)	300,601
	Value (Kshs.)	1,202,404,000
Sheep	Quantity (Total Population)	362,907
	Value (Kshs.)	1,088,721,000
Camel	Quantity (Total Population)	237

	Value (Kshs.)	7,110,000
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INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
Livestock Products and Their Value (Annual)		
Milk	Quantity (Liters)	300,382
	Value (Kshs.)	15,019,075
Beef	Quantity (Kgs)	10,078,400
	Value (Kshs.)	4,031,360,000
Mutton	Quantity (Kgs)	5,443,605
	Value (Kshs.)	2,721,802,500
Chevon	Quantity (Kgs)	4,509,015
	Value (Kshs.)	2,254,507,500
Chicken meat	Quantity (Kgs)	1,497,963
	Value (Kshs.)	1,198,370,400
Honey	Quantity (Kg.)	274,675
	Value (Kshs.)	219,740,160
Eggs	Quantity (Trays)	699,049
	Value (Kshs.)	314,572,230
FISHERIES		
Fish traders (No.)		98
Fish ponds (No.)		1,261
FORESTRY		
No. of gazetted forests		15
No. of non-gazetted forests		32
No. of community forests		19
Main forest products: Timber, Fuelwood, poles, posts, withies	Timber, Fuelwood, poles, posts, withies	

Forestry products' value chain development:	Gum and resins, Aloe vera, murrum, sand, moss, Bamboo, shoots, mushrooms, cut stone, quarry waste
Incidences of environmental	Loss of biodiversity, drought, floods, Forest fires, Deforestation

INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
threats		
No. of people engaged in forestry		44,507
Seedling production	Forest Nurseries (No. of seedlings)	1,220,034
	Private Nurseries (No. of seedlings)	11,367,101
Quantity of timber produced (Tonnes)		81729
EDUCATION AND TRAINING		
Pre-Primary School		
No. of ECD centres		506
No. of ECD teachers		781
Teacher/pupil ratio		1:44
Total Enrolment	Girls	15,146
	Boys	16,012
Average years of attendance (years)		4-5 Years
Primary Schools		
Number of primary schools		426
Number of teachers nm		3,814
Teacher/pupil ratio		1:46
Total enrolment	Boys	45,897
	Girls	43,496
Special Needs Schools		
Number of Special Needs Schools		8
No. of Integrated Schools		3
Number of teachers		38

Total enrolment	Boys	131
	Girls	100
Secondary Schools		

INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
Number of secondary schools		138
Number of teachers		1,989
Teacher/student ratio		1:26
Total enrolment	Boys	24,251
	Girls	27,346
Vocational Training Centres	No.	14
	Enrolment (Male)	647
	Enrolment (Female )	524
Tertiary Education (accredited public and private)	No. of TVETS	4
ENVIRONMENTAL MANAGEMENT		
Volume of solid waste generated: Annual (Tonnes)		67,750
Volume of solid waste collected & Disposed: Daily/Annual		25,400
WATER AND SANITATION		
Households with access to piped water (No.)		37,016
Households with access to potable water (No.)		8,460
Permanent rivers (No.)		43
Shallow wells (No.)		2,837
Protected springs (No.)		583
Un-protected springs (No.)		208
Water pans (No.)		262
Dams (No.)		10
Boreholes (No.)		81

Distribution of Households by Main Source of water (%)	Piped into dwelling	5,592
	Piped	12,981
	Rain/harvested	999
	Borehole	5,091

INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
	Protected well	10,581
	Protected spring	2,895
	Unprotected well	3,595
	Unprotected spring	3,695
	Stream	48,732
	Water Vendor	301
	Dam	399
	Pond	791
	Lake	0
Water supply schemes (No.)		8,701
	Garbage pit	6.5
	Burning	55.7
	Public garbage heap	0.2
	Farm Garden	6.3
	Neighbourhood Community group	0.0
<b>ENERGY</b>		
Households with electricity connection (prop.)		24.3
% of trading centres connected with electricity		77.47
HHs distribution by main cooking fuel	Electricity	0.5
	Gas (LPG)	3.1
	Biogas	0.4
	Solar	0.2

	Paraffin	0.4
	Firewood	87.1
	Charcoal	8.5
HHs distribution by main lighting fuel	Electricity	24.3
	Gas (LPG)	0.1

INFORMATION CATEGORY		COUNTY STATISTICS (AS AT 2022)
	Biogas	0
	Solar	25.7
	Paraffin	3.9
	Tin lamp	3.9
	Fuel wood	9.9
	Earthen (%)	29.2

### 1.4 Key steps in the county's PCRA process

The Elgeyo Marakwet County Participatory Climate Risk Assessment (PCRA) process was implemented in the following main steps below. The stages are: Formation of the cross-sectoral technical working group, training of the technical working group, stakeholder's analysis, preparation for community engagements, conducting participatory risk assessment at ward level, preparation of ward level risk assessment reports, preparation for county level multi-stakeholder workshop on climate change risk assessment and final report writing was as per outlined below;

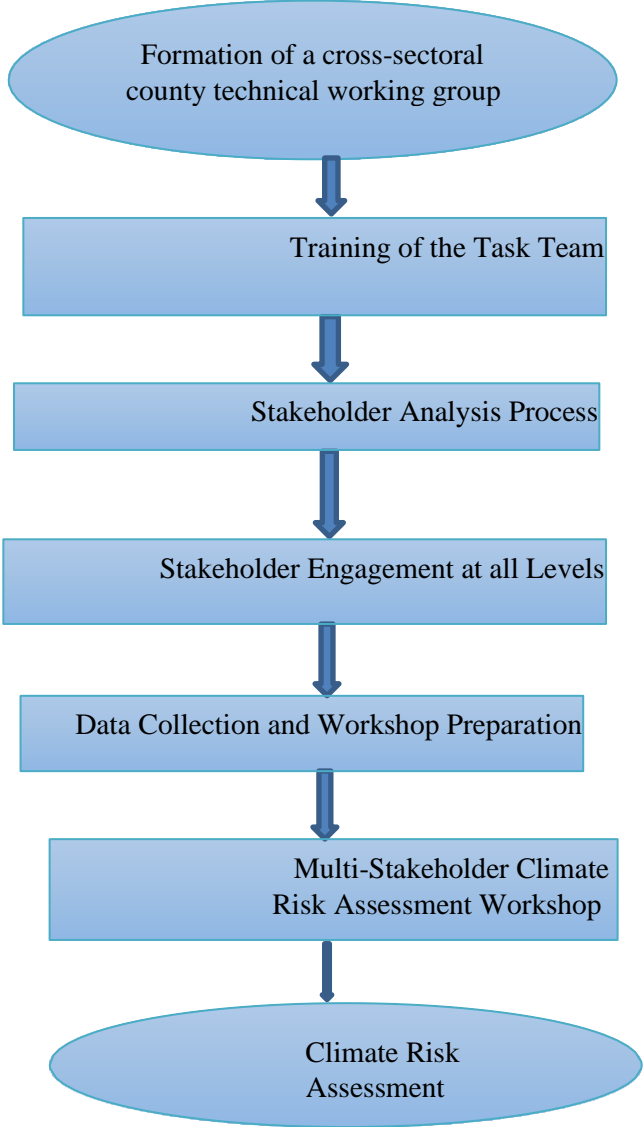


Figure 2: Key Steps for County PCRA Process

Table 3: Overview of the PCRA Process and duration taken

Step	Activity	Duration in Days
<b>Step 1:</b>	Constitution of the Technical Working Group	4
<b>Step 2:</b>	Training of the Technical WG	3
<b>Step 3:</b>	Stakeholder Mapping	1
<b>Step 4:</b>	Preparation for Community Engagements	2
<b>Step 5:</b>	Ward Based engagements on PCRA	2
<b>Step 6:</b>	Data Analysis and Preparation for County Level Workshop on PCRA	5
<b>Step 7:</b>	County Level Workshop on PCRA	2
<b>Step 8:</b>	PCRA Report	8
		27

### **Step 1: Creation of the Technical Working Group**

The technical working group was constituted through appointment by the County Executive Committee member in Charge of Climate Change. Considerations for appointment to the technical working group were: representation of climate change relevant sectors such as Meteorology, environment, water, agriculture and gender; commitment to create time for the exercise, knowledge, skills and experience relevant to the task among others. Those appointed to the committee were technical officers from the county directorates of Economic Planning and Budgeting, Water, Environment, Forestry and Climate Change, Supply Chain Management, Accounting Services, ICT, Lands and Physical Planning, and Communications. Other technical officers that were appointed were from the legal section in the office of the governor, Gender and Social Services and Agriculture and Irrigation. The County Director of Meteorology, County Coordinator Red Cross, National Environment Management Authority (NEMA) representative and a Civil Society Organization (CSO) representative were also incorporated into the task team.

### **Step 2: Training of the Technical Working Group**

The Technical Working Group was trained for three days on the PCRA process. The training involved

understanding of the process, its relevance in development planning and implementation and how each step of the PCRA process should be conducted as described in the PCRA guidance templates. The training was coordinated by the Director of Climate Change, an expert from the national treasury supporting the process and climate change practitioners from a Civil Society Organization in Kakamega and Vihiga County and GIZ.

### **Step 3: Stakeholder and Analysis**

The Technical Working Group during the training session identified stakeholders working within the County in the following categories: Individuals/organizations formally responsible for climate action and building resilience; those involved in climate action and responses to climate impacts; those with knowledge and expertise relevant to climate adaptation and building resilience and community representatives and those impacted by climate change.

#### **a) Stakeholders Identification**

##### **1. Entities formally responsible for climate action and building resilience**

- Kenya Forest Service (KFS)
- National Government Directorate of climate change
- Kenya Meteorological Department (KMD)
- County Department of Agriculture, Livestock and Fisheries
- National Environment Management Authority (NEMA)
- County Department of Water, Environment and Climate Change
- Community Forest Association (CFA)
- Water Resource Users Association (WRUA)
- Water Resources Authority (WRA)
- Kerio Valley Development Authority (KVDA)
- Kenya Forest Research Institute (KEFRI)
- Ward Climate Change Planning Committees
- Kenya Water Towers Agency (KWTA)
- County Assembly-Environment Committee
- Kenya Wildlife Service (KWS)
- National Disaster Management Agency (NDMA)
- GIZ Kenya
- Environment and Land Courts
- National Government Department of Water, Environment and Natural resources
- North Rift Region Economic Bloc (NOREB)

##### **2. Entities involved in climate action and responses to climate impact**

- Ministry of interior

- Kenya Meteorological Department (KMD)
- County Department of Agriculture and Livestock
- County department of Water, Environment and Climate Change
- National Environment Management Authority (NEMA)
- Kenya Wildlife Service (KWS)
- Self Help Africa
- Worldwide Fund (WWF)
- World Vision Kenya-IMARA
- Kenya Red Cross
- The Nature Conservancies
- Nature Kenya
- Food and Agricultural Organization (FAO)
- Geological Department
- National Disaster Management Agency (NDMA)
- County Department of Health Services
- County Department of Finance and Economic Planning
- County Department of Sports, Youth affairs, Culture, Children and Social Services
- Community Forest Association (CFA)
- Kenya National Farmers Federation (KENAFF)
- Water Resource Users Association (WRUA)
- Water Resources Authority (WRA)
- Africa Water Harvest
- Faith Based Organizations (National Council Churches of Kenya (NCCCK), Anglican Development Services -North Rift Region, Catholic Diocese of Eldoret)
- EMC CSO Network
- Community Based organization (CBO)
- Cherangany Hills Conservation
- National Environment Trust Fund
- International Fund for Agricultural Development (IFAD)
- Water Service Providers (Iten Tambach Water and Sewerage Company (ITWASCO), CHEMAWASCO and ELDOWAS)
- Kerio Valley Development Authority (KVDA)
- Green Earth Ambassadors
- Rest Hub
- GIZ Kenya
- Kenya Forest Research Institute (KEFRI)
- University of Eldoret
- Ward Climate Change Planning Committees
- Kenya Water Towers Agency (KWTA)
- North Rift Water Works (LVNWW)
- Rift Valley Water Works
- County Assembly
- Financial Institutions (KCB, Equity, Cooperatives, Boresha, Faulu, KWFT, and Prime Time

SACCO)

- Development Partners (World Bank, UNDP)
- Kenya Power and Lighting Company (KPLC)
- Environment and Land Courts
- Insurance Companies
- Tea Research Foundation (TRF)
- North Rift Region Economic Bloc (NOREB)
- Hand in Hand East Africa
- EMCSO Consortium
- Institute for global prosperity, University college London
- Finn Church Aid (FCA)
- Hope Water Africa

### **3. Entities with knowledge and expertise relevant to climate action, resilience, including knowledge on climate systems and climate risks**

- Kenya Forest Service (KFS)
- County Directorate of climate change
- Kenya Meteorological Department (KMD)
- County Department of Agriculture and Livestock
- National Environment Management Authority (NEMA)
- County Directorate of Environment
- Water Resources Authority (WRA)
- Kerio Valley Development Authority (KVDA)
- Kenya Forest Research Institute (KEFRI)
- National Disaster Management Agency (NDMA)
- Tea Research Foundation (TRF)
- Kenya Water Towers Agency (KWTA)
- University of Eldoret
- Kenya Red Cross
- Regional Centre for Mapping of Resource for Development (RCMRD)
- United Nations Development Programme (UNDP)
- Kenya Agriculture and Livestock Research Organization (KALRO)
- County Government Directorates; Climate change, water, Environment, Agriculture, Disaster Management.
- Kenya Water Towers Agency (KWTA)
- Kerio Valley Development Authority (KVDA)
- Worldwide Fund (WWF)

### **4. Those impacted by climate change**

- Community (Women, People Living with Disabilities, Youth & Elderly)
- Farmers
- Pastoralists
- School going children.

- Biodiversity (flora and fauna)
- Infrastructure e.g., roads, telephone lines, electricity lines, water pipes, roofs, etc.
- Water Service providers
- Public health and Sanitation

#### **5. Sources of scientific data**

- Kenya Meteorological Department
- Directorate of climate change
- Kenya National Bureau of Statistics (KNBS)
- Directorate of Economic Planning and Budgeting
- Research and Learning Institutions

Table 4: Stakeholder Analysis summary

<p><b>High Influence - Low Interest</b></p> <ul style="list-style-type: none"> <li>● County Assembly</li> <li>● Financial Institutions</li> <li>● Geological department</li> <li>● Kenya Power and Lighting Company</li> <li>● World Bank</li> <li>● National Treasury</li> <li>● Community</li> <li>● KENHA</li> <li>● KERRA</li> </ul>	<p><b>High Influence - High Interest</b></p> <ul style="list-style-type: none"> <li>● County Directorate of Climate Change</li> <li>● Kenya Forest Service (KFS)</li> <li>● Ministry of interior</li> <li>● Kenya Meteorological Department (KMD)</li> <li>● National Environment Management Authority (NEMA)</li> <li>● County Department of Finance and Economic Planning</li> <li>● County Department of Water, Environment and Climate Change</li> <li>● County Department of Agriculture, Livestock and Fisheries</li> <li>● County Department of Sports, Youth affairs, Culture, Children and Social Services</li> <li>● Food and Agricultural Organization (FAO)</li> <li>● Worldwide Fund (WWF)</li> <li>● Water Resources Authority (WRA)</li> <li>● Kerio Valley Development Authority (KVDA)</li> <li>● Kenya Forest Research Institute (KEFRI)</li> <li>● Tea Research Foundation (TRF)</li> <li>● University of Eldoret</li> <li>● Kenya Water Towers Agency (KWTA)</li> <li>● Rift Valley Water Works Development Agency (NRWWDA)</li> <li>● Environment and Land court</li> <li>● Water Service Providers e.g., ITWASCO LTD, CHEMAWASCO LTD and ELDOWAS LTD.</li> <li>● The Nature Conservancies</li> <li>● Nature Kenya</li> <li>● Nature Conservancies</li> </ul>
<p><b>Low Influence - Low Interest</b></p> <ul style="list-style-type: none"> <li>● Rest Hub</li> </ul>	<p><b>Low Influence - High Interest</b></p> <ul style="list-style-type: none"> <li>● World Vision Kenya</li> <li>● Kenya Red Cross</li> <li>● Community Forest Association (CFA)</li> <li>● Water Resource Users Association (WRUA)</li> <li>● National Council Churches of Kenya (NCCK)</li> <li>● Green Earth Ambassadors</li> <li>● Ward Climate Change Planning Committees</li> <li>● Insurance Companies</li> <li>● Self Help Africa</li> <li>● Civil Society Organizations (CSOs)</li> <li>● Community Based Organization (CBO)</li> </ul>

#### **Step 4: Preparation for ward level engagements**

The Directorate of ICT and communication together with the Climate Change Unit (CCU) publicized the upcoming climate change risk assessment exercise on the county government website, county government notices and county government official social media platforms and mobilized participants with the support of ward administrators and sub county administrators. Given the small geographic area of the county, the Technical Working Group (TWG) adopted a process where the wards were engaged in clusters of 10 wards per venue for two (2) days giving considerations to proximity to each other. During the deliberations, the clusters were further classified into groups of one (1) ward each to conduct the PCRA process with the guidance of one Task team member per ward.

The identified community participants were mobilized through the office of the respective ward administrators and the respective ward climate change planning committees. Programs, engagement tools and other materials relevant to the community engagements were prepared in advance. These IEC materials included: workshop program, community guiding questions, flip chart, marker pens and the note takers feedback forms. The technical working group took 2 days to prepare for ward level engagements.

#### **Step 5: Engagement of Communities at Ward Level on PCRA**

An average of 10-12 participants were mobilized from the wards in line with the mobilization criteria stated above. The participants mobilized consisted of different livelihood groups such as farmers and traders, minority, youth and PWD in addition to the members of the Ward Climate Change Planning Committees (WCCPC). Other participants included ward agricultural officers, ward administrators, foresters and other technical officers with ward level mandate.

In the first session of the community meetings, all the ten (10) wards clustered were jointly taken through an introduction session. The introduction session covered the significance of the PCRA process, overview of climate change trends followed by explanation of the process and its application in the county planning and development cycle. The participants were then segregated into their respective wards where a member of the technical team and a note taker were assigned. The process took the TWG 2 working days working concurrently to cover all the 20 wards in two.

The community engagement meetings started with sketching a climate hazard and community assets map. Thereafter, the climate change risk assessment tools were administered to determine the main

hazards, prioritize them, identify vulnerabilities, local response actions and propose adaptation strategies. The output of this process was to facilitate the community to identify key climate change risks and hazards and priority response measures accordingly.

### **Step 6: Data Analysis and Preparations for County Level Participatory Climate Change Risk Assessment**

The data from the wards was summarized into reports and climate risk maps digitized by the GIS unit capturing the main hazards and prioritized response actions per ward and at the sub county level. This was followed by a one-day meeting of the technical committee to develop the workshop program and share responsibilities among team members as well as agree on the workshop execution strategy. The County Director Meteorology prepared an overview presentation on historical, current and projected climate scenarios for the county whereas Economic Planner prepared a presentation on the socio-economic status of the county. The County Cartographer and GIS specialist prepared a presentation on prevalent climate hazards and their geographic distribution in the county. A concept for the workshop was developed which detailed the background of the exercise, objectives, program and list of invitees.

### **Step 7: County Level Workshop on Participatory Climate Change Risk Assessment**

The 1day stakeholders meeting was held on 23rd May 2023 with the objective of validating the findings from the wards and having the multi-stakeholders incorporate their views into the County PCRA process. The meeting had 50 participants who included the PCRA Task Team, government officers from line departments such as water Environment and Climate Change, Agriculture, Public health; representatives from Civil Society Organizations implementing climate change related projects; academia represented by The University of Eldoret; community representatives among others.

During the meeting, the participants were introduced to the general overview of the county in matters of climate change impacts followed by the current and projected climate change scenarios. This presentation was followed by identification of climate change hazards, which was compared to the hazards that had been prioritized by the wards and followed by updating the hazard maps from the wards. The participants prioritized the hazards, response measures as well as drivers of climate change vulnerability. The wards were clustered into sub-counties.

### **Step 8: Participatory Climate Risk Assessment Report**

The team then developed a participatory climate risk assessment report through consolidating the data gathered throughout the risk assessment process from the ward level engagements, review of key documents and multi-stakeholders' workshop. It took about 5 days cumulatively to develop the report, which was consolidated by the director in charge of climate change together with a team of Experts and CCU members. The technical team of experts incorporated in to PCRA process supported the County by providing the necessary backstopping and review of the report until the final draft was developed.

## 2 CHAPTER TWO: ELGEYO MARAKWET COUNTY CLIMATE HAZARD PROFILE

### HAZARD PROFILE

#### 2.1 Current and Historical Climate Hazards and Trends

The county has three distinct topographic zones, the Highlands, the Lowlands (Valley), and Escarpment (Hanging Valley), which are separated by the Elgeyo Escarpment. Each of these zones has attracted a different pattern of settlement. The highlands, which make up 49% of the county's total land area, are heavily populated due to their fertile soils and reliable rainfall. In contrast, the Escarpment and Lowlands, which constitute 11% and 40% respectively, have low rainfall and are vulnerable to natural disasters such as drought, Rockfalls, and landslides. As a result of these harsh climatic conditions and high levels of insecurity, these areas have a high poverty rate and a sparse population. (Elgeyo Marakwet County 2023-2027 CIDP).

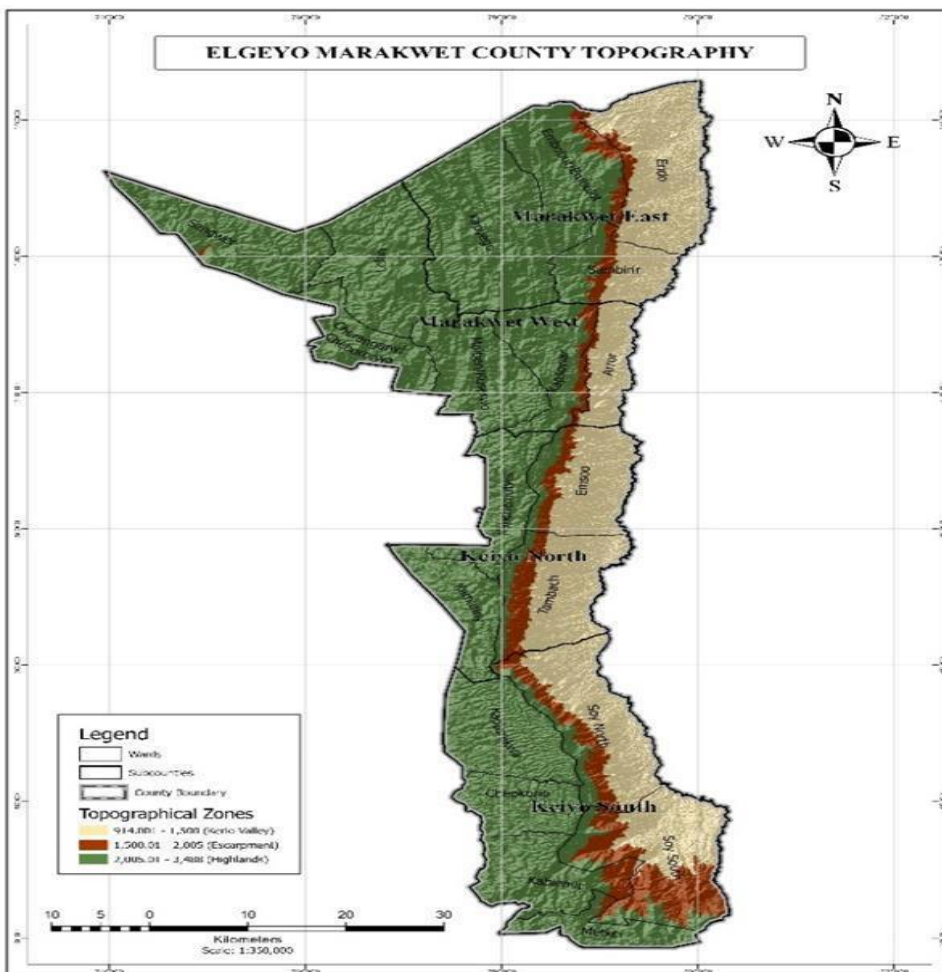


Figure 3: Topography of Elgeyo Marakwet County

### Climatic Conditions of Elgeyo Marakwet County

Elgeyo Marakwet County has a relatively cool climate with varied rainfall levels across the County. This is because of the geomorphology/topography that is characterized by three distinct agro-ecological zones namely the Highlands to the west, the escarpment (hanging valley) and the lowlands (valley) to the east. The variation in altitude from 900 m above sea level in the Kerio Valley to over 3000 m above sea level in the highlands gives rise to considerable differences in climatic conditions and consequently, exposure to different types of climate related risks and hazards. Annual mean temperatures on the highland range from 18<sup>0</sup> C – 22<sup>0</sup>C while down in the valley, it ranges from 25<sup>0</sup> C – 28<sup>0</sup>C. The average annual rainfall in the county ranges from 700 mm in the semi-arid Kerio valley to 1700 mm on the Keiyo and Marakwet highlands. It is the eastern lowlands of the county that exhibit lower and less reliable rainfall as well as being a part of the county that is most at risk of drought and floods. (County Meteorological Office Reports).

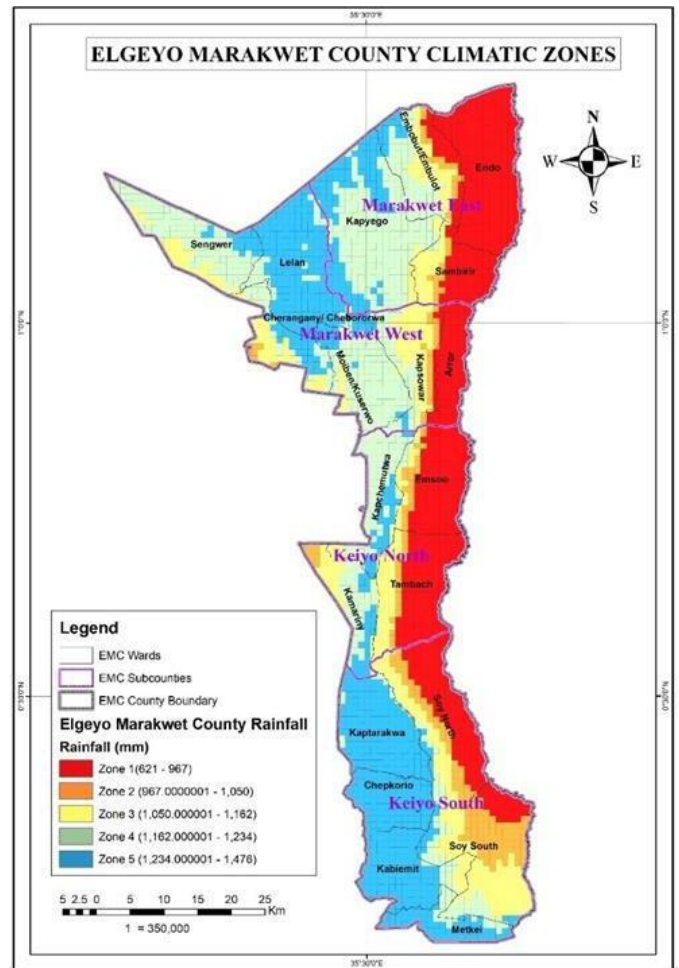
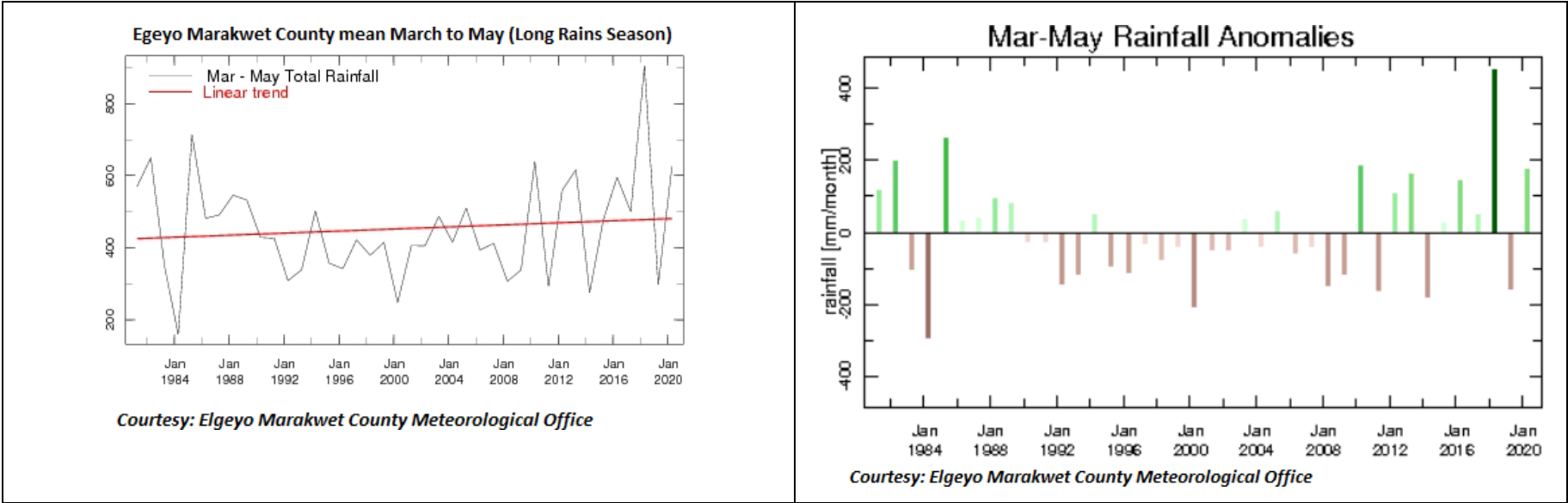


Figure 4:: Climatic Conditions of Elgeyo Marakwet County

# Monthly Rainfall Trends

The following graphs depict the County monthly mean rainfall (Climatology) based on 1983 to 2020 monthly rainfall data.



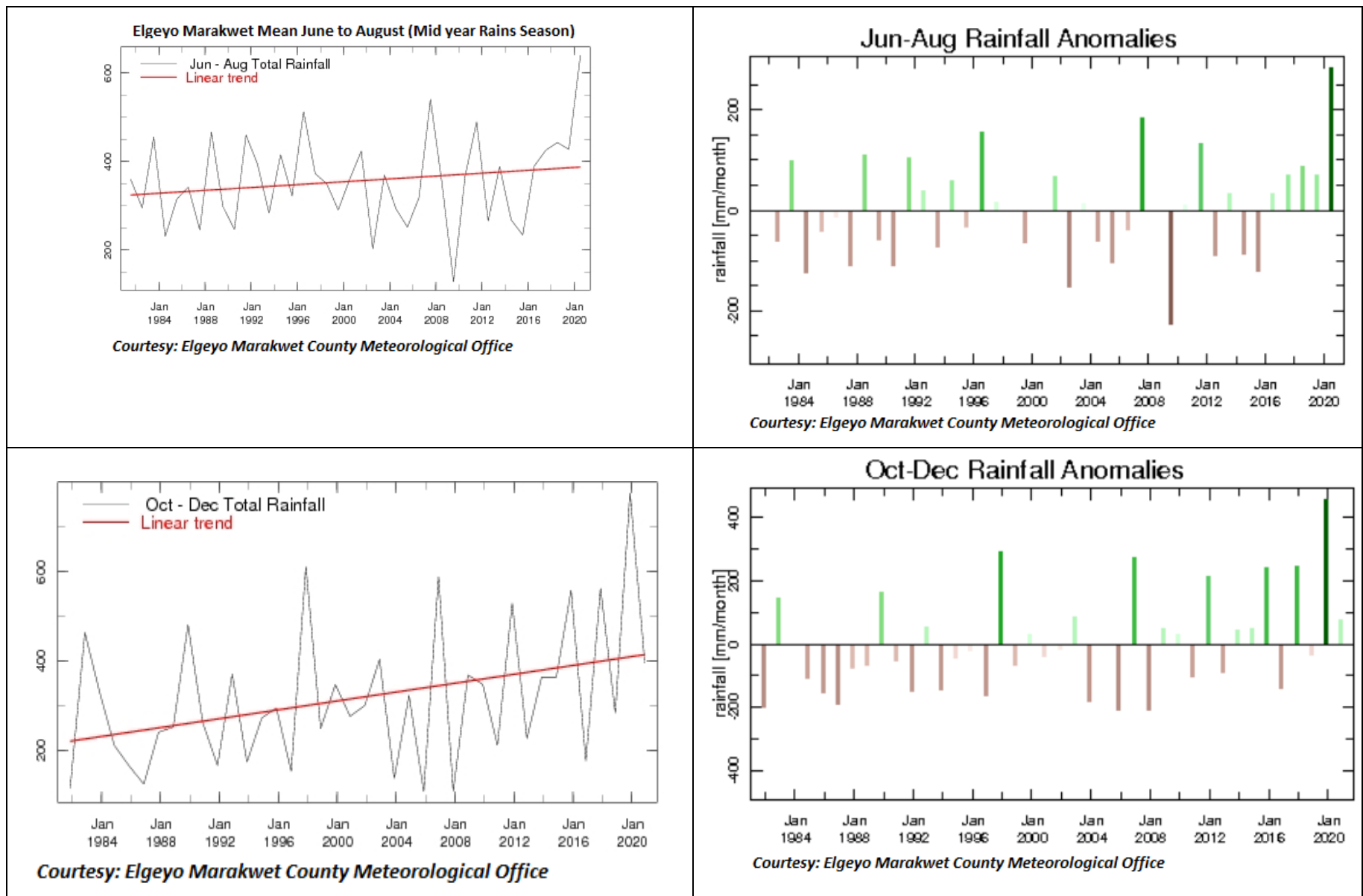


Figure 5: Elgeyo Marakwet Seasonal mean monthly rainfall

## **2.2 Exposure and vulnerability profiles of the county**

Exposure and Vulnerability is multi-dimensional and differential – that is, it varies across physical space i.e. the highlands, escarpment and the valley and among and within social groups; scale-dependent with regard to space and units of analysis such as individual, household, region, or system; and dynamic – characteristics and driving forces of vulnerability change over time. There are many interactions between society and environment that make people of Elgeyo Marakwet County vulnerable to extreme events and highlight the vulnerability of ecosystem services.

The environmental dimension of vulnerability deals with the role of regulating ecosystem services and ecosystem functions, which directly impact human well-being, particularly for those social groups that heavily depend on these services and functions due to their livelihoods in the county.

The degradation of ecosystem services and functions can contribute to an exacerbation of both the natural hazard context and the vulnerability of people. The erosion of ecosystem services and functions can contribute to the decrease of coping and adaptive capacities in terms of reduced alternatives for livelihoods and income-generating activities due to the degradation of natural resources. Additionally, a worsening of environmental services and functions might also increase the costs of accessing these services, for example, in terms of the increased time and travel needed to access drinking water in rural communities affected by droughts or floods.

## **2.3 Differentiated impacts of climate trends and risks**

Elgeyo-Marakwet climatic conditions range from cool on the highlands, mild on the escarpment to hot in the valley/lowlands. There is high rainfall variability across the County due to its topography. Average annual rainfall in the county ranges from 400mm in the lowlands to over 1500mm per year spread over two rainy seasons. Rainfall in the county is largely influenced by altitude that ranges from 900 m as in Kerio River Valley in the East to over 3000 m as in the northern and southern parts of the highlands. Average annual rainfall is below 500mm in the North Eastern lowlands, increasing to between 1200 and 1500 in the central highlands (plateau), and to above 1500mm in the north western corner and some southern parts of the county. The county thus shows a trend of decreasing rainfall from west to east with the Eastern low-lying parts of the county generally having lower and less reliable rainfall and most at risk of prolonged dry seasons that has resulted in crop failure, shortage of water and food insecurity.

Temperatures are fairly uniform over the County with mean annual temperatures being less than 22°C over most of the county. The mean annual temperatures are lowest in the Elgeyo-Marakwet Escarpment that covers most of the western and central parts of the county; and highest in the eastern lowland areas. The escarpments in the central and western parts of the County sometimes experience intense rainfall that results in flash floods, severe erosion and landslides which affect agricultural production and food security in the County.

On the other hand, the lowland areas in the east are vulnerable to dry seasons which often results in the drying of rivers and streams, and reduction in the quantity and quality of forage and pastures. These sometimes result in reductions in crop production and crop failure as well as livestock weight loss, emaciation and sometimes death. This has an impact mainly on women, children, the elderly and persons living with disabilities who mainly depend on these as first and immediate sources of food.

The highland areas, while having high rainfall, often have challenges of water storage with groundwater levels and drying of shallow wells occurring in times of drought or low rainfall. In early 2017 for example, prolonged drought in the County resulted in livestock weight loss and emaciation, and cattle prices fell as farmers tried to sell and reduce losses.

Analysis of temperature trends in the county over 25 years (1980 to 2005), showed that average long rain season temperatures have increased slightly but average short rain season temperatures have remained relatively constant. On the other hand, analysis of rainfall trends over 35 years (1980-2015) showed an increase in annual rainfall with both long rain and short season average rainfall increasing by approximately 50mm. Further analysis indicated that the increases in rainfall have come with an increased risk of flooding, particularly in the long rain season. However, rainfall variability has also increased with rains becoming more intense and the risk of dry spells remaining high. Rainfall variability from year to year has also increased and drought risk for the county has increased slightly as a result.

Looking ahead to the period 2021-2065, climate projections based on two representative concentration pathways indicate various possibilities. Under both scenarios there is expected to be a significant increase in the drought stress, with the number of days with moisture stress more than doubling from just over 20 consecutive days based on historical data to approximately 50 consecutive days each season. Under both scenarios there is also expected to be a reduction in the length of the first growing season, however under RCP6.5 there is likely to be a greater decrease in season length along with a

marked delay in the onset of both seasons. Under RCP2.6 there is likely to be an increase in the amount and intensity of rainfall in both seasons similar to historical trends, while under RCP8.5 there is expected to be a reduction in rainfall quantity and intensity. Under both scenarios however, the trends in extreme precipitation do not change significantly; the number of days expected to exceed the 95th rainfall percentile remains around 22 days per season. These projections of future climate change under the two climate scenarios, show some differences, but generally show similar trends and point to increasing climate risks to crop and livestock production which are the major economic activities and sources of livelihood in Elgeyo-Marakwet County.

## **2.4 Spatial Distribution of Risks**

Elgeyo Marakwet County has 4 sub counties namely Marakwet West, Marakwet East, Keiyo South and Keiyo North; with a total of 20 wards. The spatial distribution of climate hazards across the sub counties is determined by the prevailing landscape terrain, type of soil and the human activities (farming on the Escarpments). This section outlines the climate hazards and their impacts per ward across the 4 sub counties of the County.

## 2.4.1 Elgeyo Marakwet County Climate Risk/Hazard Map

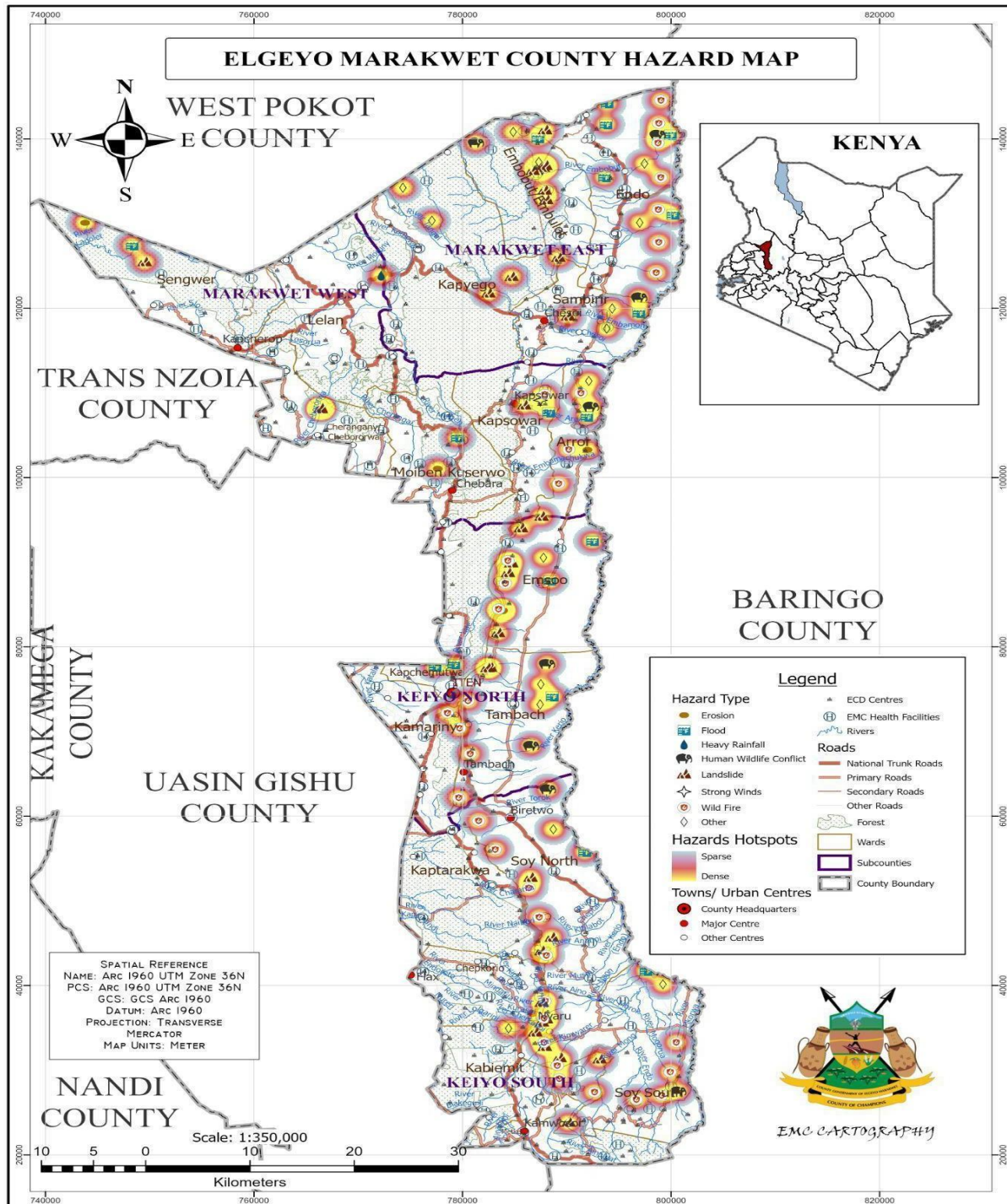


Figure 6: Elgeyo Marakwet County Distribution of Climate hazards/Risk Map

## 2.4.2 Marakwet East Sub-County Climate Risk/Hazard Map

Marakwet East Comprises of 4 Wards; Endo, Kapyego, Embobot/Embolot & Sambirir wards. The main climate hazards are: prolonged dry spell, strong winds and intense rainfall. As a result of the climatic hazards, shortage of pasture, crop failure, landslides, floods, low yields in the farms, destruction of properties, reduced quantities of water and pollution in streams, boreholes and springs are frequently experienced.

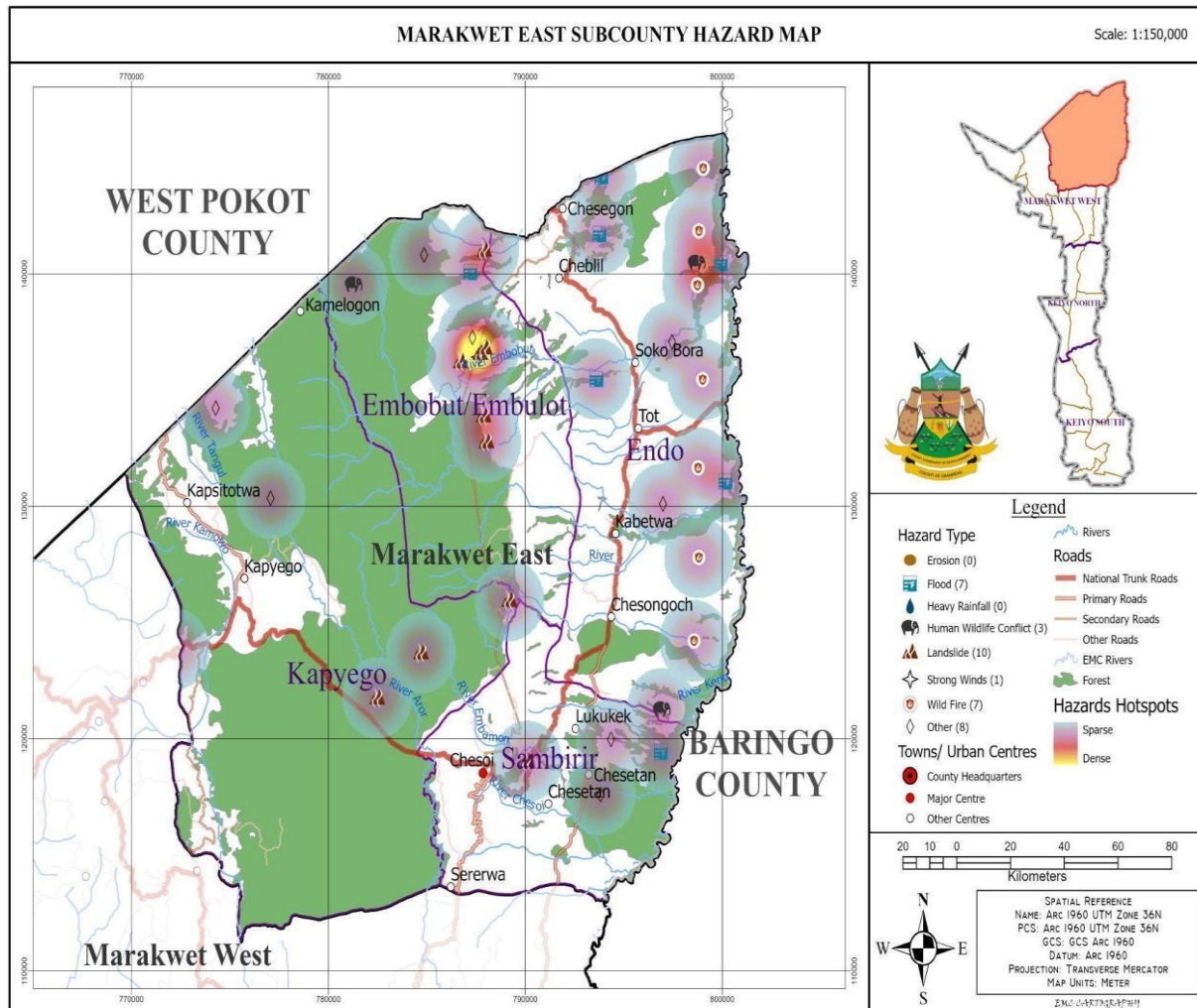
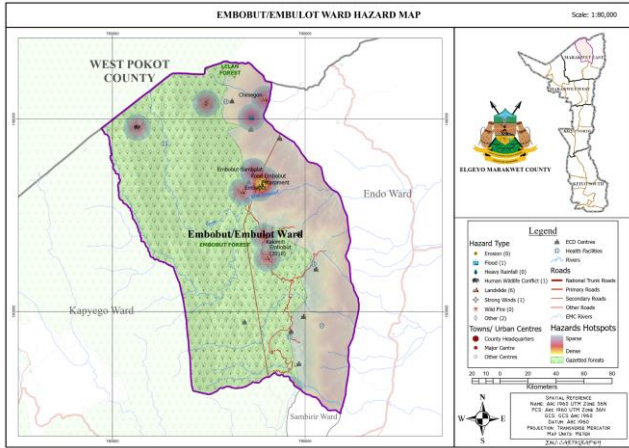
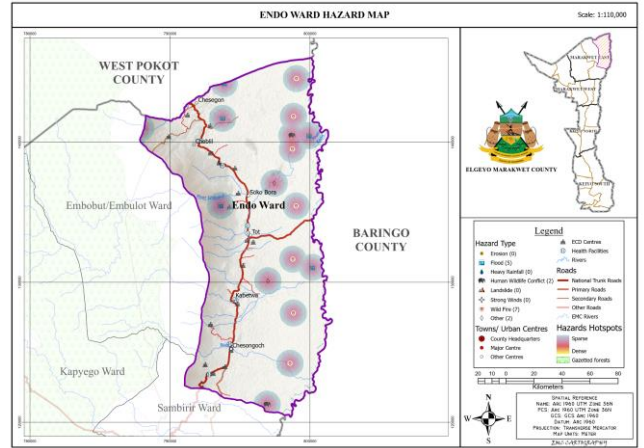


Figure 7: Marakwet East Sub County Hazard Map

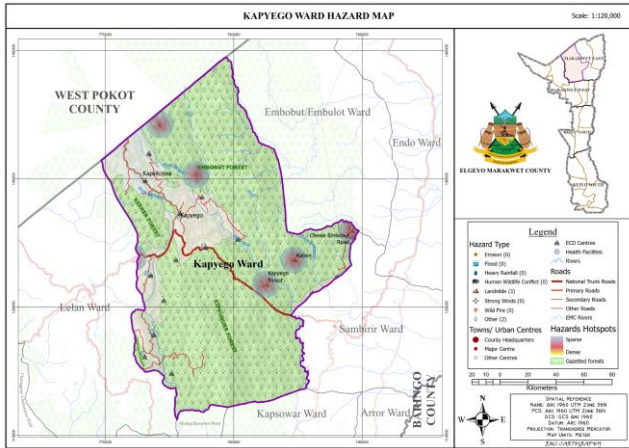
### Marakwet East Wards Hazard Maps



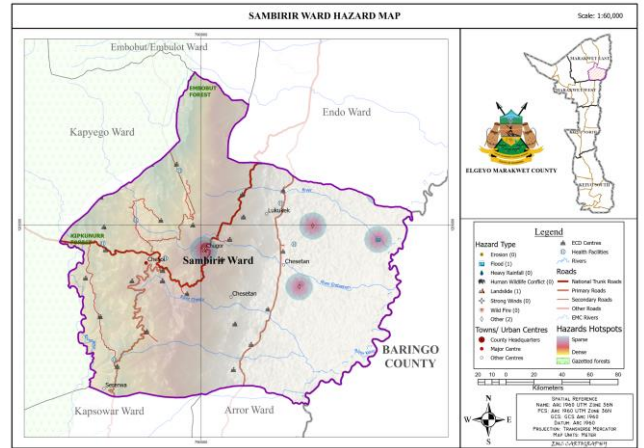
Map 1: Embobut Ward Hazard Map



Map 2: Endo Ward Hazard Map



Map 3: Kapyego Ward Hazard Map



Map 4: Sambirir Ward Hazard Map



**Floods at liter girls high school,  
Endo Ward 2020**



**Mudslides at Chesegon Market  
Area /border Elgeyo Marakwet &  
West Pokot. (2020)**



**Landslide Kakimiti in Embobut-Embolot Ward**

*Figure 8: Photos of various hazards and visible impacts in the various wards of Marakwet East Sub-County.*

### 2.4.3 Marakwet West Sub-County Climate Risk/Hazard Map

Marakwet West Comprises of 6 Wards; Moiben Kuserwo, Kapsowar, Arror, Cherangany Chebororwa, Lelan & Sengwer wards. The main hazards within the sub-county are: Prolonged dry season, soil erosion, intense rainfall and strong winds.

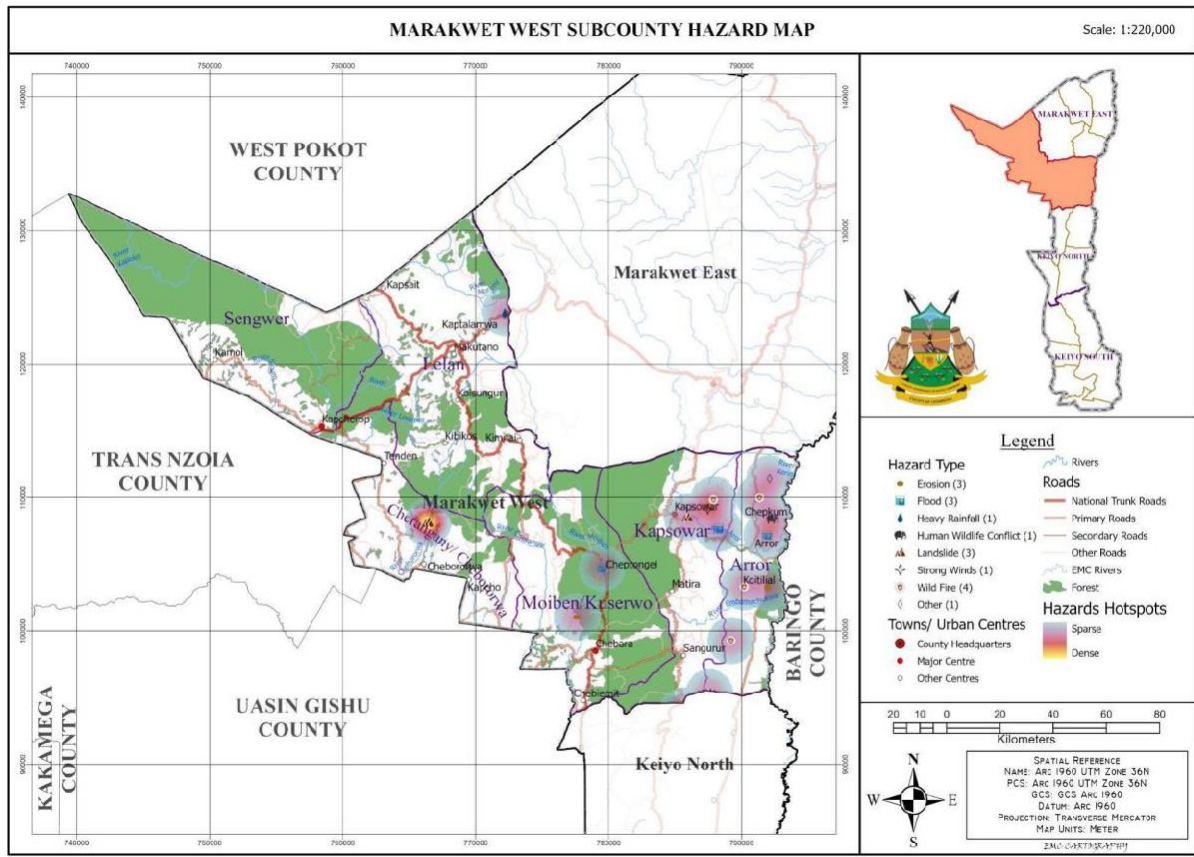
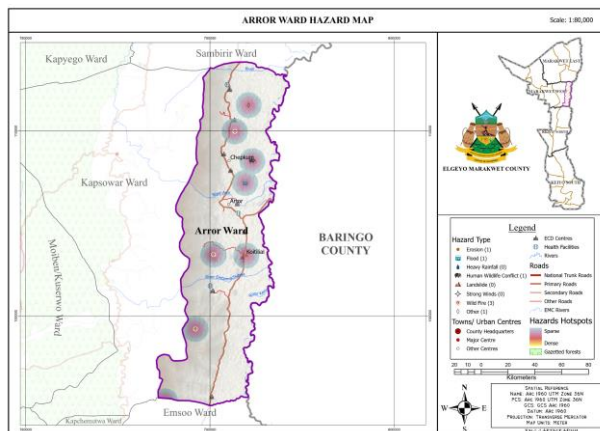
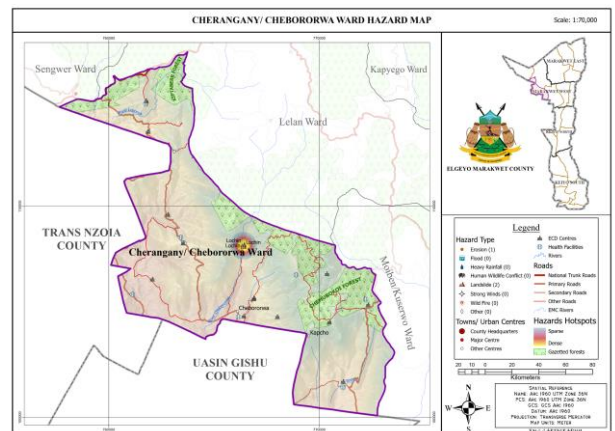


Figure 9: Marakwet West Sub County Hazard Map

### Marakwet West Wards Hazard Maps

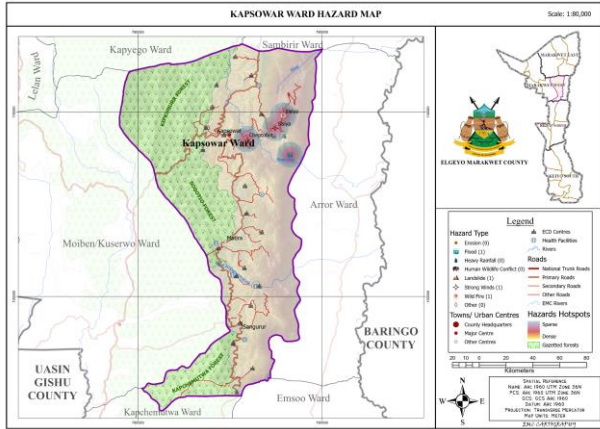


Map 5: Arror Ward Hazard Map

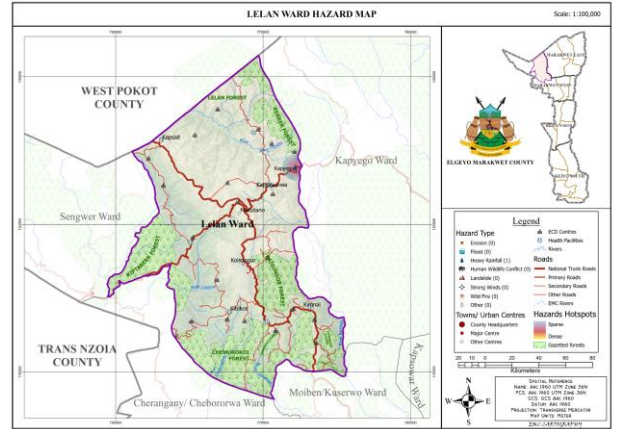


Map 6: Cherangany\_Chebororwa Ward Hazard

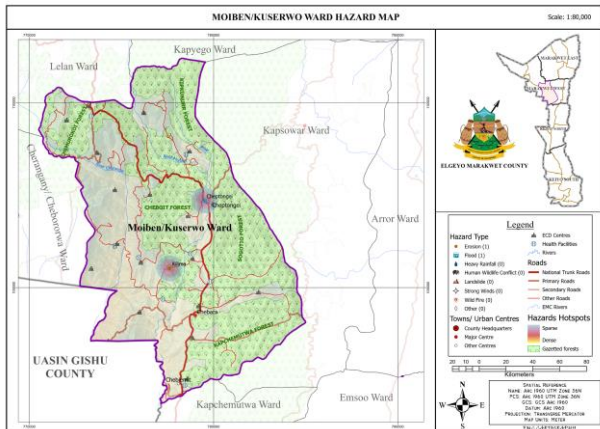
Map



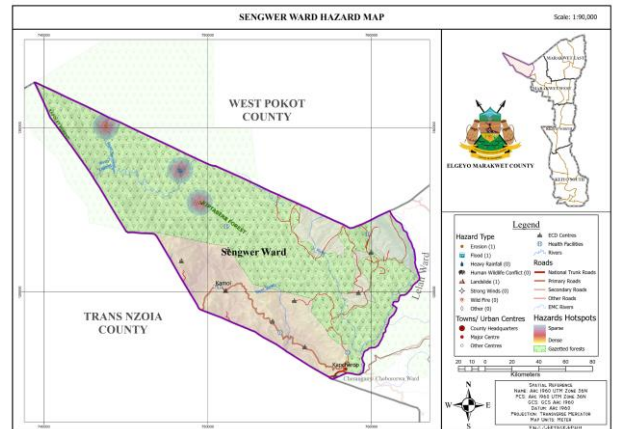
Map 7: Kapsowar Ward Hazard Map



Map 8: Lelan Ward Hazard Map



Map 9: Moiben Kuserwo Ward Hazard Map



Map 10: Sengwer Ward Hazard Map

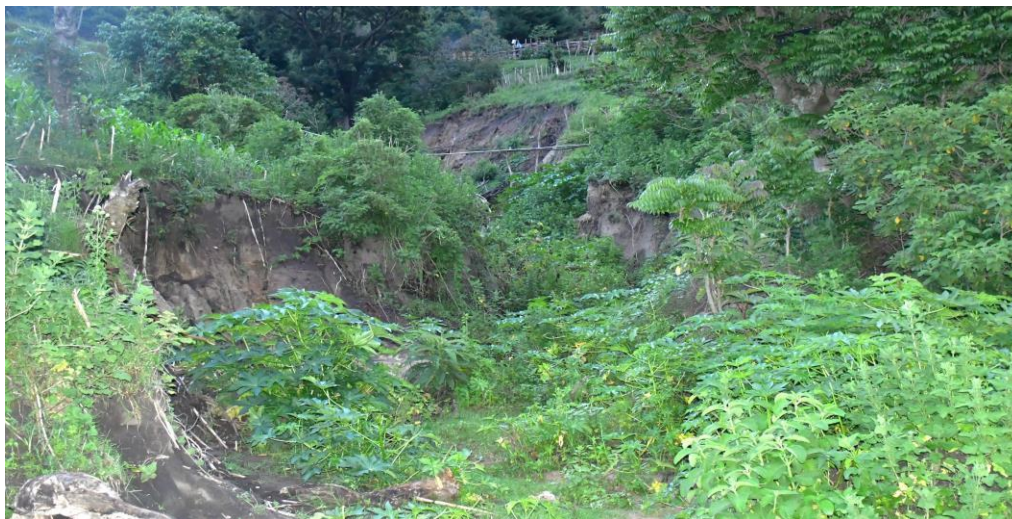


Figure 10: Photo of Landslide in Lochin - Cherangany, Marakwet West Sub-County

### 2.4.4 Keiyo North Sub-County Climate Risk/Hazard Map

Keiyo North Comprises of 4 Wards; Tambach, Emsoo, Kamariny and Kapchemutwa wards. The main hazards within the sub-county are: Landslides, prolonged dry spell and floods.

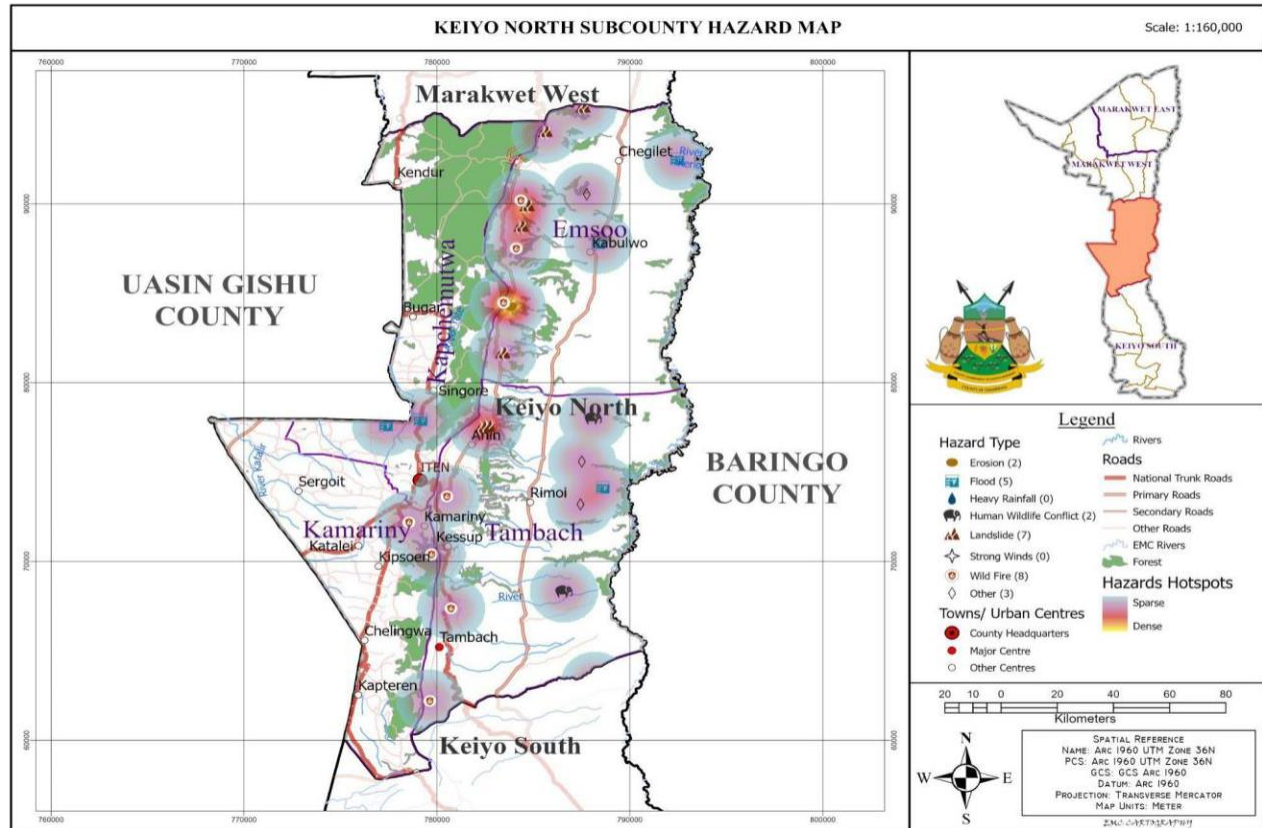
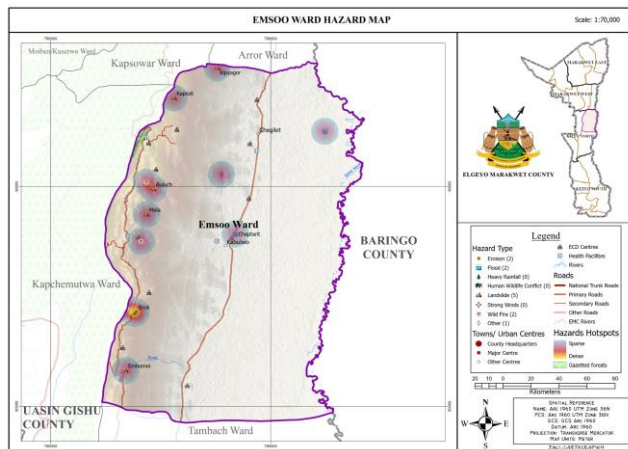
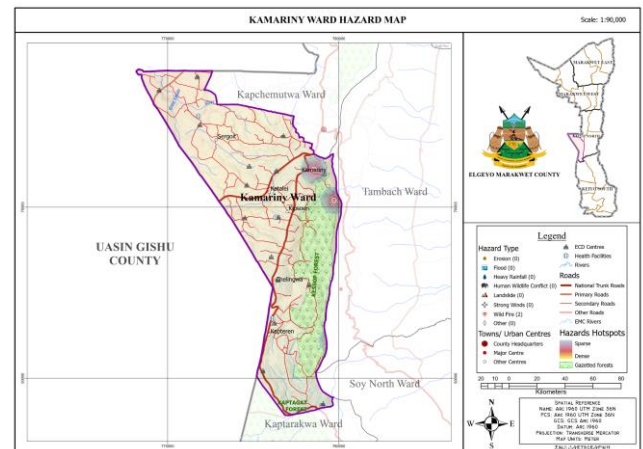


Figure 11: Keiyo North Sub-County Hazard Map

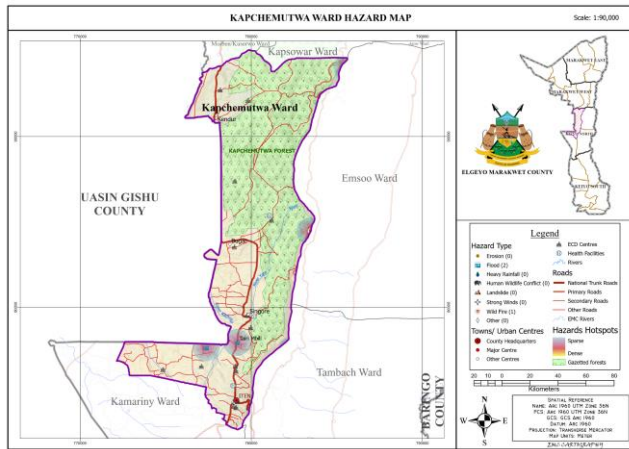
### Keiyo North Wards Hazard Maps



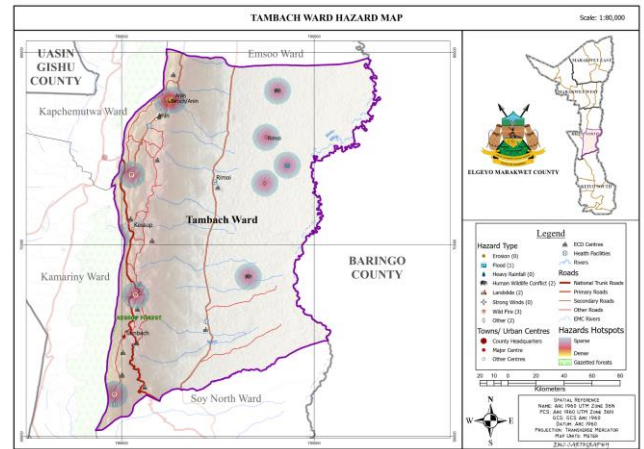
Map 11: Emsoo Ward Hazard Map



Map 12: Kamariny Ward Hazard Map



Map 13: Kapchemutwa Ward Hazard Map



Map 14: Tambach Ward Hazard Map



Figure 12:: Cheptarit Floods in Keiyo North Sub-County

### 2.4.5 Keiyo South Sub-County Climate Risk/Hazard Map

Keiyo South Comprises of 6 Wards; Kaptarakwa, Chepkorio, Kabiemit, Metkei, Soy North and Soy South wards. The main hazards within the Sub-County are: Prolonged dry spell, Landslides, pests and diseases.

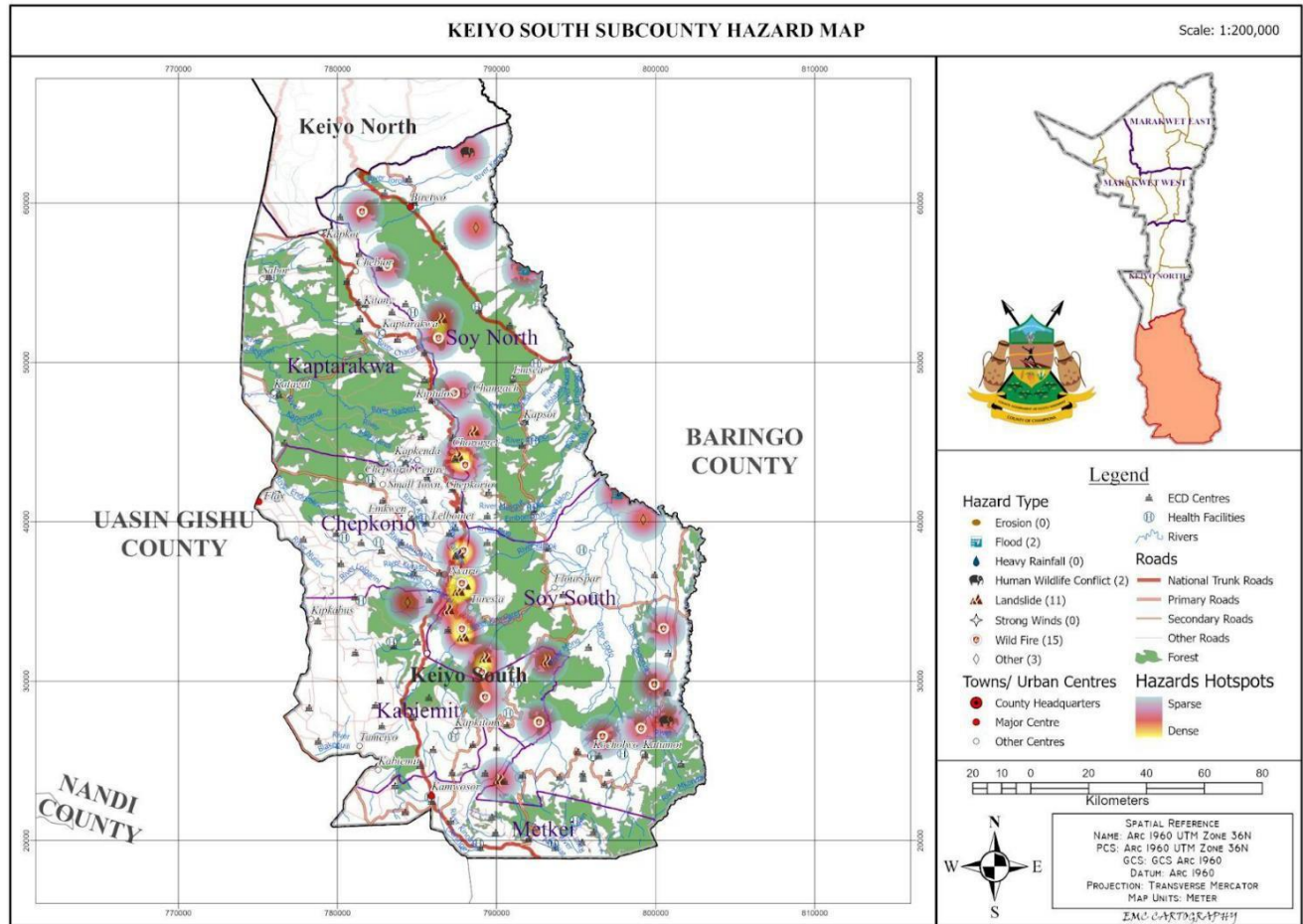


Figure 13: Keiyo South Sub County Hazard Map.





*Figure 14: Mudslides in Ngobisi, Keiyo South*



*Figure 15: Mass wasting in Kapsegut, Keiyo South*

# **3 CHAPTER THREE: FUTURE CLIMATE RISK SCENARIOS FOR THE COUNTY**

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## **3.1 National and downscaled climate change projections**

In Kenya, it has increased the frequency and magnitude of extreme weather events in the country causing loss of lives, diminished livelihoods, reduced crop and livestock production, and damaged infrastructure, among other adverse impacts.

The negative impacts are projected to increase in Kenya through increasing temperatures from the 1960's coupled with increased frequency and intensity of extreme weather events such as floods and drought. Effects of climate change include declining agricultural productivity and general loss of citizen livelihoods due to changing temperatures and precipitation regimes

Kenya's response to change is anchored on the Climate Change Act (Number 11 of 2016). This Act requires the Government to develop five-year National Climate Change Action Plans (NCCAP) to guide the mainstreaming of adaptation and mitigation actions into sector functions of the National and County Governments.

## **3.2 County future climate risk scenarios**

Elgeyo Marakwet County has had its fair share of the impacts of climate change. Due to its geomorphology and the varied agro-ecological zone of the highlands, the hanging valley and the lowlands, each zone experiences different impacts of climate change at different intensities. Livelihoods have equally been impacted differently.

Climate projection (rainfall) for the county has been modelled based on two scenarios. Future projected changes in rainfall over Elgeyo Marakwet county were assessed for near period horizon (2011-2035), mid period horizon (2036-2070), and far period horizon (2071-2100) relative to the historical climate (1981-2005) using CMIP5 model simulations under two carbon emission scenarios (RCP 4.5 and RCP 8.5).

- 1) Scenario one (Rainfall projection RCP 4.5): This scenario is modelled at the future climate situation running to the years 2035 and from 2036 to 2070 and beyond on assumption that the

current county climate change mitigation measures are maintained.

- Scenario two (Rainfall projection RCP 8.5): This scenario is modelled at the future climate situation running to the years 2035 and from 2036 to 2070 and beyond on assumption that all the current county climate change mitigation measures are abandoned and nothing is done.

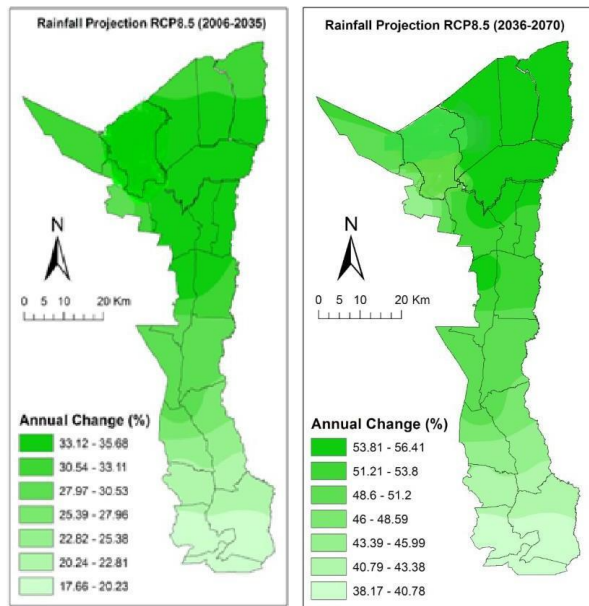


Figure 16: Rainfall projection RCP 8.5 Annual % change

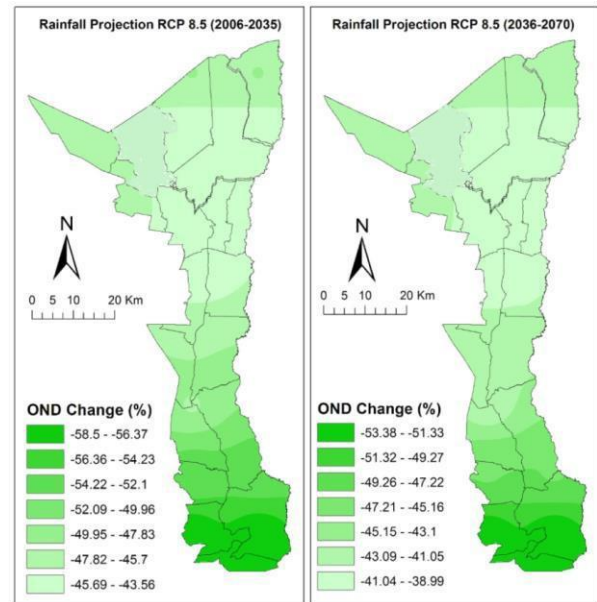


Figure 18: Rainfall project 8.5 OND % change

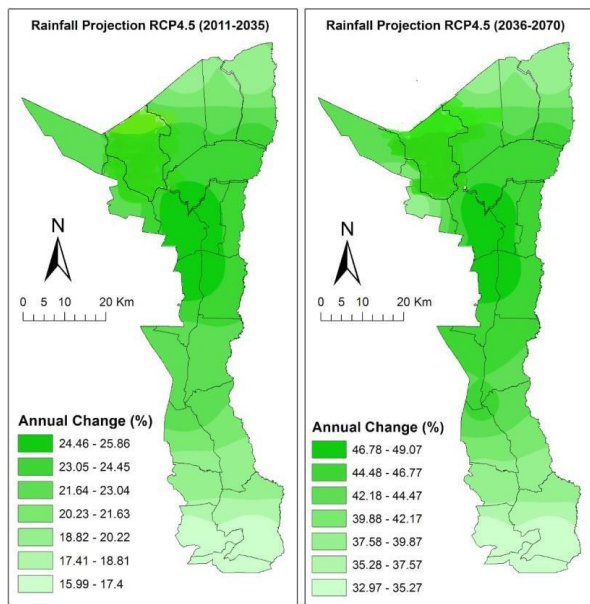


Figure 17: Rainfall projection RCP 4.5 Annual % change

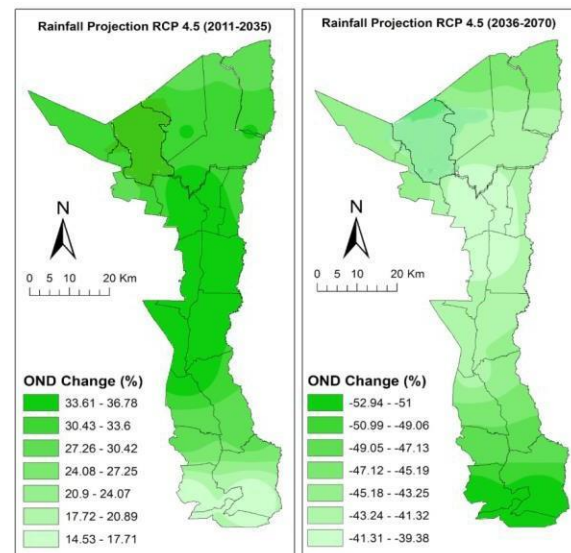


Figure 19: Rainfall projection 4.5 OND % change

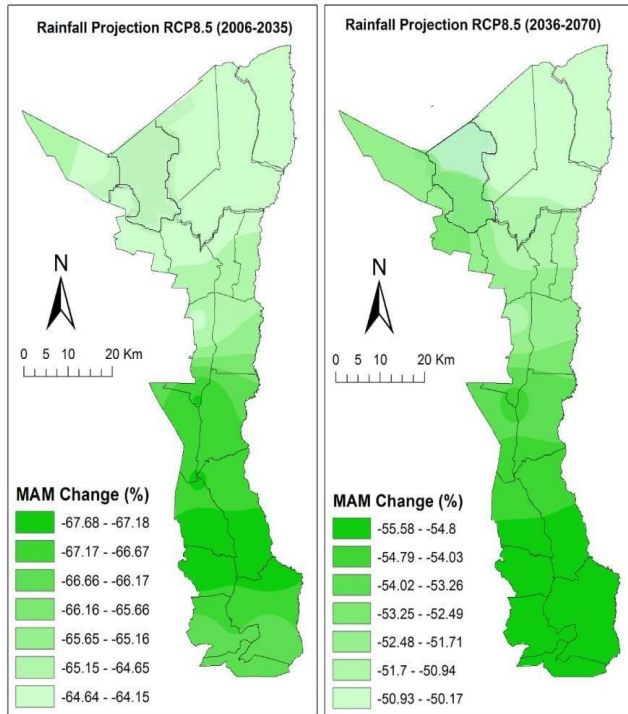


Figure 20: Rainfall project 8.5 OND % change

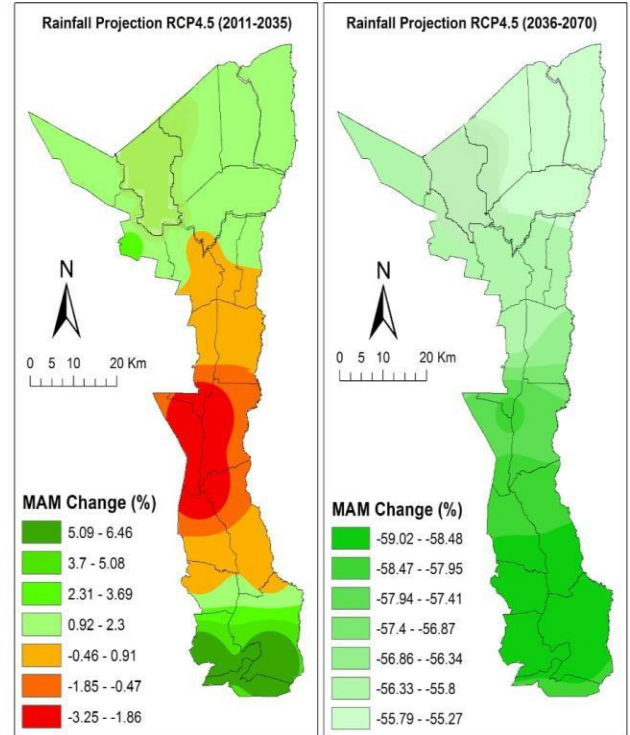


Figure 21: Rainfall 4.5 OND % change

## **4 CHAPTER FOUR: ANALYSIS OF EXISTING RESILIENCE/ADAPTATION STRATEGIES TO CURRENT AND FUTURE CLIMATE RISKS**

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

This section presents the strategies that various stakeholders are currently implementing within the county to address the climate related risks and hazards. The strategies are aimed at supporting livelihood strategies pursued by the majority of the population such as farmers and traders.

The prevailing climatic hazards in the county mainly are prolonged dry seasons that lead to water scarcity, drying up of crops and shortage of animal feed, intense rainfall that lead to soil erosion, landslides, floods and crop failure, pests and diseases resulting to loss of crops and livestock, reduced production, landslides which cause loss of lives, destruction of crops and livestock, loss of property and displacement of people floods on the other hand result to loss of lives, loss of property.

There are adaptation strategies applied by the different groups applying the strategy as outlined in the table below, for instance, pests and diseases, crop farmers practice crop rotation and use integrated pest and disease management, the strategies used are effective. Some of these strategies are more effective compared to others for the different hazards. In order to make the adaptation strategies more effective, there is need for improved access and use of climate information; capacity building through strengthened extension services; better coordination between actors for optimal outcomes.

### **4.2 Effectiveness of adaptation/resilience strategies to future climate risks.**

As in section 4.1 above, various adaptation strategies are used in addressing the identified climate hazards. These strategies vary in their effectiveness as assessed during this process. In this section, it is outlined the climate related hazards with affected livelihood, ranked adaptation strategies and the community segment applying the strategy as well as the gender consideration in the strategy per sub county. The ranking was done by popular classification which considered the cost of the strategy, current rate of use, and its technical/operation effectiveness. This was done from community consultation at the ward level; county multi-stakeholder climate risk assessment and further review and input by technical team at the county level.

Table 5: Marakwet East Sub-County adaptation/resilience strategies to future climate risks

<b>Risk/Hazard</b>	<b>Livelihood/ Economic System</b>	<b>Current Climate Resilience Strategies</b>	<b>Stakeholder Group Applying the Strategy</b>	<b>Gender and Social Inclusion information</b>
Prolonged dry season	Farming	<ul style="list-style-type: none"> <li>- Drilling of boreholes and shallow wells.</li> <li>- Growing animal feeds</li> <li>-Preservation of animal feeds</li> <li>- Change mode of grazing.</li> <li>Growing of indigenous trees</li> <li>Planting of drought resistant and short - term crops</li>   <li>- Conservation of catchment areas</li> <li>- Water harvesting and storage</li> <li>- Irrigation</li> </ul>	Farmers Department of water Department of water Women groups CBOs	Strategy is inclusive of all the community members.
Intense rainfall	Farming	Construction of gabions, dykes Planting of tree Establishing of soil conservation structure	Small scale farmers Department of Agriculture	Targets men, women and People Living with Disabilities
Pest and diseases	Crop farmers	Crop rotation Integrated pest and disease management.	Small scale farmers	Targets all community members.
Landslides	Farming	Investment in sustainable land management  Sensitization on dangers of farming along the escarpment	Farmers Department of Environment, Agriculture	All gender inclusive, people living with disability, children

Table 6: Marakwet West Sub-County adaptation/resilience strategies to future climate risks

<b>Risk/Hazard</b>	<b>Livelihood/ Economic System</b>	<b>Current Climate Resilience Strategies</b>	<b>Stakeholder Group Applying the Strategy</b>	<b>Gender and Social Inclusion Information</b>
Prolonged dry season	farmers	-Water harvesting -Planting short term drought resistant crops -Construction of water pans and dams -Planting indigenous tree species.	Farmers, departments of water and environment	Strategy is inclusive of all the community members.
Intense rainfall	Farmers	-Livelihood diversification.		
Soil erosion	Crop farming	-Terracing -Planting trees		
Landslides	farming	-Rehabilitation -Awareness creation on proper farming methods -Sensitization on dangers of farming along the escarpment	Farmers Department of Agriculture	All gender inclusive

Table 7: Keiyo North Sub-County adaptation/resilience strategies to future climate risks

<b>Risk/Hazard</b>	<b>Livelihood/ Economic System</b>	<b>Current Climate Resilience Strategies</b>	<b>Stakeholder Group Applying the Strategy</b>	<b>Gender and Social Inclusion information</b>
Floods	farming	Protecting water banks Construction of water dams and pans	Department of water Women groups CBOs	All gender inclusive
Soil erosion	farming	Building gabions Terracing Protection and conservation of dams and water sources	Crop farmers Department of water CBOs	All gender inclusive
landslides	Farming Business community	Planting indigenous trees Sensitization on dangers of farming along the escarpment Construction of retaining walls	Department of Environment	Inclusive of all gender, children and people living with disability.
Prolonged dry spell	Farming	Drilling boreholes Use of solar pumps Draft and implementation of laws on riparian areas Protection of water sources	Farmers Department water	Inclusive of all gender
Fog	Farming	Planting fog resistant crops Promotion of Climate smart agriculture through greenhouses	Crop farmers Department of Agriculture	Inclusive of all gender, children and people living with disability.

Table 8: Keiyo South Sub-County adaptation/resilience strategies to future climate risks

<b>Risk/Hazard</b>	<b>Livelihood/ Economic System</b>	<b>Current Climate Resilience Strategies</b>	<b>Stakeholder Group Applying the Strategy</b>	<b>Gender and Social Inclusion information</b>
Prolonged dry spell	Farming	Construction of water pans Setting up water distribution channels Irrigation farming Drilling of boreholes and conservation of water catchment	Small scale farmers Department of water CBOs	Applicable to the entire community.
Landslides		Awareness creation on proper farming methods. Tree growing Sensitization on dangers of farming along the escarpment	Farmers Departments of Environment and Agriculture	All gender inclusive
Pest and diseases	Farming	Provision of subsidised pest resistant crops Crop rotation	crop farmers Department of agriculture.	Inclusive of all gender and people living with disability.
Change in rainfall pattern	farming	Enhance food production through livelihood diversification. Participatory Environmental conservation	Farmers Department of Environment Department Agriculture	Men, women & PWD
Erratic rainfall patterns	<ul style="list-style-type: none"> <li>• Farming</li> <li>• Small Scale traders</li> </ul>	<ol style="list-style-type: none"> <li>1. Capacity build the community on modern farming techniques and gardens practices</li> <li>2. Livelihood diversification (promotion of apiculture and aquaculture)</li> <li>3. Improve climate information services and early warning system</li> </ol>	Farmers Women groups Youth groups CBOs	Involvement of all community members will help to ensure that all community members benefit

## 5 CHAPTER FIVE: ELGEYO MARAKWET COUNTY CLIMATE STRATEGIC ADAPTATION INVESTMENT/ACTION PRIORITIES.

The main climate risks identified across the county in the four sub counties are prolonged dry seasons, intense rainfall, Pests and diseases, landslides and floods. The climate hazards in the county, prioritized at the ward level, were presented during the County Level Multi-stakeholder workshop in the view of the current and projected climate outlook. Being followed by the sector-wise identification and prioritization of the response strategy for the identified climate risks. This section presents the prioritized strategies for addressing climate risks and their impacts in four priority areas namely water, agriculture, environment and disaster management. The strategies are summarized in the table below.

*Table 9: County Climate Strategic Adaptation Investment/Action Priorities.*

Ward	Water	Agriculture	Environment	Disaster management
	<b>Prolonged dry spell</b>			
Sambirir Kapyego Embobut/Embolot Endo Arror Emsoo Kabiemit Kamariny Kaptarakwa Kapyego Sambirir Moiben/Kuserwo Soy North Soy South Metkei Tambach	1. Enhancing water harvesting, storage and supply to households. 2. Rehabilitation, protection and conservation of water catchment areas and water sources 3. Promotion of green energy in water supply through application of solar pumps. 4. Promotion of small-scale irrigations	1. Providing short-term and drought resistant breeds. 2. Promoting climate smart agriculture through greenhouses and irrigation.	1. Conservation of water sources through tree growing initiatives in the water sources and along riverbanks. 2. Awareness raising on proper environmental practices.	1. Provision of timely climate information.

Endo Cherangany/Cheboror wa				
	<b>Intense rainfall</b>			
Sengwer Embobut/Embolot Kamariny Kapsowar Kapchemutwa Kapyego Sambirir Cherangany/Cheboro rwa	1.Enhancing Rain water harvesting and storage in water pans	1. Construction of dykes, gabions and water barriers along the  ro ads,	1.Promoting tree planting 2.Establishing of soil conservation	

	<b>Water</b>	<b>Agriculture</b>	<b>Environment</b>	<b>Disaster management</b>
		riverbanks 2. Terracing on farms 3. Establishing of soil conservation structure	structure	
<b>Ward</b>	<b>Pest and diseases</b>			

Kabiemit Kaptarakwa Sambirir Cherangany/Chebororwa Chepkorio Soy South Soy North	1. Promotion of nature- based solutions to reduce pollution of water sources.	1.Integrated pest and disease management. 2.Provision of subsidized pest resistant crops. 3. Campaigns on importance of Vaccination and provision of extension services	1.Promote environmentally friendly pesticides 2.Strengthen capacity on livelihood diversification	1.Provision of extension services on pest surveillance.
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<b>Ward</b>	<b>Landslides</b>			
Emsoo Kapsowar Kaptarakwa Lelan Kabiemit Soy North Tambach	1. Conservation and restoration of water catchment areas.	1. Sensitization on dangers of farming along the escarpment 2.Afforestation, agroforestry and reforestation 3. Soil erosion control through construction of gabions terracing, grass striping and cover cropping with focus on ecosystem- based solutions 4.Raising awareness on proper farming methods and the dangers of cultivating along the escarpment.	1.Community afforestation, agroforestry and reforestation. 2. Capacity building and awareness creation on environmental conservation 3.Increased tree planting 4. Establish soil and water conservation structures	1.Setting up early warning systems 2.Equipping of the disaster response unit. 3.Construction of retaining walls. 4.Upgrade and construct all weather roads
	<b>Floods</b>			

<b>Ward</b>	<b>Water</b>	<b>Agriculture</b>	<b>Environment</b>	<b>Disaster</b>
-------------	--------------	--------------------	--------------------	-----------------

				<b>management</b>
Emsoo Moiben/Kuserwo Tambach Metkei Soy South Soy North	1. Creation of water canals and opening up of drainages. 2. Enhancing water storages through construction of water pans and dams 3. Water treatment and purification	1. Promoting planting of cover crops in the flood prone zones 2. Flash flood control through terracing and maintaining buffer zones between farms and water sources.	1. Supporting tree planting initiatives.	1. Establishing flood early warning systems.

## 6 CHAPTER SIX: CONCLUSION

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Climate change is a global problem that affects both the present and future generation as it alters the natural environment in many aspects. The main hazards encountered across the county are ; prolonged dry spells, intensive rainfall, high pests and disease prevalence, landslides and floods among many other hazards that occur during different times of the year. The hazards greatly affect the livelihood of the communities with direct impacts being water scarcity, low crop productivity, fire outbreaks, destruction of infrastructure and destruction of crops and indirect impacts being loss of lives (deaths), low income, low tree coverage, habitat displacement and food insecurity.

It emerged that hazards within the county are region specific with different magnitude within the 3 topographical zones i.e. Escarpment, Highland and Kerio Valley. During the PCRA process lessons learnt; climate issues are best addressed at the grassroots levels and more awareness creation is needed and resources. A rapid disaster response mechanism is lacking within the county and thus there is a need to establish a robust disaster response and mitigation mechanisms.

The PCRA objective is to ensure that the county governments through local communities have identified climate risks caused by climate change and propose mitigation and adaptation measures to curb climate change effects and make communities more resilient to climate change related shocks.

Through the FLLoCA program and the county Annual Development Plans (ADPs), the department of Water, Environment and Climate Change, in partnership with other county departments, national government entities, development partners and local community among other stakeholders, strives to implement the mitigation and adaptive strategies and/or measures to mitigate and/or control adverse effects of climate change.

The climate change governance structures in the County ranging from the County Climate Change Planning Committee (CCCPC) to the Ward Climate Change Planning Committees (WCCPC) are relatively new and at a nascent stage of growth. Accordingly, they need accompaniment and support in institutional capacity strengthening to deliver on the mandate which includes climate change mainstreaming in all the sectors.

Further it is worth noting that the adaptation needs of the county contained in the CCCAP far outstrips what FLLoCA and County development budgets could support. Additional support from other sources required to successfully implement the CCCAP.

# ANNEXES

## ANNEX I: PCRA PROCESS ACTIVITY PLAN

STEP	ACTIVITY	JAN-2023	FEB-2023	MAR-2023	APR-2023	MAY-2023	JUN-2023
Step 1:	Constitution of the Technical Working Group						
Step 2:	Training of the Technical WG						
Step 3:	Stakeholder Mapping						
Step 4:	Preparation for Community Engagements						
Step 5:	Ward Based engagements on PCRA						
Step 6:	Data Analysis and Preparation for County Level Workshop on PCRA						
Step 7:	County Level Workshop on PCRA						
Step 8:	PCRA Report						

## ANNEX II: WARD HAZARD SKETCH MAPS

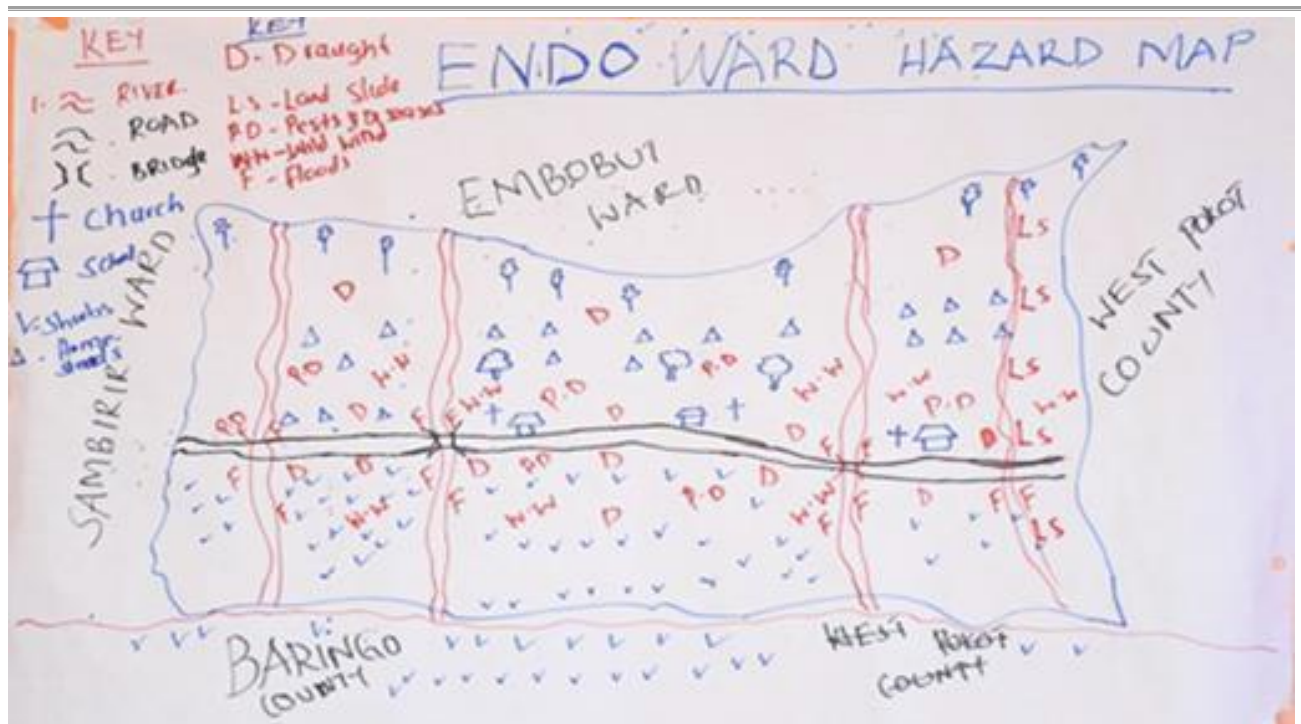


Figure 22: Endo Ward Hazard Sketch Map, Marakwet East Sub County.



Figure 23: Kabiemit Ward Hazard Sketch Map, Keiyo South Sub County.



Figure 24: Kaptarakwa Ward Hazard Sketch Map, Keiyo South Sub County.

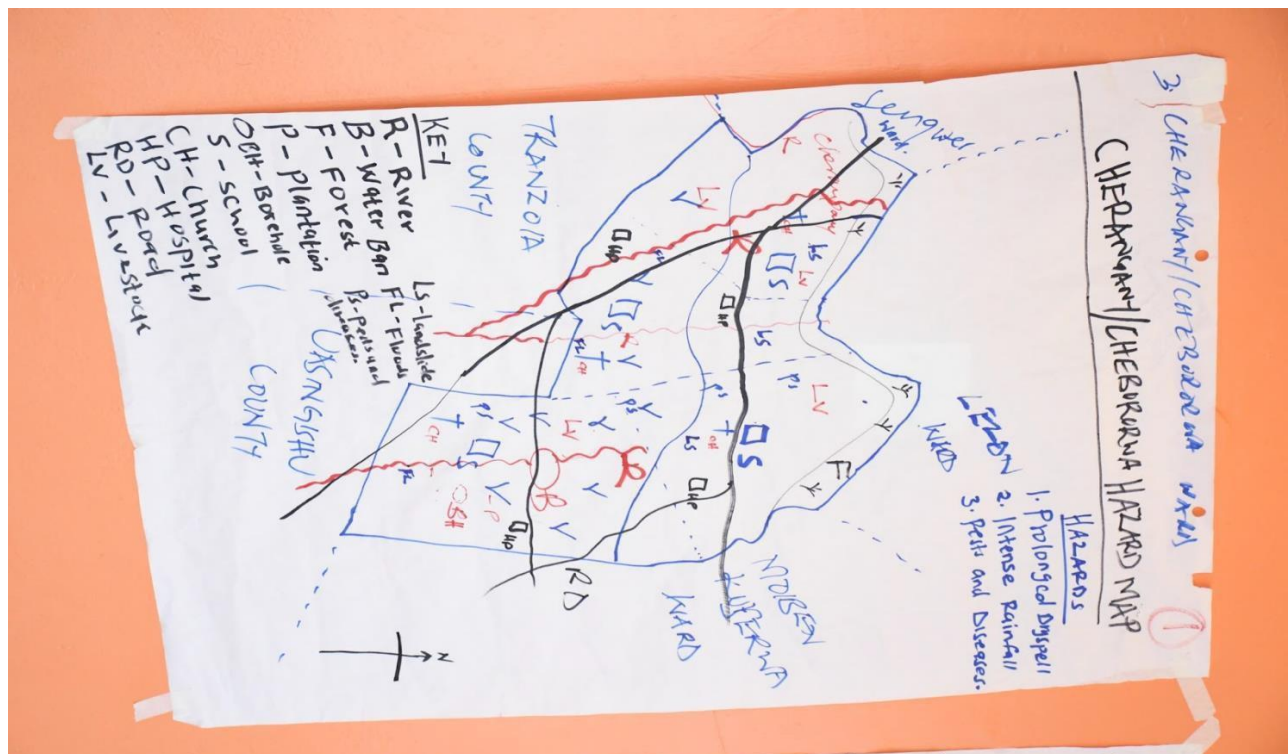


Figure 25: Cherangany/Chebororwa Ward Hazard Sketch Map, Marakwet West Sub County.

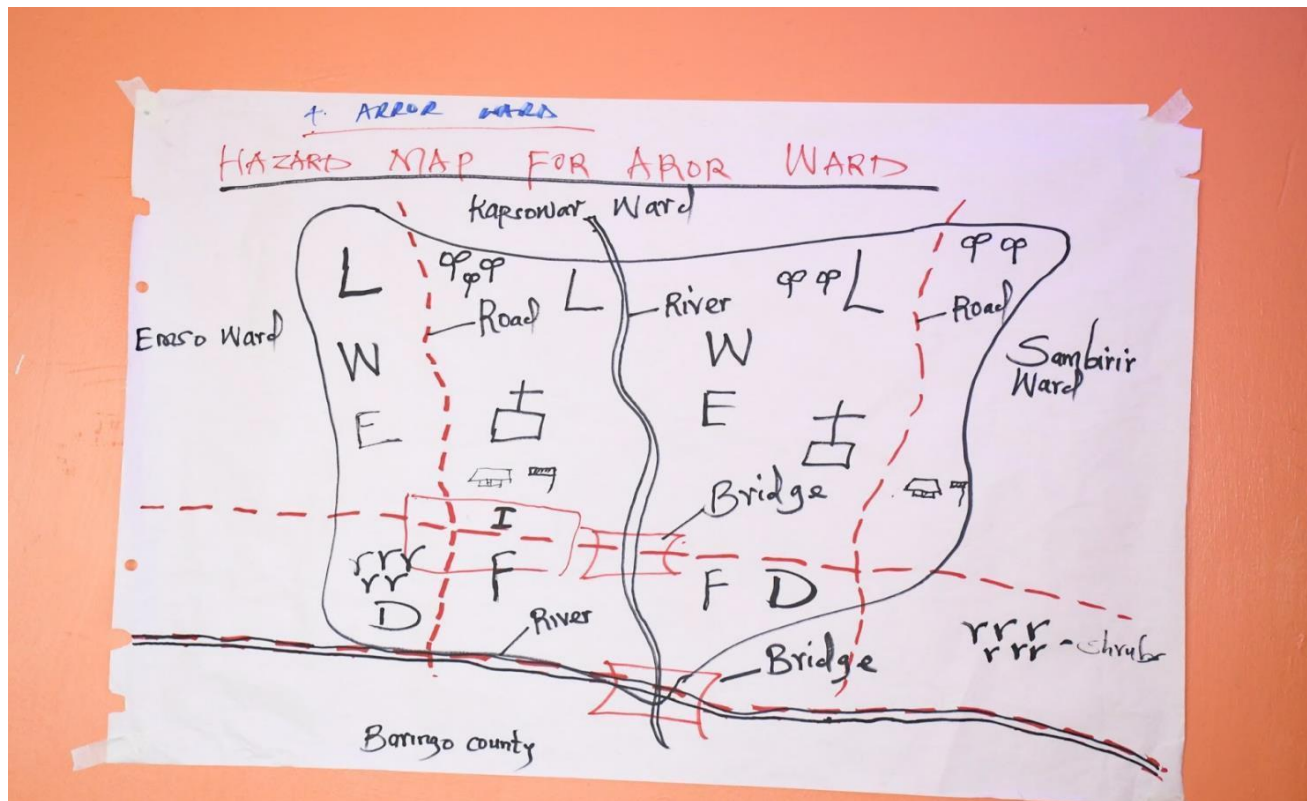


Figure 26:: Arbor Ward Hazard Sketch Map, Marakwet West Sub County.

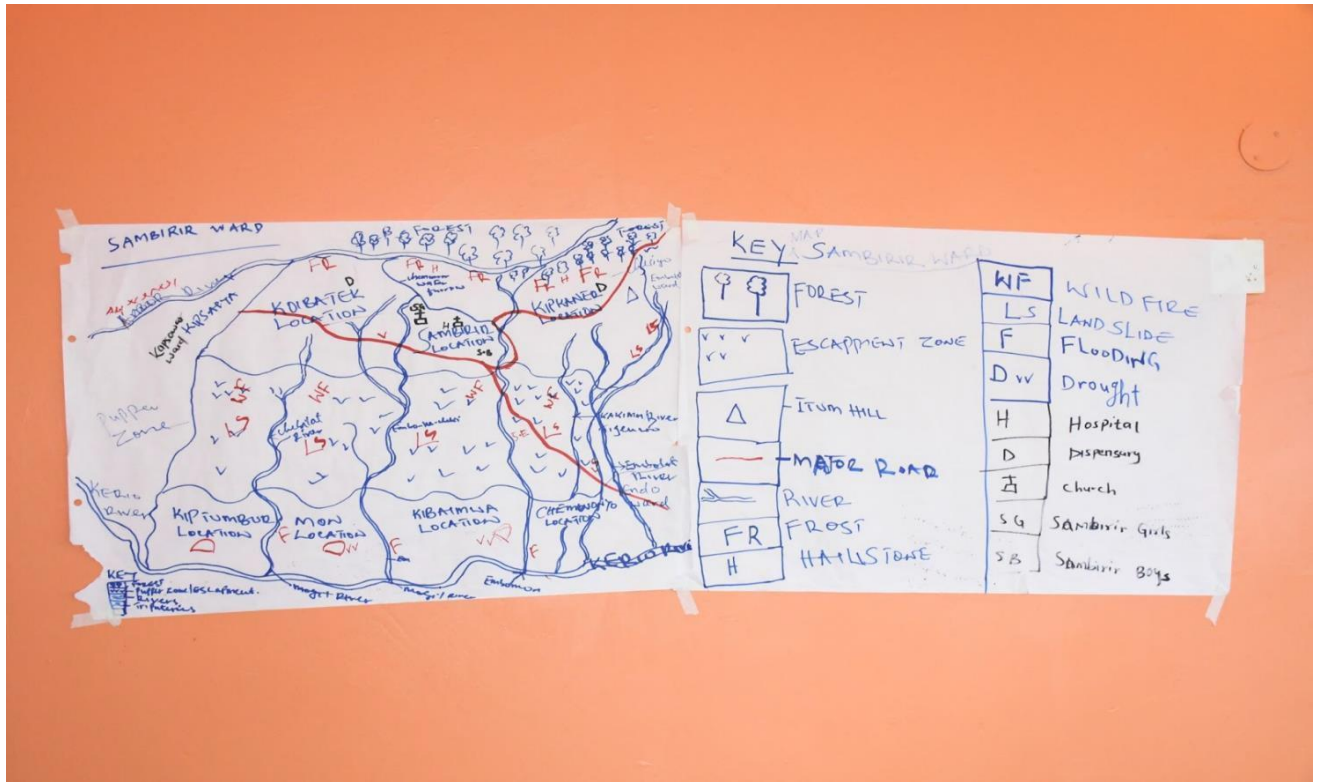


Figure 27: Sambirir Ward Hazard Sketch Map, Marakwet East Sub County







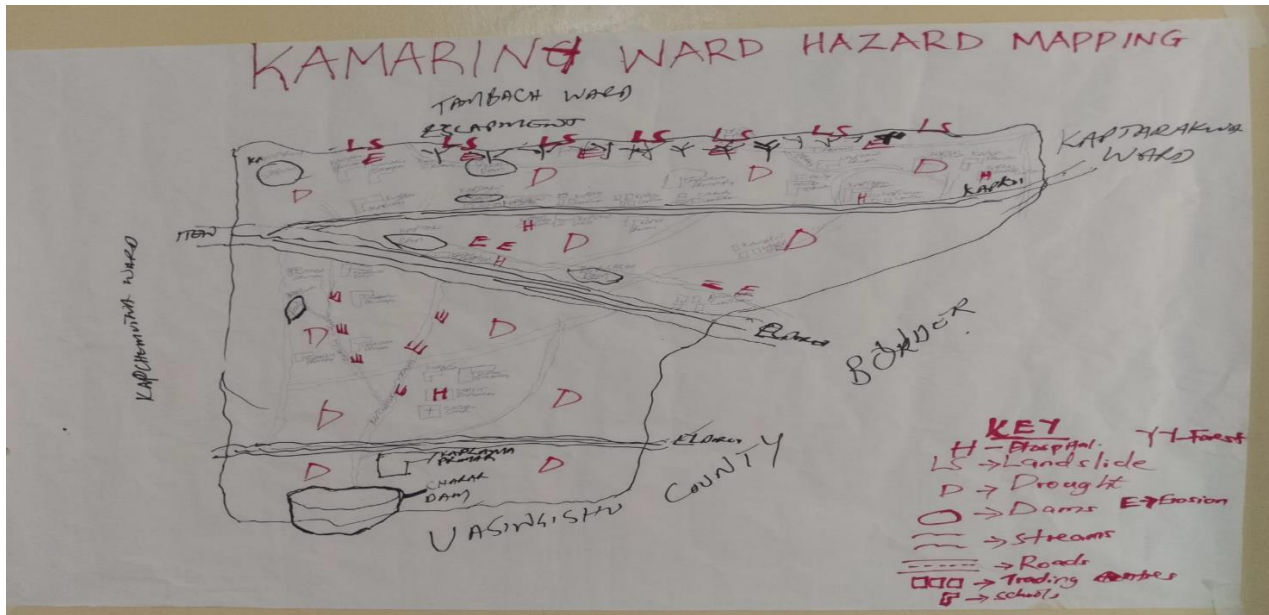


Figure 34:: Kamariny Ward Hazard Sketch Map, Keiyo North Sub County.

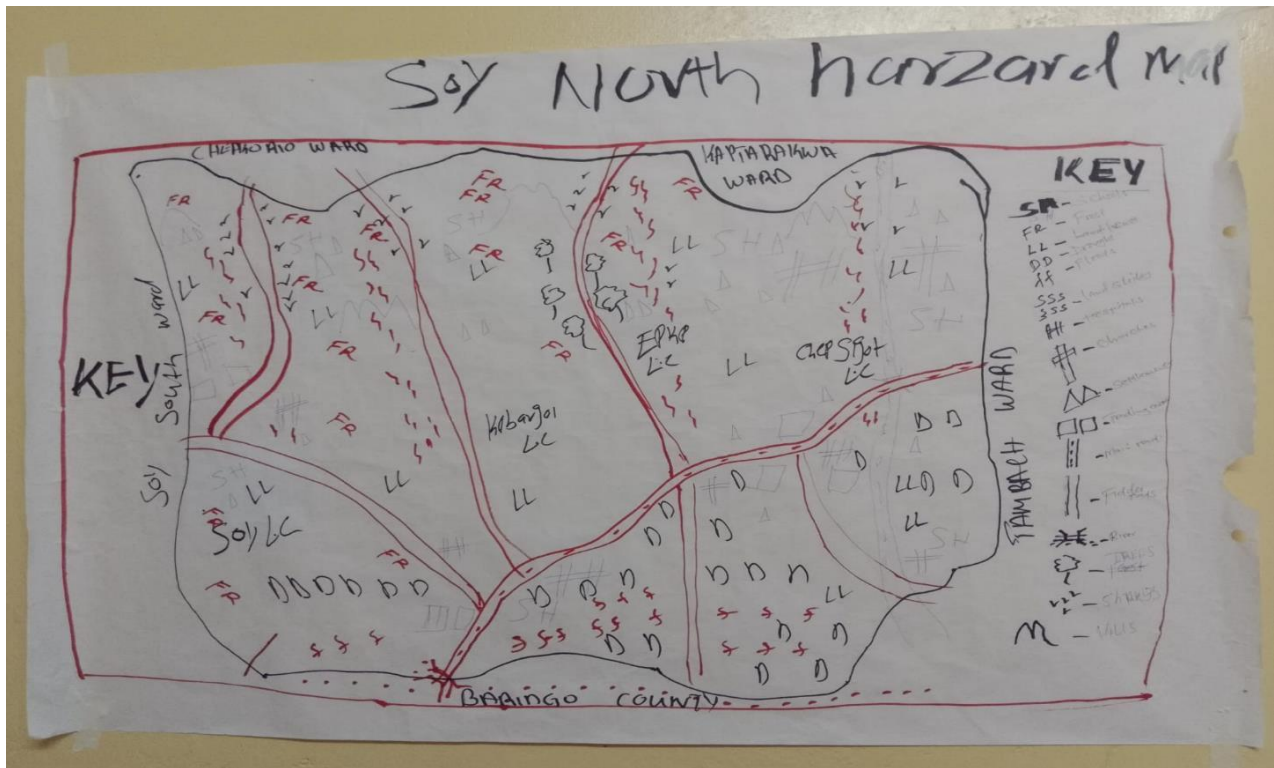


Figure 35:: Soy North Hazard Sketch Map, Keiyo South Sub County

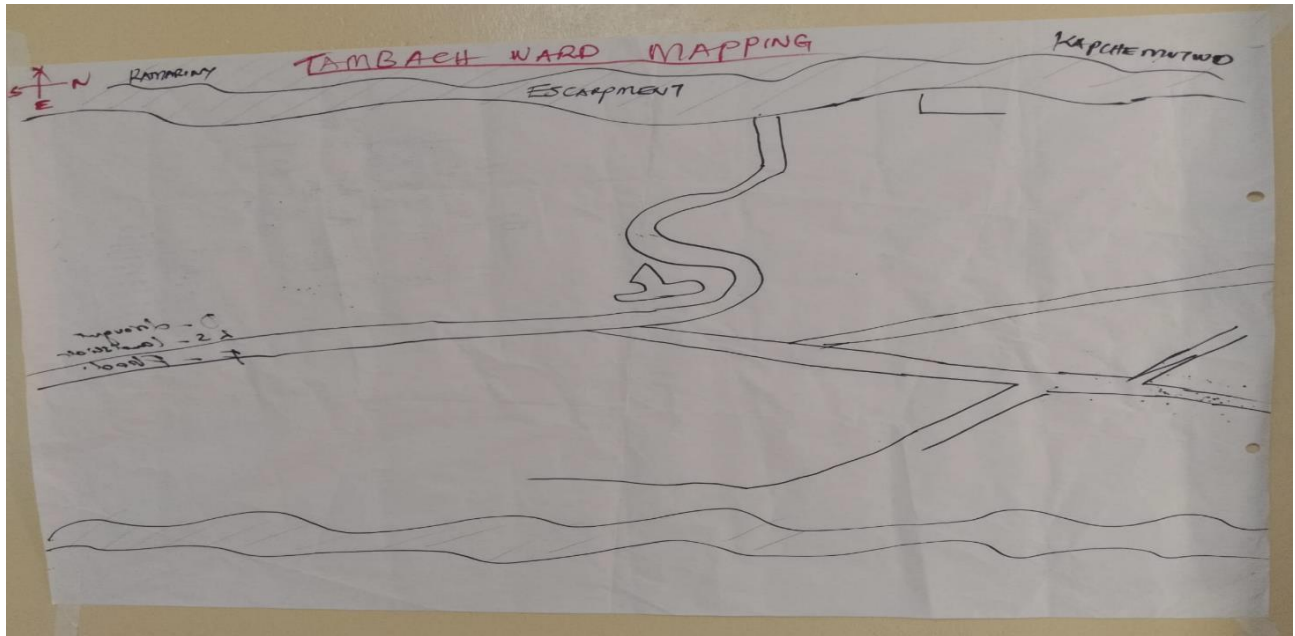


Figure 36: : Tambach Ward Hazard Sketch Map, Keiyo North Sub County.

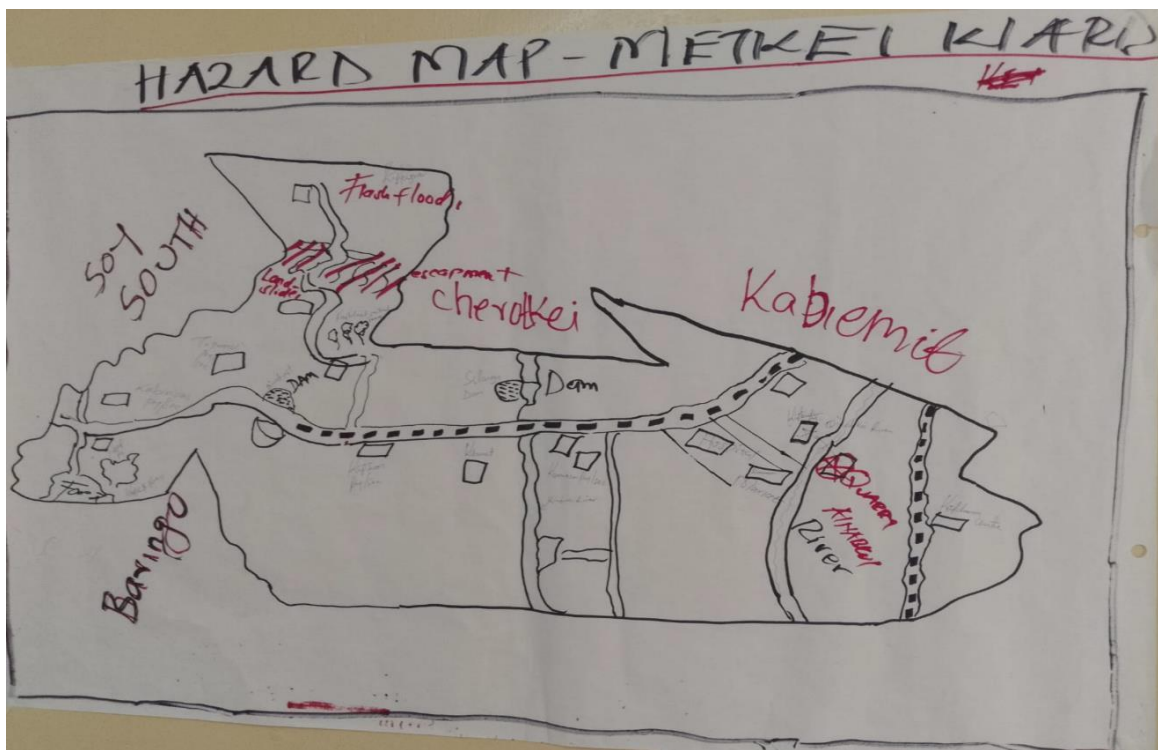


Figure 37: Metkei Ward Hazard map, Keiyo South Sub County.

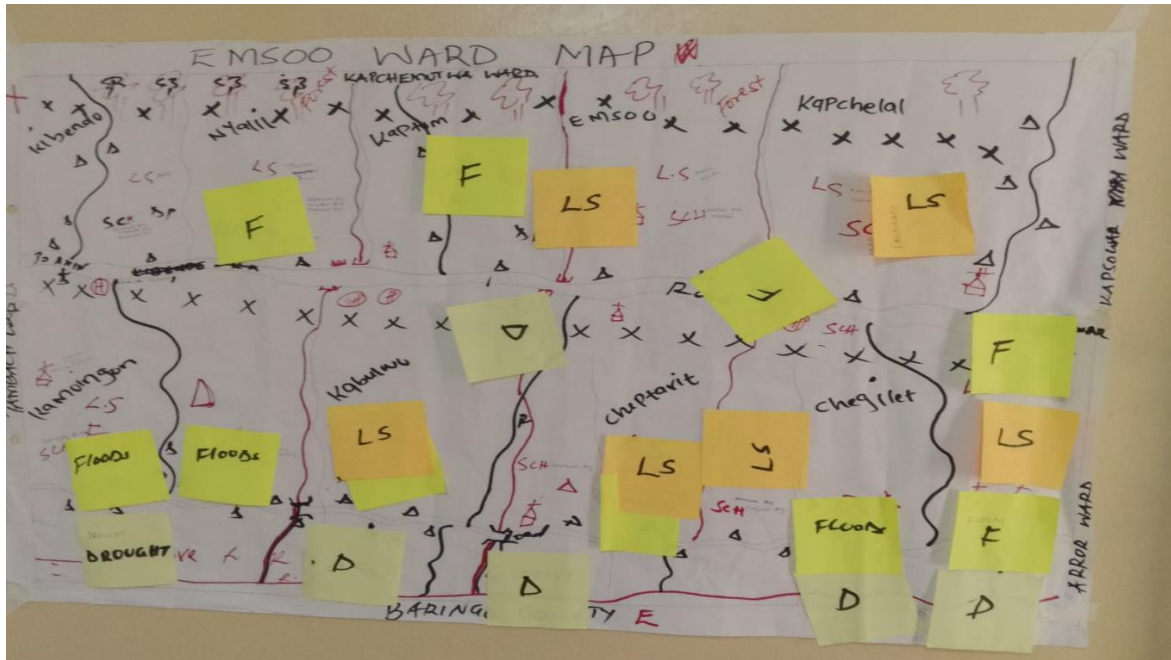


Figure 38: Emsoo Ward Hazard Sketch Map, Keiyo North Sub County.

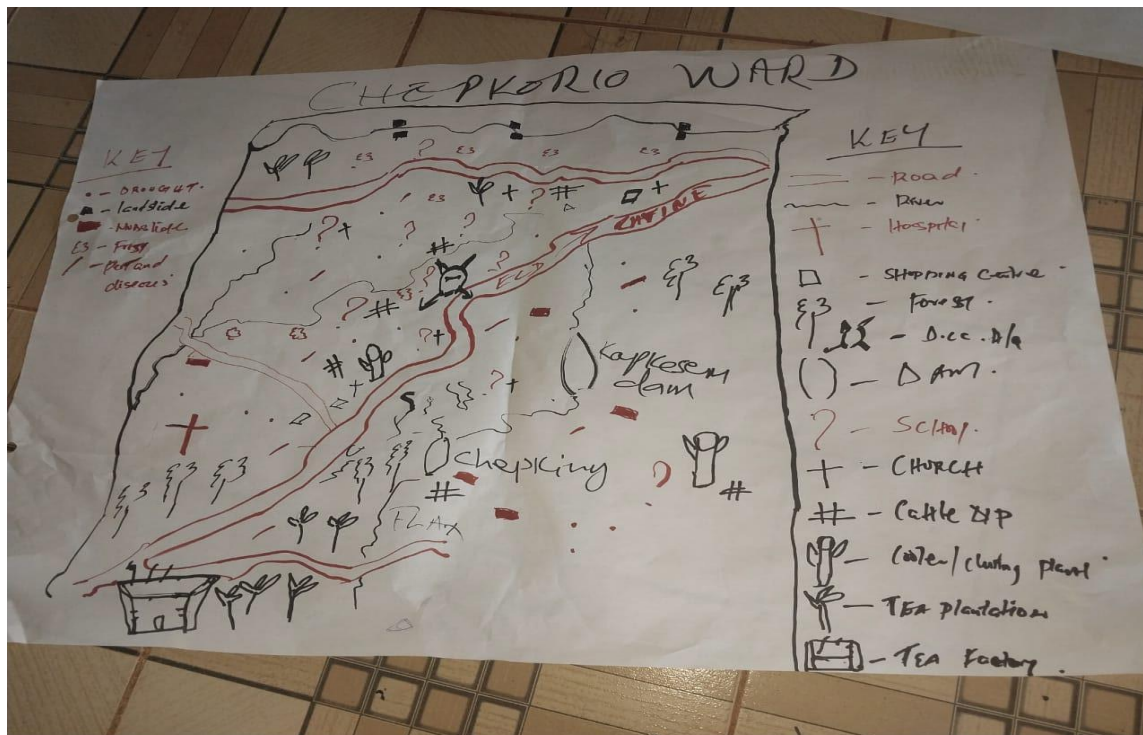


Figure 39: Chepkorio Ward Hazard Sketch Map, Keiyo South Sub County.

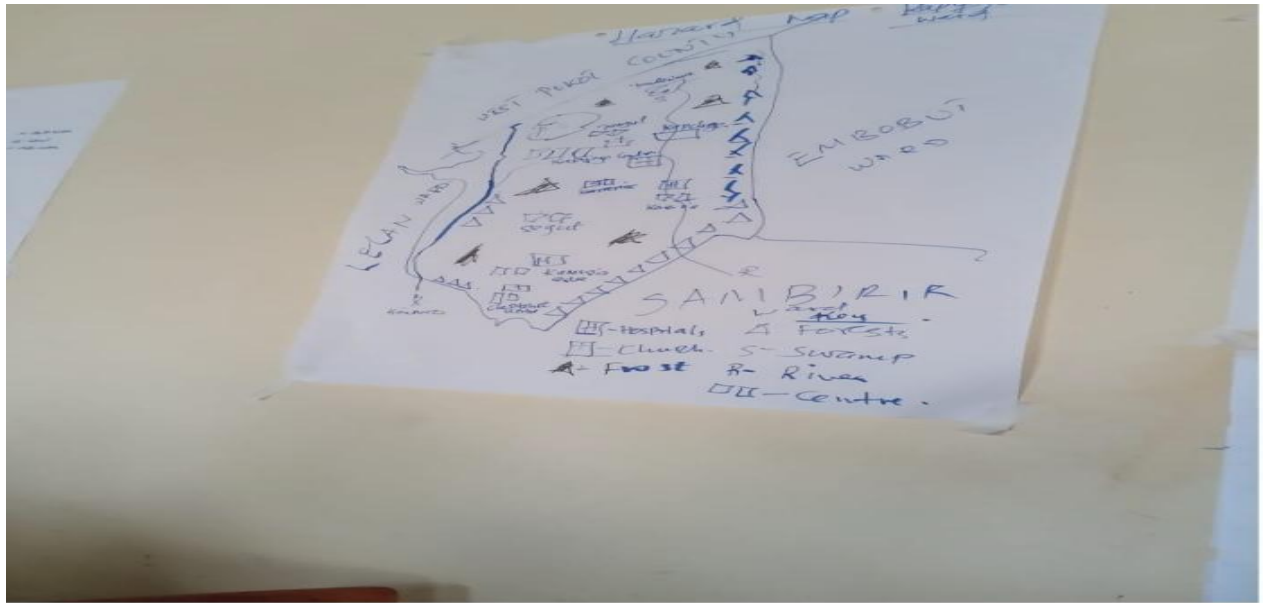


Figure 40: Kapyego Ward Hazard Sketch Map, Marakwet East Sub County

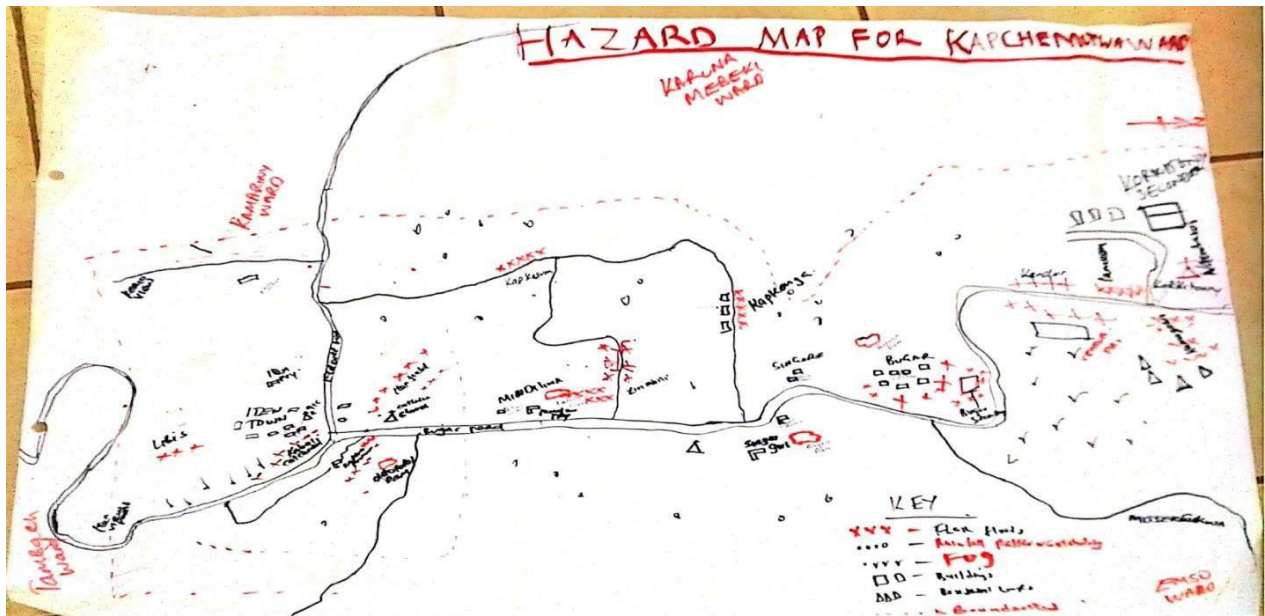


Figure 41: Kapchemutwa Ward Hazard Sketch Map, Keiyo North Sub County









































## ANNEX IV: WARD CLIMATE CHANGE PLANNING COMMITTEE.

*Table 10: Ward Climate Change Planning Committees*

S/No	Name	Contact	Category	Location	Sub-Location
<b>Marakwet East Sub County</b>					
<b>Embobut/ Embolot Ward</b>					
1.	Gideon Kipsiman	707931806	Youth	Kipchumwa	Kipchumwa
2.	Gandastine J. Biwott	705673212	PWD	Kipchumwa	Kaitamoi
3.	Ezra Toroitich Kiprof	729627163	Youth	Embobut	Endul
4.	Ernest Maiyo	711289530	Religious	Embobut	Maron
5.	John K. Mirkala	720714910	CBO	Embobut	Wewo
6.	Felix Kosgei	727677046	Sub Loc	Embolot	Mumul
7.	David Kimaiyo Yano	722483090	Sub Loc	Embolot	Korou
8.	Alcen Jepkoech Kimutai	704934872	Women Rep	Embobut	Endul
9.	Stephen Yego Kimaiyo	703193214	Sub Loc	Embolot	Mumul
10.	Mark K. Lagat	728590037	Sub Loc	Embolot	Korou
11.	Sammy K. Cheserek	720374074	Ward Admin.	Ex official	Ex official
<b>Sambirrir Ward</b>					
1.	Elkanah K. Chebet	720811093	Sub Loc	Mon	Mogil
2.	Herman Komen	715250206	Sub Loc	Kiptumbur	Kipyebbo
3.	John Itok	723635421	CBO	Koibatek	Maina
4.	Benjamin Chebet	724898801	Religious	Chemwonyo	Kombases
5.	Jane Kemboi	721286880	Women	Kipkaner	Tuturung
6.	Paul Cheserek	796549300	Sub Loc	Kibaimwa	Ratia
7.	Janeth Kwamba	711242647	Women	Sambirrir	Chesoi
8.	Reinard Kosgei	728753341	Youth	Sambirrir	Chemworor
9.	Henry Kiroitich	726201361	Youth	Kibaimwa	Chugor
10.	Justin Kwambai	722173410	Ward Admin.	Ex-official	Ex-official
<b>Kapyego Ward</b>					
1.	Reuben K. Cheptarus	727768368	Sub Loc	Kaptich	Kamasia
2.	Moses Komen	725766345	Sub Loc	kararia	Kararia
3.	Isaack Kosgei Yator	726029026	CBO	Kapyego	Tenderwa
4.	Mary J Kemboi	724212801	Women	Kapyego	Tenderwa
5.	Linah J Yego	716484553	Women	Kararia	Kararia
6.	Gladys Biwott	724385401	Youth	Kaptich	Segut
7.	Philemon Cheruiyot	705959780	Religious	Kapyego	kessum
8.	Benard Kiprotich	725202524	Sub Loc	Kapyego	Kapyego
9.	Ogla Chebet	715530095	Youth	kapyego	Kapyego
10.	Gladys Kimosop	715821709	Sub Location	Kaptich	Cheptobot
11.	Violah Kimosop	719369213	Ward Admin.	Ex-official	Ex-official
<b>Endo Ward</b>					
1.	Andrew Kiptoo	719127327	Youth	Kaben	Marich
2.	Beatrice Kipyego	719281398	Women	Endo	Kowow
3.	Amumwai Stephen	70615640	Sub Loc	Talai	Talai
4.	Cedrick Yego	724845417	CBO	Koibirir	Kasemoi
5.	Irene Kipchumba	727223076	Women	Kibirien	Sagay
6.	Meshack Cheserek	726157693	Religious	Sibon	Sibon
7.	Paul Cheserek	719579185	Sub Loc	Mokok	Olot
8.	Sophia Kanda	726652773	Women	Kotut	Kapcondot

S/No	Name	Contact	Category	Location	Sub-Location
9.	Jacob Katomen	726625324	Sub Loc	Murktwo	Enon
10.	Lydia Kipkeu	728732402	Ward Admin.	Ex-official	Ex-official
<b>Marakwet West Sub County</b>					
<b>Sengwer Ward</b>					
1.	Paul K Kibet	721353944	Sub Loc	Sengwer	Kipsero
2.	James Cheruiyot	711261346	CBO	Kamoi	Kamoi
3.	Stella Kemboi	707634750	Women	Sengwer	Kipsero
4.	Ruth Maiyo	728566239	Youth	Kamoi	Kakizangu
5.	Titus Kipyego	719110023	Religious	Kapterik	Kapterik
6.	Simion Kipkerich	715894119	Sub Loc	Rogor	Kaboley
7.	Stanley Rutto	723413147	Sub Loc	Kamoi	Kibuga
8.	David Kibet	725919149	Sub Loc	Kapterik	Kipsambach
9.	Elizabeth Kimachu		PWD	Kamoi	Kibuga
10.	Evans Kisang	723756166	Sub Loc	Kamoi	Kakisango
11.	Joan Cheboswony	723781014	Ward Admin.	Ex-official	Ex-official
<b>Lelan Ward</b>					
1.	Peter Biwott	722147865	Sub Loc	Chemosong	Lelan
2.	Nassan Kwambai	729279916	Youth	Kapkochur	Kaptalamwa
3.	Eunice Kemboi	707264953	Women	Koisungur	Mosongo
4.	Jackson Lofoten	724918019	PWD	Moiben	Kimnai
5.	Kiplagat Sutter	721165130	CBO	Lelan	Kapsait
6.	Edwin Yano	724068062	Sub Loc	Lelan	Kerer
7.	Festus Kipyego	723813466	Religious	Kaopkochur	Kibirech
8.	Simion Kiprono	720379819	Sub Loc	Koisungur	Kibigos
9.	Ruth Jemutai	769072433	Women	Lelan	Kapsait
10.	Moses Rutto Kipkosgei	723671096	Ward Admin.	Ex-Official	Ex-Official
<b>Cherangany/ Chebororwa Ward</b>					
1.	Thomas Rono	725327825	CBO	Kaptiony	Kaptiony
2.	Eliud Kirwa	721616581	Location	Cherangany	Koitugum
3.	Hellen Kipchumba	724655331	Women	Cherangany	Tenden
4.	Winnie Kipsanai	715768734	Location	Kondabilet	Kondabilet
5.	Sosten Kiplagat	743640573	Youth	Kaptiony	Chepkawai
6.	Edwin Cheptiony	714380471	PWD	Kaptiony	Chepkawai
7.	Godfrey Kiptoo	711913402	FBO	Chebororwa	Kabelio
8.	Ammon Chirchir	720641006	Location	Chebororwa	Kondabilet
9.	Albert Kiplimo	728711851	Location	Chebororwa	Busieso
10.	Timothy chebobei	705550577	Ward Admin.	Ex-official	Ex-official
<b>Moiben/Kuserwo Ward</b>					
1.	Daniel Kimaiyo	702046363	FBO	Kuserwo	Cheptongei
2.	Alice Kosgei	724621523	Location	Chebiemit	Nerkwo
3.	Joseph Chelimo	721753283	CBO	Kuserwo	Chemunda
4.	Abraham Kimutai	716520032	PWD	Kuserwo	Cheptulon
5.	Nicholas Rotich	724532931	Location	Chebiemit	Nerkwo
6.	Mathew Lagat	727932500	Youth	Kuserwo	Cheptulon
7.	Hillary Serem	710620851	Location	Kuserwo	Yemit
8.	Edinah Toroitich	727914765	Women	Chebiemit	Chebiemit
9.	Isaac Kiprotich	724587054	Location	Moiben	Kilima
10.	Benard Chepkoro	714895112	Location	Moiben	Sumbeyiwet
11.	Komen james	715475516	Ward Admin.	Ex-official	Ex-official
<b>Kapsowar Ward</b>					
1.	Dominic Suter	720873794	FBO	Kapsumai	Sinon

2.	Cornelius Kisang	715017917	Location	Kipsaiya	Kipsaiya
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S/No	Name	Contact	Category	Location	Sub-Location
3.	Fanice Cheboi	725006792	Location	Kapsowar	Talai
4.	Lydia Kiptoo	723967137	Women	Koibarak	Kobuswo
5.	Boniface Kibet	728728222	Youth	Koibarak	Tuyobei
6.	Mathew Cheboi	719430772	Location	Kapsumai	Kapsumai
7.	David Yator	727348348	Location	Kapsowar	Kapsowar
8.	Joshua Chepkinyang	721176500	Location	Kipsaiya	Kipsaiya
9.	Stanley Kipchumba	795978488	PWD	Kapsumai	Kapsumai
10.	Charles Kwambai	729823236	CBO	Kipsaiya	Kipsaiya
11.	Dominic Kemboi	725472437	Ward Admin.	Ex-Official	Ex-Official

#### Arror Ward

1.	Joseph Kibor	728416453	Location	Chesuman	Cheptembererwo
2.	Roberd Korir	711424172	Location	Chesuman	Resim
3.	Paul Chelimo	724617449	Location	Arror	Niwai
4.	Getrude Kipchumba	796595960	Location	Arror	Koitolial
5.	Charles Rotich	743823289	CBO	Arror	Arror
6.	Hosea Kiptoo	768942378	Youth	Chesuman	Kapchemuta
7.	Philemon Kimaiyo	729200087	FBO	Arror	Arror
8.	Ednah Chelimo	711439952	PWD	Chesuman	Chepkum
9.	Sabina Keino	715458806	Women	Arror	Kilos
10.	Zeddy Chelanga	725305099	Ward Admin.	Ex-Official	Ex-Official

#### Keiyo North Sub County

#### Emsoo Ward

1.	Peter Kiyeng	724710977	Sub Location	Keu	Chegilet
2.	Toroitich Benson	706669330	Youth	Cheptarit	Cheptarit
3.	Yusuf Kipchumba	719332992	Sub Location	Keu	Kabulwo
4.	Victor Kemboi	717762981	Youth	Keu	Kamoiingon
5.	Erick Kemboi	720872770	Sub Location	Kokwao	Kapchelal
6.	Festus Kipruto	724735784	Sub Location	Kokwao	Emsoo
7.	Paul Katam	726063555	Sub Location	Kokwao	Kaptum
8.	Leonard Cheron	728645286	CBO	Kokwao	Nyalil
9.	Joan Biwot	715327490	Women	Kokwao	Kibendo
10.	Leannic Cheron	717781421	FBO	Kokwao	Kaptum
11.	Charity Kimaiyo	727423940	Ward Admin.	Ex-official	Ex-official

#### Tambach Ward

1.	Sammy Kimeli	725005529	Youth	Kamogich	Kessup
2.	Moses Kiptoo	718704065	CBO	Kamogich	Rimoi
3.	Hosea Keitany	716386039	Sub Location	Kamogich	Anin
4.	Raymond Kimaiyo	791679016	Sub Location	Kiptuilong	Setek
5.	Lazarus Kimosop	721293453	FBO	Kamogich	Siroch
6.	Oliver Kiptanui	723687601	Sub Location	Kiptuilong	Kapterik
7.	David Kibet	724142480	Sub Location	Kiptuilong	Kipkaa
8.	Anna Cheruiyot	711781395	Women	Kamogich	Anin
9.	Lydia Kosgei	791027175	Sub Location	Kipka	Kipka
10.	Caroline Koima	725343319	Ward Admin.	Ex-official	Ex-official

#### Kapchemutwa Ward

1.	Kenneth Kimaiyo	723112673	CBO	Kamoi	Singore
2.	Major John Chemwolo	758010419	FBO	Kapchemutwa	Kapkatui
3.	Simon Chirchir	717148798	PWD	Kapchemutwa	Bugar

4.	Caurentia Kipyego	722820435	Women	Kamoi	Kapkongga
5.	Collins Korir	722820435	Sub Location	Chebaror	Mindililwo
6.	Allan Kurgat	797793395	Youth	Chebaror	Kapkessum
7.	Raphael Cheboi	723678744	Sub Location	Irong	Iten

S/No	Name	Contact	Category	Location	Sub-Location
8.	Hillary Koech	725388453	Sub Location	Chebaror	Chebokokwo
9.	Evans Kimutai Kibet Sirma	724570556	Sub Location	Kapchemutwa	Korkitony
10.	Brian Kimeli	724537651	Sub Location	Kapchemutwa	Kendur
11.	Judy Chebet	724441051	Ward Admin.	Ex-official	Ex-official

#### **Kamariny Ward**

1.	Bonface Kwambai	711625361	Kipsoen	Mutei	Kipsoen
2.	Christopher Kiptui	723663262	FBO	Irong	Kiptabus
3.	Faith Jerop	706504349	Youth	Mutei	Kapteren
4.	Hilary Kiplagat	725015313	CBO	Irong	Katalel
5.	Leonard Chepkonga	724866375	Sub Location	Mutei	Kapkoii
6.	Anthony Kiplimo	728570564	Sub Location	Segoit	Chesitek
7.	Ronald Tarus	729955616	Sub Location	Mutei	Chelingwa
8.	Lucy Karite Kiplagat	725952964	Women	Segoit	Sergoit
9.	James Cherusei	713116531	Sub Location	Sergoit	Kaplamai
10.	Micah Kiplimo	721847841	Ward Admin.	Ex-official	Ex-official

#### **Keiyo South Sub County**

#### **Kaptarakwa Ward**

1.	Bernard Kiplagat	725575520	FBO	Kitany	Chebior
2.	Susan Serem	726067306	Woman	Kitany	Kitany
3.	Gilbert Kiptarus	722515588	Sub-Loc.	Kaptarakwa	Kaptarakwa
4.	Silas Kipruto	729050795	Sub-Loc.	Mosop	Kiptulos
5.	Hillary Kipkoge	729543343	Sub-Loc.	Mosop	Kapkenda
6.	Everline Kiptanui	710493064	Sub-Loc.	Kaptarakwa	Mokwo
7.	Peter Kiprotich	708832102	Sub-Loc.	Kaptarakwa	Kaptagat
8.	Everlyne Wendot	729218055	CBO	Kaptarakwa	Kaptarakwa
9.	Dennis Kemboi	717491527	Youth	Mosop	Kapkenda
10.	Ezekiel Kiplimo	721919973	PWD	Kaptarakwa	Cheboir
11.	Ian Kipruto Koech	722438858	Ward Admin.	Ex -official	Ex -official

#### **Soy South Ward**

1.	Nancy Sawe	726472266	Women	Soy	Chob
2.	Musa Kibet Limo	720431901	Sub-Loc	Chemoibun	Chepsirei
3.	Shadrack Kiprono	710649237	CBO	Kocholwo	Salawa
4.	Samuel Chepkitony	724249284	FBO	Soy	Turesia
5.	Francis Maiyo	742062291	Sub-Loc	Kocholwo	Molol
6.	Risper Kigen	724928881	Sub-Loc	Soy	Morob
7.	Fransisca Keitany	700076579	Sub-Loc	Chemoibun	Tumeiyo
8.	Luka Kimeli	715295281	Sub-Loc	Kocholwo	Kapkosom
9.	Donald Kipsang	704891616	Sub-Loc	Kocholwo	Enego
10.	Judy Kibet	704449689	Youth	Kocholwo	Kocholwo
11.	Sammy Chebii	722253279	Ward Admin.	Ex-official	Ex-official

#### **Metkei Ward**

1.	Ely Kiprop	710235931	Youth	Metkei	Tugumoi
2.	Anne Boit	716407837	Women	Kamwosor	Kamwosor
3.	Moses Kimalet	720288445	CBO	Kamwosor	kapchorwa
4.	Victor Tarus	725375296	Sub-Loc	Kamwosor	Kombatich
5.	Ambrose Kipruto	725038899	Sub-Loc	Kamwosor	Kimamet
6.	Nicholas Kemboi	768335781	FBO	Kamwosor	Kiptengwer

7.	Sagin Kipsang	725372771	Sub-Loc	kapkwony	Kipsaos
8.	Gideon Kiprop	720670707	Sub-Loc	Kamwosor	Kapchorwa
9.	Mercy Jebichi Lagat	703218803	Sub-Loc	Metkei	Kabirisus
10.	Amos Kipsang Tanui	720807244	PWD	kamwosor	Kamwosor
11.	Gertrude Serem	723956105	Ward Admin.	Ex-official	Ex-official

S/No	Name	Contact	Category	Location	Sub-Location
<b>Soy North Ward</b>					
1.	Jemutai Kiplelgo	796551268	Women	Soy	Kapkosom
2.	Johnstone Tarus	726709869	FBO	Soy	Muskut
3.	Evans Kurui	728749794	Youth	Kibargoi	Cheptebo
4.	Brian Maiyo	728723933	CBO	Soy	Sego
5.	Grace Kipserem	717425157	Sub-Loc	Chepsigot	Chebinyiny
6.	Cristopher Malakwen	723865549	Sub-Loc	Chepsigot	Kabito
7.	Simion Kibet	727106634	Sub-Loc	Kibargoi	Rokocho
8.	Edwin Kiprono	727494750	Sub-Loc	Kibargoi	Emsea
9.	Rooney Kiprono	729277174	Sub-Loc	Epke	Epke
10.	Gideon Maiyo	719656857	Sub-Loc	Kibargoi	Chang'ach
11.	Kimutai Kiplimo	723758372	Ward Admin.	Ex-official	Ex-official
<b>Chepkorio Ward</b>					
1.	Joel Chemworem	721224084	FBO	Nyaru	Mwen
2.	Philip Kiptui	723700952	Su-Loc	Marichor	Ielboinet
3.	Jane Cheruiyot	723919564	Sub-Loc.	Marichor	Kamelil
4.	Patrick Kigen	722927497	Sub-Loc.	Marichor	Samich
5.	Gideon Maina	727676958	Youth	Marichor	Chepkorio
6.	Rachael Koima	724842966	Women	Marichor	Cherota
7.	Kenneth Barmasai	796209259	PWD	Chepkorio	Flax
8.	David Kiptanui	724048664	FBO	Nyaru	Kapcheptek
9.	David Koima	722943068	CBO	Nyaru	Kipsaina
10.	Beatrice Magel	721735350	Ward Admin.	Ex-official	Ex-official
<b>Kabiemit Ward</b>					
1.	Jeremiah K. Chebore	721626325	Sub-Loc	Kabiemit	Kapkoma
2.	Laban Kogo	725869125	Youth	Kabiemit	Kapchebelel
3.	Joyce Rotich	721117819	Sub-Loc.	Kabiemit	kabiemit
4.	Colins K. Barseguton	722546019	Sub-Loc.	Kabiemit	Cheboen
5.	Kiprotich Kandie	794330119	Sub-Loc	Tumeiyo	chepkosom
6.	Duncan Kandie	724089052	Sub-Loc	Tumeiyo	Tumeiyo
7.	Leonard Ayabei	721255839	CBO	Tumeiyo	Tambul
8.	Isaac Barsulai	723383157	PWD	Maoi	Ketigoi
9.	Isaac Kibet	725341276	FBO	Maoi	Kapkitony
10.	Ascar Talam	723310010	Women	Maoi	chepkurmam
11.	Theophilus Ayabei	720957560	Ward. Admin	Ex-official	Ex-official

## ANNEX V: TRAINING OF TRAINERS (TOTs)



*Figure 42: Trainers of Trainers on PCRA Process*

**ANNEX VI: COMMUNITY ENGAGEMENT ON PCRA EXERCISE.**



*Figure 43: Community Engagement on PCRA*



Figure 42: PCRA Exercise

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