

# West Pokot Community Engagement Study on Climate Vulnerability and Capacity Analysis

Misiani Zachary<sup>1#</sup>, Abraham Kisang<sup>2</sup>, Oscar Lino<sup>1</sup>, Lun Yin<sup>3</sup>

<sup>1</sup>International Centre for Humanitarian Affairs, Kenya Red Cross Society

<sup>2</sup>Program Officer -Disaster Risk Reduction and Climate Change, Kenya Red Cross Society

<sup>3</sup>School of Geography and Ecotourism, Southwest Forestry University, Kunming 650200, China

## \*Corresponding author

Misiani Zachary, International Centre for Humanitarian Affairs, Kenya Red Cross Society.

Submitted: 17 Jun 2022; Accepted: 30 Jun 2022; Published: 25 Aug 2022

**Citation:** Misiani Zachary, Abraham Kisang, Oscar Lino, Lun Yin, (2022). West Pokot Community Engagement Study on Climate Vulnerability and Capacity Analysis. *Eart & Envi Scie Res & Rev.* 5(3): 120-130.

## Abstract

Climate vulnerability and change can have significant impacts on regional, national, and local development efforts. In order to reduce these impacts and promote climate-resilient development, decision and development practitioners need to understand the climate vulnerabilities of the people, sectors, and community they are working with. Climate vulnerability can be determined by three interacting factors, namely; climate risks and changes, existing resilience capacities and barriers to resilience. Through these aspects, stakeholders can identify what, where, when and why social, economic and environmental systems pose a risk to climate change. The objective of this assessment was to strengthen the capacity of Community Managed Disaster Risk Reduction Committees and communities from Pokot Central and Pokot North sub counties, West Pokot County by engaging the communities on Climate Vulnerability and Capacity Analysis- CVCA training to achieve the links between development and climate related hazards and disaster. Climate vulnerability and Capacity Analysis Approach focuses on options for increasing climatic resilience and adaptations, the involved community structures and stakeholders on Disaster Risk Reduction were able to conduct focus group discussions in Pokot Central and North Pokot Sub counties in context lens towards gender equality, sustainable ecosystem and inclusive governance. The assessment focused on climatic risks and changes, resilience and adaptations pathways and actions from the community. While many of the issues faced involved basic development challenges, climate variability is already having impacts on water, food security, livestock and livelihood of the affected communities. Participatory training methods were used to keep the participants actively involved during the training sessions. Specifically, learner-cantered approaches were deployed; talks, group work, simulations, slide presentations, plenary discussions, and case studies on Pokot Central and Pokot North.

## Subject Areas:

Climate change impacts, Natural hazards, public policy, Project management, Humanitarian data science

**Keywords:** Humanitarian, Climate Vulnerability, Capacity Analysis, Disaster, Local Stakeholders

## Introduction

The vulnerability of people to change has most lately become an important subject as the importance of climate change has come to light. Climate change is a serious, ongoing threat to the development and will add burdens to those already poor and vulnerable [1]. The impacts of climate variability, manifested in extreme weather events such as heavy rainfall, hailstorms, floods, unseasonal rains and droughts will create an enormous developmental challenge for developing countries like Kenya and the poorest local communities due to their dependence on climate sensitive economic sectors, such as rain-fed and human capacities.

Disasters have continuously been a result of human interaction with nature, technology and other living entities. Sometimes unpredictable and sudden, sometimes slow and persisting, various types of disasters continually affect the way in which we live our daily lives [2]. Human beings as innovative creatures have sought new ways in which to curb the devastating effects of disasters. However, for years human conduct regarding disasters has been reactive in nature. Communities, sometimes aware of the risks that they face, would wait in anticipation of a disastrous event and then activate plans and procedures. Human social and economic development has further contributed to creating vulnerability and thus weakening the ability of humans to cope with disasters and their

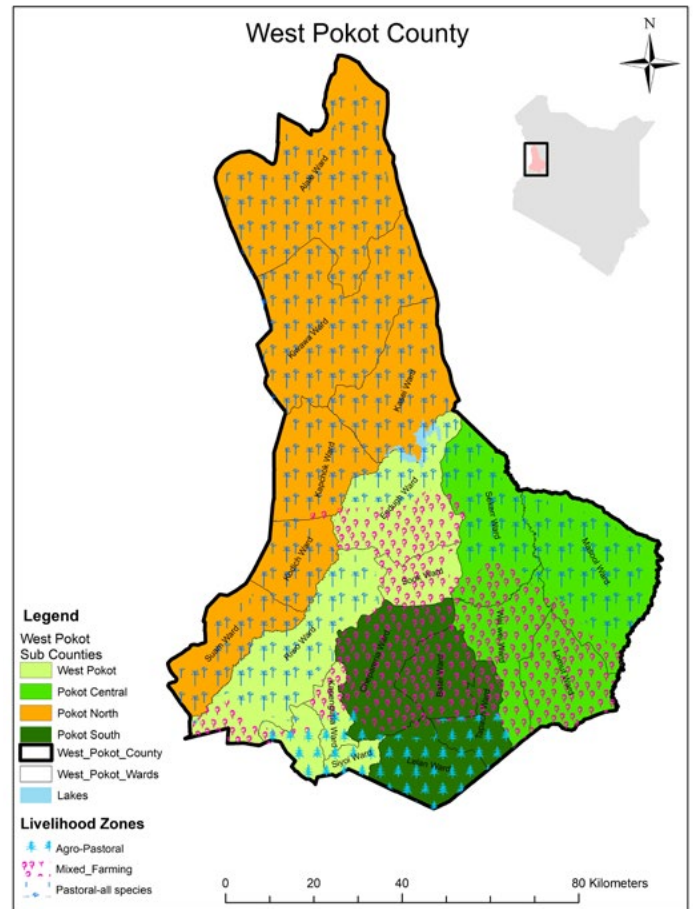
effect [3]. In the Kenyan context, previous Vulnerability Assessment have emphasized that extreme weather events and climate change will affect agriculture, water and forest resources, populations and infrastructure of major towns [4]. Climate vulnerability, capacity assessment, vulnerability mapping, climate monitoring, prediction and timely early warning of the extreme weather and climate events are therefore, some of the best strategies for mitigating their negative impact on humanity, property and the environment as well as taking advantage of any positive impacts. Accurate and timely weather and climate information on the characteristics of the extreme climate events including the associated vulnerabilities are, therefore, critical inputs in sustainable development planning. To be able to adequately address climate change in a sustainable development context, one must begin by carrying out vulnerability and adaptation assessments [5].

The aim of this assessment was to evaluate the impacts of climate change, climate variability and projected climate change impacts in Pokot Central and Pokot North sub-counties in that encompasses the key biophysical and socio-economic impacts on ecosystems, biodiversity (including bee keeping), agriculture and food security. At the same time to identify policy gaps and potential opportunities that will enable the Government to formulate plans and strategies for adaptation in these sectors to be included in this research and lastly to increase capacity of key stakeholders for project development. This assessment was conducted in the project implementation areas in West Pokot County with description of methodologies and tools to be used. The assessment was conducted on community members in the county. The outcomes of this work will contribute to the understanding of possible adaptation and coping strategies to climate change, and of the factors influencing these strategies. More knowledge about adaptation strategies is relevant because of the increase of issues related to changing habitats that are caused by climate change

### Area of study

This field report covers Central Pokot and Pokot North sub counties. They cover an area of 9,100 Km<sup>2</sup>. The districts border Uganda to the west, Baringo district to the east, Trans-Nzoia and Marakwet districts to the south and Turkana South district to the north and northeast. Pokot North has three divisions namely: Kasei, Alale and Kacheliba: these divisions are in the pastoralist livelihood zone while Central Pokot Sub County borders Elgeyo Marakwet to the South, Baringo to the East, Turkana South to the North and Pokot South to the South East. It covers an area of 2,380.1km<sup>2</sup> with an estimated population of 114, 0973. It has two distinct livelihood zones namely; Pastoral and Agro pastoral. The land in West Pokot is historically divided according to its use that is based on the soil composition. The high mountain tops, that receive the most rain

is most fertile and most productive. The steep mountain slopes, where the soil is loose, are traditionally used for cultivation of finger millet. The flat valley land is especially good for cultivation near the rivers. And the ‘parched dry lands’ are used by pastoralists for grazing their animals [6].



**Figure 1:** West Pokot County. This map was produced on 22nd December 2021 by Zachary Misiani -Climate Research Officer

### Research Design Methodology

The activity was conducted in Pokot North and Pokot Central, the assessment was conducted through focus group discussion, two focus group discussion in each sub-county. The groups had male and female Focus Group Discussion-FGD in the two sub-counties, the engagement was participatory in nature, where community provided feedback. The FGD was guided by a set of questions. Secondary data was collected through existing literatures and reports.



**Figure 2:** Focus Group Discussion for Men from Pokot central and South participating in a CVCA exercise. Photo by Zachary Misiani.

The Climate Vulnerability and Capacity Assessment employed a step-by-step process that included the following;

### Objective and Goals of the Vulnerability and Capacity Assessment

The CVCA was guided by the following objectives:

- I. To assess the impacts of climate change, climate variability and projected climate change impacts in Pokot Central and Pokot North sub counties in that encompasses the key biophysical and socio-economic impacts on ecosystems, biodiversity (including bee keeping), agriculture and food security.
- II. To identify policy gaps and potential opportunities that will enable the Government to formulate plans and strategies for adaptation in these sectors to be included in this report.
- III. To increase capacity of key stakeholders for project development.

### CVCA Participatory Tools

The participatory tools employed included;

- I. **Hazard maps-** provided an introduction to the community, its surroundings and the hazards that affect them. It identifies key livelihood strategies, the resources they require and where they are practiced. This tool was used;
  - To become familiar with the community and to see how the place is perceived by different groups within the community
  - To identify important livelihood resources in and around the community
  - To initiate the identification of hazards affecting the community (both climate-related and other)
- II. **Historical timeline-** provided an overview of important events

in the community. It enabled analysis of hazard trends and changes based on community perceptions. This tool was used;

- To get an insight into past hazards, changes in their nature, intensity and behavior.
- To make people aware of trends and changes over time.
- To document community observations of changing hazard trends.

III. **Seasonal calendars-** identified important livelihood activities throughout the year and provides a basis for discussing seasonal changes observed by communities. This tool was used;

- To analyze seasonal changes in activities and periods of stress or scarcity
- To identify important livelihood activities
- To document community observations of changing trends in seasonal patterns

IV. **Dailyclock-** explored gender differences in daily tasks, providing insights into gender-specific roles and responsibilities. This tool was used;

- To illustrate the inequality in workloads within the household and how this can undermine resilience and affect the ability to implement the adaptation options
- To show the value of women's work
- To understand how daily tasks and the division of responsibilities shift when a climate-related shock occurs

V. **Household decision making pile sorting-** The Pile Sorting exercise explored gender differences in decision-making power in the household. It promotes discussion on the value of joint decision-making. This tool was used;

- To explore who in the household has the authority to make important decisions
- To discuss how decision-making could be more equal as a means to increase resilience

VI. **Impact chains-** facilitated assessment of direct and indirect impacts of hazards on livelihoods, providing a basis for discussing how people are currently responding to the impacts. This tool was used;

- To analyze direct and indirect impacts of climate change in the target community

VII. **Vulnerability matrix-** identified priority livelihood assets and hazards, both climate-related and other. It also assessed the degree of impact that the hazards have on the livelihood assets. This tool was used;

- To identify the highest-priority livelihood assets and hazards
- To analyze the degree of impact of hazards and changes on priority livelihood assets

VIII. **Venn Diagram-** identified the institutions that interact with the community members and the services that they provide. This tool was used;

- To understand which institutions are most important to communities
- To assess access to services and availability of social safety nets

IX. **Adaptation Pathways-** identified options for adaptation and

---

resilience-building and assess the opportunities and barriers to putting them in place. This tool was used;

- To identify adaptation options to address identified climate change impacts.

These tools allowed to structure the discussion in a practical way, to promote dialogue and consensus among the community members.

## Findings and Discussion

The key findings of the mission were majorly on two aspects; climatic and non-climatic factors.

### Climatic Factors for Vulnerability Analysis

Climate shocks include conditions such as fluctuation of temperatures and changes in rainfall patterns which are anticipated to generally change overtime. The weather patterns have become unpredictable over the recent years thus differing from back then when the patterns could be predicted.

### Drought

Generally, drought is the main hazard experienced in both Central and North Pokot. Dating back to the early 1960s in Central Pokot, the community experienced a severe drought which lasted for five years and resulted in adverse effects whereby there was loss of lives and livestock. For sustainability, the community embarked on eating wild fruits and vegetables. When the drought kept getting intense and claiming lives; the community resorted to consuming their own livestock. During that period, the government supported them with relief food i.e.; yellow maize. The drought was later named '*Kaudit*'. Later in the early 80s, (termed as *loupa*) and the 1990s, severe drought was experienced which cost human lives and livestock. There was no agricultural activity that took place. In the early 1990s (1992-1994) another drought arose which resulted in hunger and they were supported with relief in form of porridge flour by the government. The porridge was named after the supplier, '*Loupa*'. In 2009, there was drought to a point that people started eating some wild animals and wild fruits. This was named '*Lotete*'. The 2011 drought resulted in an off-take, i.e., the government bought animals affected by the drought and the community was given for consumption. In July 2016 to July 2017, there was a Kenyans for Kenyans program whereby a pay bill number was created to support the affected communities.

### Floods and Landslides

In 1969, there was change in rainfall pattern that resulted in heavy downpour and caused a severe landslide that swept away livestock and loss of life. According to the community myth this was experienced due to a family which indulged in land grabbing hence believed as punishment from the gods. 50 years later in 2019, the landslide reoccurred and had a very severe effect since many people lost their lives and property. Many animals and people were affected.

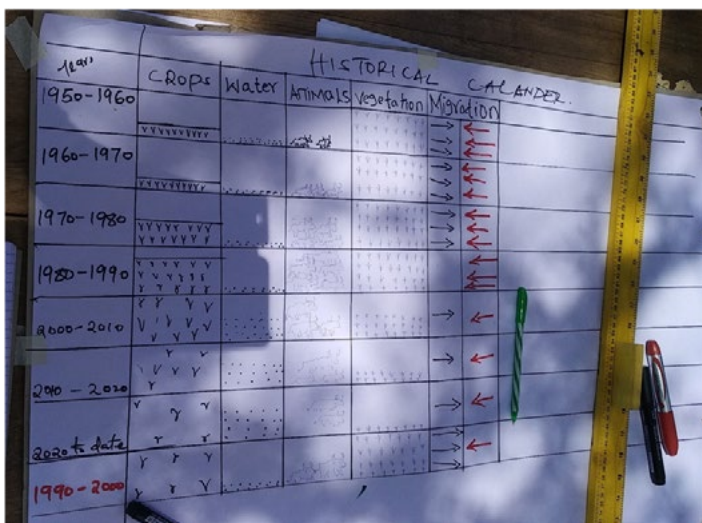
### Non-climatic factors

#### Conflict

There have been numerous cases of conflict that have risen over the years dating back to historical times. During the period between the 60s and 70s, the conflict intensity was low and very small occurrences were experienced within the Central Pokot area. The conflicts were not frequent and spaced out. During the 70s to 80s, there was an unprecedented increase in the conflicts in the area. Between the 80s and 90s period, there was an extremely high conflict especially in 1982. The intensity remained high into the 90s to the 2000s. This was also partly to the 1992 coup attempt and things were hard. In recent times, the conflicts have been so frequent all through from the 2010s to present. Every year has occurrences of conflict especially whenever the drought is high since other neighbouring communities attempt to cross boundaries in search of pasture and also due to the political influences. The unprecedented rise in conflicts have been a huge threat to the communities since there is a high influence of the unpredictable weather patterns to it. It tends to rise especially when the community is going through hard times.

#### Migration

Migration is whereby people move from their home areas and move into a new place in search for better options or greener pastures. Migration has been a major part of communities that happen to experience extreme weather experiences like droughts and floods. In Central Pokot, during the 80s to 90s period, there was always migration as a result of conflicts between the neighbouring communities like the Turkana. The migration intensity increased into the 1990 to 2000 period. Between 2000 to 2010, there was high migration as a result of conflicts and the intense change in weather patterns in that there was extreme drought and in turn the communities migrated in search of pasture for their livestock. Between 2010 to 2020, the migration increased due to drought and shock floods that happened in the area and affected many people.



**Figure 3:** The diagram shows historical calendar for West Pokot between 1950 to 2021 for crop farming, availability of water, number of animals, vegetation cover and the migration of the communities during times of the calamities. Photo by Zachary Misiani.

In Pokot North, there were no permanent homes in the 50s to the 60s and this indicated that there was constant migration in search of water and pasture. The migration out of their home area happened between December to April and they survived on milk. They went for approximately five months and came back in late April. The same happened between the 60s to 70s and 70s to 80s periods whereby they migrated out for five months and came back afterwards. Between the 80s to the 90s, there was a break in the migration patterns, the animals and people migrated out but only people migrated back due to insecurity and conflict whereby they were chased back by the Karamojong in 1996. From the 90s to 2000, there was migration from Uganda into Kenya and there was increased peace since people had surrendered their guns. Animals migrated to Uganda.

Between 2000 and 2010, very few people migrated from Uganda in to Kenya and due to peace, people settled into Uganda. Migration slowed down between 2010 and 2020. Between 2020 to present, people migrated into Uganda and others back into Kenya.

### Participatory Research

During this step, the team engaged community members from the 2 community groups in dialogue through focus group discussions to learn about their experiences and gain their perspectives on

climate change and its impacts on their community. Prior to this, community mobilization and sensitization on undertaking the activity was carried out through the community leadership.



**Figure 4:** Focus Group Discussion for men from Pokot north and central on the historical disasters. Photo by Zachary Misiani.

The FGD's were a key activity in gaining qualitative data on the capacity and vulnerability of the community members. The KRCS enumerators facilitated the group meetings in the community in collaboration with project staff, each group consisted of 8-10 people that had been selected from the community, segregated by gender, and their types of livelihoods. Project staff informed members about the project, the objectives of the discussion and the process of the meetings.

### Analysing the Information

With the already collected community information through the various relevant Vulnerability and Capacity Assessment tools, it was important to gather all of the data and look at the 'bigger picture' of what is happening to the community, the 'floor method' in which all data was put on the floor for analysis. This included information from interviews, historical profiles, mapping, seasonal calendar etc. and then overall judgment on the tools was made: what are currently the main hazards? Is the climate changing in this community? How could a changing climate influence their current hazards? In what ways are they going to be most vulnerable to climate change? The analysis was not limited to the cross-cutting issues noted during the data collection.



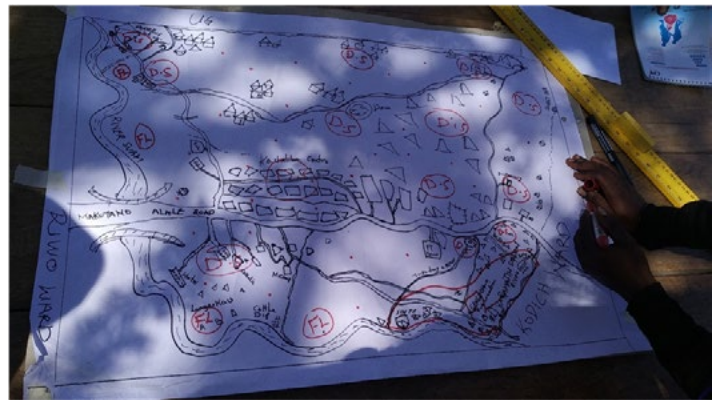
**Figure 5:** Participants working on the hazard map for West Pokot. Photo by Zachary Misiani.

The second step was verifying community information by checking secondary information through looking at the information gathered by the tools and re-checking with secondary sources. The main aim of the step was to check whether the information matches up with what the community-based information? The understanding of the information is to also show what is transpiring to the rest of the county or region. Any outcome of this comparison is important to follow up because the changes may be occurring because of factors other than climate change and this is worth investigating and acting upon also. Sometimes the information can also be used to build the community's overall resilience which will assist in dealing with future threats posed by climate change and can be a 'no regrets' approach.

Importantly to note is that specific questions were included to focus on cross-cutting issues; gender, ecosystems and inclusive governance. Throughout the analysis, it was essential to consider the differences among community members, in terms of gender but also other characteristics, such as age, ethnicity, disability and wealth, among other factors.

### Hazard Maps

The community members were asked to identify landmarks in the community and to draw the boundaries of the community with the location of settled areas, important facilities and resources in the community. This included houses, facilities such as churches, or other local spiritual centers, health clinics, schools, and resources such as forested areas, grazing lands and water bodies. The community members identified the areas at risk from different types of hazards, and marked these in the appropriate locations on the maps. These included natural hazards, including both geophysical and climate-related hazards, Political crises and/or conflict.



**Figure 6:** sketch map for Suam ward in West Pokot showing some common hazards. Photo by Zachary Misiani

In both wards, the places at risk were close to rivers due to sudden flooding when the rains were heavy. An instance was given of when it rained heavily in Central Pokot and the rivers overflowed and it transferred the shock into the low-lying land in Suam Ward whereby lands beside the rivers were destroyed and livestock and human beings were affected. Another instance was in Central Pokot whereby a whole town was covered and destroyed around the Chesegon area.

### Historical Timeline

Year	Drought	Diseases	Water	Forest	Animals	Migration	Conflict	Landslide	Production of food
1960-1970	X X X	M	M	M	M	M	M	M	M
1970-1980	Y Y Y	M	M	M	M	M	M	M	M
1980-1990	Y Y Y	M	M	M	M	M	M	M	M
1990-2000	L O U P A	M	M	M	M	M	M	M	M
2000-2010	L O T O T E R	M	M	M	M	M	M	M	M
2010-2020	O P A T A K E	M	M	M	M	M	M	M	M
2020-	O P A T A K E	M	M	M	M	M	M	M	M

**Figure 7:** Historical occurrences of the disasters such as drought and diseases and how it has been affecting the availability of water, animal, food production, migration, conflict, landslides and production of food in Pokot north and south. Photo by Kelvin Pkasi

Generally, drought is the main hazard experienced in both Central and North Pokot. Dating back to the 1960s in Central Pokot, the community experienced a severe drought which lasted for five years and resulted in adverse effects whereby there was loss of lives and livestock. For sustainability, the community embarked

on eating wild fruits and vegetables. When the drought kept getting intense and claiming lives; the community resorted to consuming their own livestock and even carrion. During that period, the government supported them with relief food i.e.; yellow maize. The drought was later named 'Kaudit'.

Later in the early 80s, (termed as loupa) and the 1990s, severe drought was experienced which cost human lives and livestock. There was no agricultural activity that took place. In the early 1990s (1992-1994) another drought arose which resulted in hunger and they were supported with relief in form of porridge flour by the government. The porridge was named after the supplier, 'Loupa'. In 2009, there was drought to a point that people ate wild animals (monkeys and snakes) and wild fruits. This was named 'Lotete'. The 2011 drought resulted in an off-take, i.e., the government bought animals affected by the drought and the community was given for consumption. In July 2016 to July 2017, there was a Kenyans for Kenyans program whereby a pay bill number was created to support the affected communities.

In 1969, there was change in rainfall pattern that resulted in heavy downpour and caused a severe landslide that swept away livestock and loss of life. According to the community myth this was experienced due to a family which indulged in land grabbing hence believed as punishment from the gods. 50 years later in 2019, the landslide reoccurred and caused a very severe loss of lives since many people lost their lives and property. Many animals and people were affected.

### Seasonal Calendar

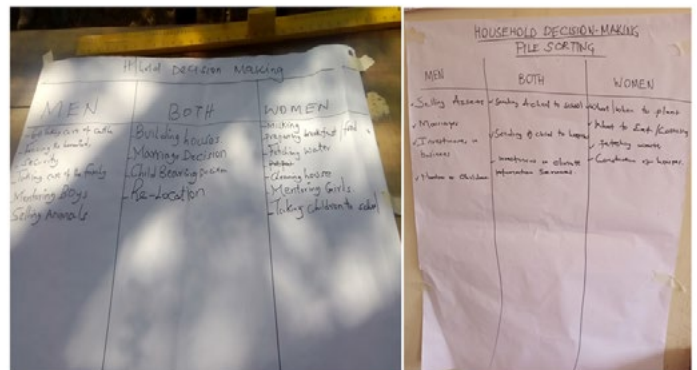


**Figure 8:** Seasonal calendar showing how rainfall, food and migration for Pokot north and south communities. The first row indicates the two main rainfall seasons whereby we have March-May and July -October. The second row represented on how food production (crops and animals' production). The third row represent the migration of the local communities with their livestock. The red arrow indicates communities are moving away from home for looking for pasture and water for the cattle while the black arrow indicates that the community is returning back home. Photo by Zachary Misiani.

The community was asked to list the key seasons, activities and other events that occur throughout the year, and arrange these along the vertical axis. The list included: Seasons (rainy and dry seasons), agricultural activities including planting, harvest and marketing, periods of scarcity of resources, such as food, water or pasture, times of migration, timing of climate events such as floods and droughts, when common seasonal illnesses occur for people and for livestock. Both sub counties fall almost within the same ecological zone and thus a similar seasonal calendar, however, the magnitude of events differ from time to time.

The County experiences the two rainy seasons of March- May and July –October. November to February is recorded as the dry month while January and August- December month recorded as the hotter month and May- July as the colder months of the year. Planting is mainly done just before the rains in the months of April. Upon the end of the long rains, in the months of August to November is when the farmers harvest the farm produce, store and take some to the market. Scarcity of food is mainly experienced just before the short rains' onset in the month of October. Migration of pastoralists is common in the months of November to April in search of water and pasture. Prevalence of floods is mainly experienced during the long rains in the months of June and August, whilst drought during the dry months of November to March. Impacts of floods bring about the prevalence of disease outbreaks in human livestock and crops, recording high incidences in the months of July, August and September after the rains.

### Household Decision Making Pile Sorting



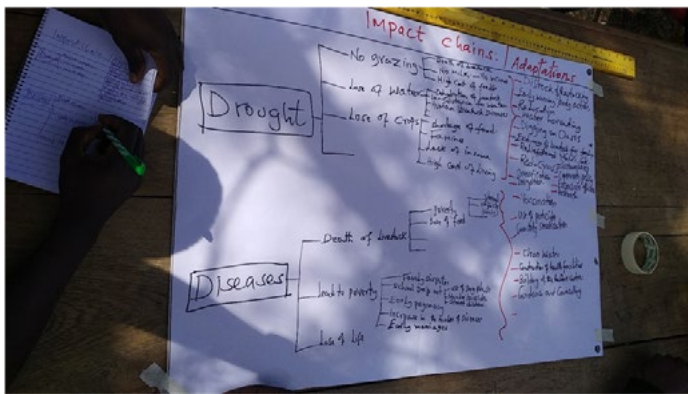
**Figure 9:** Household major decision making between men and women. Photo by Bildad kiptoo.

This tool explored decision-making in the household and asked the respondents to brainstorm the critical decisions that are needed at the household level, to meet the family's needs, maintain well-being and plan for the future. They also considered decisions that are made when the household is affected by climate-related shocks and stresses. The participants discussed each of the different decisions and placed them on the appropriate flip chart page,

showing who typically makes the decision. This involved discussing; which decisions are made by men alone, women alone and jointly; if there have been any changes in decision making in the recent years and what may have driven these changes; what are the benefits of both partners having an equal voice in important decisions and what they would like to see in terms of decision-making at the household level when it comes to anticipating, absorbing or adapting to climate stresses and shocks.

Critical decisions at the household level are made either by the men, women and others jointly. It was noted that the majority of the decisions on how to spend income brought into the household is majorly made by the men, this included decisions made on the type of investment in farm inputs such as the seeds to be planted and acquisition of the tools and equipment. Notably is that issues of land are mainly handled by the men including land ownership, lease and sale of land. The decision of what to plant and when is made by the men while the women are the ones who go out to the field for land preparation and planting. Men mainly are the pastoralists, taking the herd of cattle out in search of pasture and water as the women are left behind looking after the homestead. Women are also engaged in other income generating activities within the household. Majority of the farm work is practiced by the women including weeding and harvesting. Decisions jointly made include; charcoal burning, hospital/health issues, children's education, utilization of family expenses and migration during disasters.

### Impact Chains & Adaptation Pathways:



**Figure 10:** Impact chains and adaptation showing focused on the two major hazards; drought and disease.

The community analyzed the impacts of climate change in their community, as a basis for identifying options for adaptation. Referring back to the hazard map and the discussions around changing trends and increasing uncertainty from previous sessions, they identified 2 climate changes that they would like to analyze that the community is already experiencing. The exercise involved working through the climate changes one at a time, identifying the most important direct impact of the change or event, followed by the

most important indirect impacts, building on the direct impacts.

The adaptation pathway tool was used to identify adaptation options to address identified climate change impacts. This involved engaging the community members to identify options to minimize the negative impacts of climate change on their livelihoods. Working on each impact chain, the groups identified changes they could make to their livelihoods strategies that would reduce the negative effects of the identified impacts, both direct and indirect.

With the rampant frequency of droughts and diseases in the area, the community has had to come up with adaptation pathways to be able to cope with the impacts of drought. The following are some of the adaptation strategies put in place: promotion of mixed farming as an alternative source of livelihood; increased afforestation initiatives to curb the dynamic effects of climate change, irrigation farming and introduction of drought tolerant crops, construction of water conservations structures such as water pans, water trucking and the promotion of rainwater harvesting; commodities and supplements (integrated medical outreaches services) employment of other alternative sources of livelihood such as charcoal burning, though highly discouraged ; increased food production and storage during the rainy season; destocking or purchase of animals by the government for a fixed price, with animals slaughtered and meat distributed among needy families; animal health campaigns; and animal feeding; fodder conservation and alternatives livestock feed sources/supplement; relief food programmes; livestock vaccination and peace building and conflict management initiatives

### Vulnerability Matrix

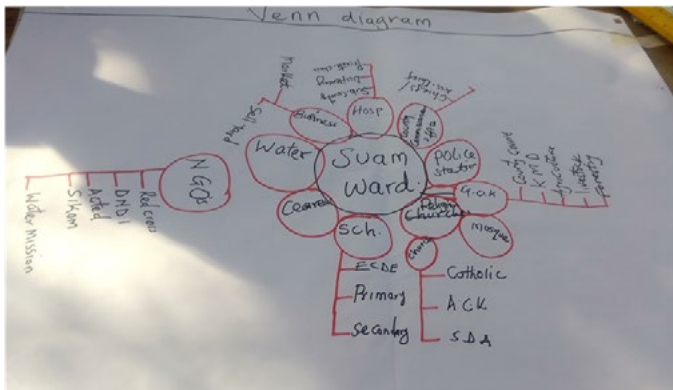
VULNERABILITY / HAZARD	HAZARD				
	DROUGHT	FLOODS	CONFLICT	ANIMAL DISEASES	PLANT DISEASES
AGRICULTURE CROPS	3	2	3	0	3
LIVESTOCK	2	1	3	3	2
FOREST	1	1	0	0	0
BUSINESS	2	2	3	1	3
LANDS	3	1	1	0	1
WATER	3	2	1	3	2

**Figure 11:** Vulnerability matrix identifying levels of risk for agricultural crops, livestock, forces, business, lands and water resources. Highest is represented by number 3 while low risk is represented by 0. Photo by Shire cheptarus.



This tool was used to identify the highest-priority livelihood assets and hazards and analyze the degree of impact of hazards and changes on priority livelihood assets. It was noted that the community's asset that is mainly affected by floods and drought is the agricultural land, followed by livestock then the natural resources within the area and business that they conduct.

### Venn Diagram



**Figure 12:** Venn diagram for Suam ward showing the common government and non-government institutions who are working very closely with the communities in West Pokot. Photo by Shire cheptarus

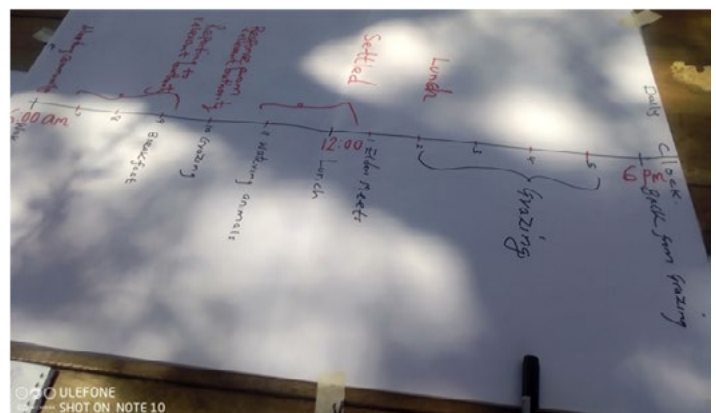
The community identified the local governments, NGOs and community-based organizations, as well as service providers such as private sector or agricultural extension services working within their area. They discussed and rated the importance of the different institutions, using a simple scale (for example, very important/somewhat important/not important), writing the organizations on the different circles, choosing the size of the circle according to their importance in community engagement efforts. They showed the degree of interaction between themselves and the different institutions by placing them on the circle. The institutions that they have close interactions with were placed near the center of the circle, while those with little interaction outside the circle. The community discussed information, resources or services they receive from the different organizations, exploring how they access the services.

This spatial diagram shows the closeness of the organizations or institutions to the community. The closer the organization to the community the more interior of the circle and the large in size it is and vice versa. According to the member's institutions that were felt to be within and close to the community were: (Drugs for

Neglected Diseases initiative (DNDi), Agency for Technical Cooperation and Development -ACTED), Kenya Red Cross Society -KRCS, WATER MISSION and SILKOM.

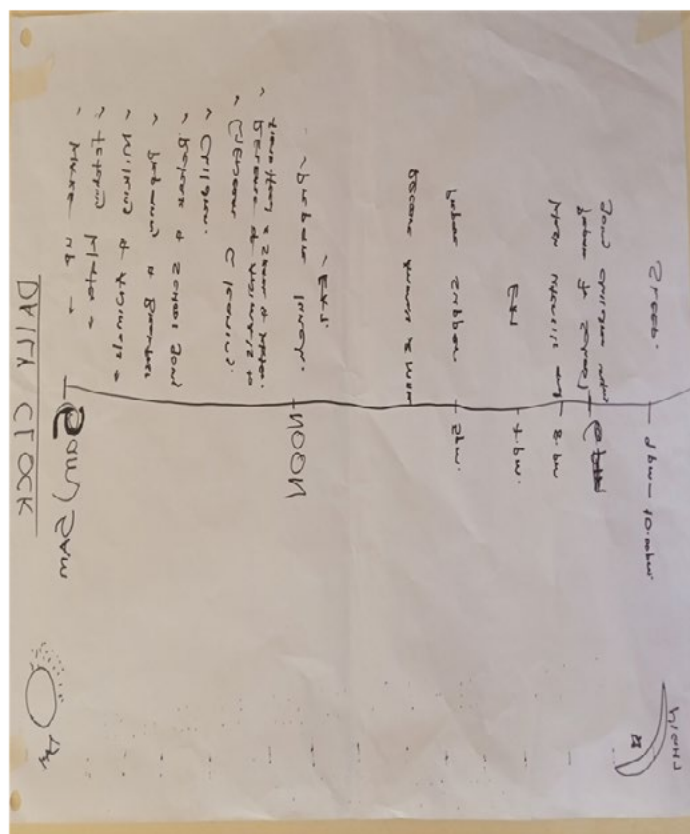
### Daily Clock

This assessment brought together FGD's of men and women separately, discussing the different tasks that women and men do to keep the household running giving a typical day for a woman/ man from the time they wake up to the time they go to bed. Using the second daily clock, they imagined a day when the community is affected by a climate shock (referring back to the hazard map and vulnerability matrix to select a particular hazard scenario to make this more specific). They repeated the exercise of building the clock, focusing on how things change when a shock has occurred. This was followed by a discussion by the groups on the observations recorded on how the days are similar, how different they are and how a typical day differs from a day during a shock.



**Figure 13:** Daily clock diagram showing the daily normal program for men.

The daily clock for the men on a normal day is characterized by milking in the morning, followed by taking breakfast, grazing, farming, relaxing while some go to busaa / changaa dens some go to market centers, then farming having bath, check on the livestock, milking, taking supper then go to bed. During shock, men are mainly engaged in alerting the community, reporting to relevant authority, response from relevant authority, settling the issue, taking lunch, look for place to settle, take supper, go to sleep.



**Figure 14:** Daily clock diagram showing the daily normal program for women.

The women's daily clock on a normal day is characterized by doing house chores in the morning, preparing breakfast and getting the children ready for school. This is followed by farm activities in the morning hours and early afternoon and later preparation of

meals, family time and rest. During drought women wake up to fetch water, milk animals, prepare breakfast, looking for fire wood /burn charcoal for selling, prepare supper, and go to bed.

### Challenges and Recommendations from the Analysis.

Challenges	Resolution
Many people have been displaced by flood along the river	Promote tree planting and conservation along the river
Cropland along the river have submerged due to the increased water volume of the river Suam	Sensitize community of avoiding farming on riparian land and promote conservation
Livestock diseases are on increased due to livestock movement	Sensitize community on livestock vaccination and disease surveillance
Increased malnutrition cases due to food insecurity	Promote livelihood diversification and irrigated agriculture
Poor latrine coverage/diseases outbreak	Sensitize community on latrine coverage to reduce water-borne diseases
Emerging of invasive plant species that suppress pasture germination	Research to be carried out on mitigation measures
Animals feeding on poisonous plants	Sensitize and create awareness on poisonous for the community to avoid grazing their animals where these plants exist

---

## Conclusion

Above and beyond the risks and vulnerability, the challenges in terms of strategies and policies for sustainable development lay in the exploration of adaptive capacity, the building of resilience and the recognition of emerging advantages and opportunities in order to cope with the consequences of adverse weather, climate variability and climate change, and above all to promote policies and preventive measures at county level.

## Acknowledgements

The authors wish to thank many colleagues in International Center for Humanitarian Affairs (ICHA) for their indispensable contributions to this work. Special thanks go to Project Manager Innovative approaches in Response Preparedness-IARP and Team Leader. The authors are particularly thankful to the Netherlands Red Cross and the British Red cross whose strategic partnership with KRCS provided the opportunity to field activities, IKEA Foundation who provided the funding for this work under the Forecast-based Financing, Data Preparedness and Cash Transfer Programming in Kenya to reduce the impact of climate change on the most vulnerable people. We thank all the institutions and personnel who in one way or another played a role in ensuring the relevant secondary data used in this study was available. We commend our fellow researchers at the ICHA for their constant encouragement as we continued to develop this assessment research work. Lastly, but not least, our sincere gratitude goes to the anonymous reviewer(s) whose comments considerably improved the manuscript assessments.

**Conflict of Interest:** No conflict of interest. The authors declare that there are no any competing interests as maybe defined by Advances in Meteorology, Climate, Humanitarians or any other interests' materials that may be perceived to influence the above results and discussion reported in this paper.

**Author Contributions:** The assessment was conceptualized and written by MISIANI Zachary, ABRAHAM Kisang and OSCAR Lino. The study design and secondary data information analyses were undertaken by Bildad Kiptoo, Kelvin Pkasi, Paul Yoporeng, Shire Cheptarus, Samuel Kiprotich and Sylvester Okuja under the supervision of ABRAHAM Kisang. Additionally, Oscar Lino provided project oversight and supervision.

## Funding

Innovative Approaches to Response Preparedness (IARP) through Netherlands Red Cross and the British Red cross whose strategic partnership with KRCS provided the opportunity to field activities, IKEA Foundation will fund this work.

## References

1. Morgan, C. (2011). Vulnerability assessments: a review of approaches.
2. Prabhakar, S.V.R.K. 2015. "Methodology and Guidelines for Vulnerability and Capacity Assessment of Natural Resource-Based Communities for Climate Change Adaptation," no. September: 141. <https://doi.org/10.13140/RG.2.1.4590.3844>.
3. van Niekerk, D. (2011). Introduction to disaster risk reduction. USAID.
4. Marigi, S. N. (2017). Climate change vulnerability and impacts analysis in Kenya. American Journal of Climate Change, 6(01), 52.
5. van Niekerk, D. (2007). Disaster risk reduction, disaster risk management and disaster management: Academic rhetoric or practical reality?. Disaster Management: South Africa, 4(1), 6-9.
6. Geutjes, L. (2015). Coping with climate variability in West Pokot, Kenya: The influences of land use on responses to climate variability, by pastoralist and agro-pastoralist communities in arid and semi-arid areas of West Pokot, Kenya.

**Copyright:** ©2022 Misiani Zachary. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.