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## **Analysis of Community Disaster Early Warning Systems for Early Action in West Pokot County Kenya**



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## EXECUTIVE SUMMARY

### **Introduction**

Action Aid International Kenya (AAIK) commissioned a study in Kong'elai Ward in West Pokot County where the Gender Sensitive Humanitarian Volunteering project has been implemented through partnerships with community organizations. The study sought to establish the different Community Early Warning Systems (EWS) by looking at: how the EWS aid the community prepare and mitigate disaster impacts; their efficacy and limitations to disaster affected people and women in particular; participation of communities in generation and dissemination of EWI with focus on women; Assess community knowledge on potential risks and EWEA; Assess the level of integration of early warning information into production systems (livestock and crop production) to enhance resilience of livelihoods and limitations and to Provide recommendations: EWS and Risk knowledge by the community, Appropriateness of the systems. Parameters being monitored are timeliness, Dissemination and Communication, Response by the community and Integration into livelihoods systems

### **Methodology**

The study was conducted through document review, Household (HH) questionnaires, Key Informant Interviews (KII), Focus Group Discussions (FGDs), observation and photography. Respondents were drawn from thirteen (13) villages in Pokot North and Pokot West Sub-counties where the programme had been implemented. Data analysis was by qualitative and quantitative techniques.

### **Hazard Profile**

West Pokot County is disaster prone; the most common disasters experienced are triggered by hydro-meteorological and environmental processes leading to hazards such as floods, droughts, landslides, lightning and earthquakes. Poorly managed agricultural and environmental practices including overgrazing, deforestation, irrigation and mining have left fragile ecosystems even more vulnerable. Climate change is exacerbating these hazards, increasing their variability and scale of impact. Human induced disasters such as conflicts, transportation accidents, fires and civil unrest are also frequent.

### **Most affected segments of the society**

Trends of the most affected groups in the Pokot community by various disastrous events leaned more on children and women, accounting for 46% and 31% respectively. A small fraction of respondents felt that all categories of members in households are equally affected.

### **Early Warning (EW) Information**

The most widespread EW information is the Meteorological information shared through Kalya FM Radio Station. A significant fraction of HHs own radio sets, hence could receive the information. In a few cases, Livestock disease warnings have been shared in the community.

The Pokot community has a rich repository of indigenous early warning indicators that are useful in the prediction and fore-sighting of future events ranging from disasters to normal functioning of the community systems. Most of these indicators are based on observation of behaviour of domestic and wild animals, people, environment and state of celestial bodies. Some of this indigenous knowledge is shared through DMCs. Elderly members of the community also provide information on impending disasters occasionally.

### **Actions by emergency responders**

Emergency actioning by various responders came in various forms. Moving of food stocks and evacuation both recorded 31% while relief assistance accounted for 38%. Though it is over two years since it was last received, early action during emergencies in the community is largely in the form of relief provision.

### **Prepositioning of Non-Food Items (NFIs) during emergencies**

Findings of the study point to a gap in the prepositioning of NFIs during emergencies. Of the HHs interviewed, 31% received NFIs while 69% responded in the negative. Further interrogation on the matter revealed that the community members who were beneficiaries of cash transfer programming that was

last done several years back, were better equipped to respond to the emergencies and this would enhance early recovery.

#### **Timeliness of emergency response and action**

Response times for emergencies (drought, flooding, disease outbreaks and conflicts) ranged from two weeks to two months depending on the scale of the event and availability of resources by responders. In most cases rapid/situation assessments would be done almost at the onset or a few days (a week or two) to the disaster.

#### **Participation in DRR/EWEA Activities**

There was a significant percentage (77%) of respondents who agreed they had been part of DRR/EWEA activities in the project area. Approximately 23% were of divergent opinion. This could be attributed to formation of Community Disaster Management Committees (CDMCs) by AAIK in 2014. The CDMC members have since played instrumental role in community sensitization activities linking the community with the disaster information and players like County Government. The County Government of West Pokot was also a significant responder, though irregularly over years.

#### **Health sensitization programs**

Majority HH respondents interviewed (77%) agreed that health sensitization was done once annually by Community Health Volunteers. Since the latter are not facilitated for travel and service remuneration, the programme is not effective. Further, they do not assist during emergencies.

#### **County Government Policy Review and Recommendations**

The County Government of West Pokot has drafted 2 policy documents addressing EWEA in emergencies: (i) Peace Building and Conflicts Management Policy 2018; and (ii) Disaster Risk Management Policy 2016. Both policies are under construction and are expected to be enacted by the County Assembly of West Pokot sooner or later.

#### **Early Warning Early Action Structures**

The following was observed:

- i. Community members rarely engage the existing formal government structures such as Sub County Administrators, Locational and Ward Offices for EW information. They approach them for action during emergencies; however, these government officers do not have much to offer.
- ii. Structures that have been set up by other actors notably AAIK play an important role in communication of some Early Warning information such as drought and floods through DMCs, however they are not adequate to address the diversity and extent of the risks in the community.
- iii. Radio Communication, notably Kalya FM has been instrumental in communicating EWEA information. Many community members acquire impending disaster information from this source.
- iv. Some community elders are endowed with skills in prediction of disasters and risk reduction measures. However, a very small fraction share this information because of various reasons including fear of repercussions of disasters.

#### **Policy Recommendations**

- (i) Involvement of Local Communities in EWEA
- (ii) Integration of Indigenous and Modern Early Warning Systems
- (iii) Constant Monitoring
- (iv) Strengthening Local/Community FM Radios

## LIST OF ACRONYMS

AAIK	-	Action Aid International Kenya
ASALs	-	Arid and Semi-Arid Lands
ASDSP	-	Agricultural Sector Development Support Programme
CAP	-	Common Alerting Protocol
CBO	-	Community Based Organization
CBPP	-	Contagious Bovine Pleurophen
CCPP	-	Contagious Caprine Pleurophen
CDMC/(DMC)	-	Community Disaster Management Committee
CEWARN	-	Conflict Early Warning and Response Mechanism
CSG	-	County Steering Group
DRR	-	Disaster Risk Reduction
DRRRAM	-	Disaster Risk Reduction, Response, Adaptation and Management
EWEA	-	Early Warning Early Action
EWS	-	Early Warning Systems
FGDs	-	Focus Group Discussion
FGM	-	Female Genital Mutilation
FMD	-	Foot and Mouth Diseases
GoK	-	Government of Kenya
HH	-	Household
IGAD	-	Authority on Development
KII	-	Key Informant Interviews
KMS	-	Kenya Meteorological Service
KOMESI (CBO)	-	Kongelai, Mikwon, Embasis and Serewa Locations
KSH/KES	-	Kenya Shillings
NDMA	-	National Drought Management Authority
PPR	-	<i>Peste des Petits Ruminants</i>
RPLRP	-	Pastoral Livelihoods Resilience Project
SMS	-	Short Messaging Service

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## GLOSSARY OF TERMS

### **Adaptation**

Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities

### **Adaptive capacity**

The ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behaviour and in resources and technologies.

### **Capacity building**

In the context of climate change, the process of developing the technical skills and institutional capability in developing countries to enable them to address effectively the causes and results of climate change.

### **Climate**

The average pattern for weather conditions occurs over a long time. Weather refers to the atmospheric conditions at a specific place at a specific point in time. Climate has always varied because of natural causes. Increasingly, however, human increases in GHG emissions causing changes in climate as well.

### **Climate change**

Changes in global or regional climate patterns, including changes in temperature, wind patterns and rainfall. In particular, climate change refers to a change apparent from the mid to late 20th century onwards and attributed largely to human activities that increase levels of GHG emissions, especially atmospheric carbon dioxide produced by the use of fossil fuels. Climate change is sometimes referred to as global warming, which specifically refers to the long-term trend of a rising average global temperature

### **Climate resilience**

Closely linked to adaptation, building climate resilience includes reducing vulnerability to climate change, making sure that the impacts of climate change are avoided or cushioned, and enabling people to respond to climate risks

### **Contingency planning**

A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

### **Deforestation**

The long-term or permanent loss of forest cover. The term implies transformation of forest into another land use, which is caused and maintained by a continued human-induced or natural perturbation

### **Disaster**

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources

### **Disaster risk**

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

**Disaster risk management**

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster

**Disaster risk reduction**

The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

**Early warning system**

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss

**Environmental degradation**

The reduction of the capacity of the environment to meet social and ecological objectives and needs

**Exposure**

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses

**Forecast**

Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area

**Greenhouse gases**

The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Less prevalent -- but very powerful -- greenhouse gases are hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and Sulphur hexafluoride (SF<sub>6</sub>)

**Hazard**

A 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

**Hydro-meteorological hazard**

Process or phenomenon of atmospheric, hydrological or oceanographic nature 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

**Mitigation**

In the context of disaster risk reduction, refers to the lessening or limitation of the adverse impacts of hazards and related disasters

**National platform for disaster risk reduction**

A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving

**Measurement, reporting and verification plus (MRV+)**

An integrated framework proposed for Kenya to measure, monitor, verify and report results and impacts of mitigation, adaptation and climate finance actions, and the synergies between them.

**Mitigation**

In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere

**National adaptation plan**

A document prepared by developing countries that identifies urgent and immediate needs for adapting to climate change.

**National climate change action plans**

National plans of action, prepared at five-year intervals, that set out in detail the requirements and costs for the design and implementation of the various climate change interventions required for Kenya to attain low carbon climate resilient development

**Natural hazard**

Natural process or phenomenon 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

**Preparedness**

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions

**Prevention**

The outright avoidance of adverse impacts of hazards and related disasters

**Public private partnerships (PPPs)**

Public-Private Partnerships are an association between government and private sector through which private financing is utilized to perform a public function, at a profit to the private sector

**Recovery**

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors

**Sustainable development**

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs

**Technology transfer**

A broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders.

**Vulnerability**

the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity and its adaptive capacity.

## 1.0 INTRODUCTION

Translating Early Warning into Early Action (though the use of multiple forecasts, on multiple timescales, for no regrets early action) is a growing approach to management of disaster risks globally. These scientific innovations not only have far reaching implications for the future of disaster management within organizations, but they have already produced concrete benefits in the lives of vulnerable communities and populations at-risk. An early warning has no effect without early action. Numerous examples illustrate how reliable information about expected threats was insufficient to avert a disaster, including Cyclone Nargis, Hurricane Katrina, and the food crisis in Niger (IFRC & RCS, 2008). At the shortest timescales, that action could be evacuation. On the longest timescales, early action means working closely with local communities to assess and address the root causes of the changing risks they face. Houses on stilts, planting trees against landslides, dengue awareness and prevention campaigns, water catchment systems and millions of other risk reduction measures can be taken. Early action also includes updated contingency planning and volunteer mobilization. In terms of geographic range, early action can take various forms: If a large flood is expected, at the most local scale a community can protect its main water well from contamination. At country level the National governmental and non-governmental organizations can update their contingency plans. Internationally the International organization and the United Nations can mobilize human and financial resources ahead of the disaster to assist the National Societies in reducing the impacts and even preventing loss of life altogether.

The more we act upon the warnings on the longest timescales, by identifying communities at risk, investing in disaster risk reduction, and enhancing preparedness to respond, the more lives and livelihoods can be salvaged at the shortest timeframes when a disaster such a drought or floods occurs. Similarly, better links to global and regional knowledge centres and standardized procedures to get the information to the right place will facilitate more effective action at the most local level.

### **Tenets of Early Warning Systems**

The above realizations have led to global calls for Disaster Risk Reduction with a focus on 'Enhancing resilience of communities' to enable them cope with, recover from and withstand these disasters. In the Disaster Risk Reduction, Response, Adaptation and Management (DRRRAM) sphere, Early Warning Systems (EWS) have been identified as critical element since it provides for early action that can be very crucial in the prevention of losses, be it life or economic. A crucial first step is to ensure access to accurate and timely information in order to inform and support disaster preparedness and early response/action. A brief survey of the international and national disaster early warning systems shows that effective early warning depends upon a multi-sectoral and interdisciplinary collaboration among actors at each stage in the warning process from monitoring to response and evaluation. However, the links between the community needs, county priorities and national actions lack synergy, co-ordination and accountability to local communities particularly women and people living in poverty and exclusion. The United Nations International Strategy for Disaster Reduction (UNISDR, 2006) notes that early warning information systems must be people and location-centred, integrating four elements:

- (i) Knowledge of the risks faced

- (ii) Technical monitoring and warning service
- (iii) Dissemination of meaningful warnings to those at risk
- (iv) Public awareness and response capability.

It is argued that failure in any one of these elements can mean failure of the whole early warning system. Some of the most promising investment opportunities lie in empowering vulnerable communities with Early Warning Information (EWI) and the capacity to act.

## 2.0 STUDY METHODOLOGY

The study was conducted through document review, HH questionnaires, KIIs, FGDs observation and photography. Respondents were drawn from thirteen (13) villages in Pokot North and Pokot West Sub-counties where the programme had been implemented as shown in table below.

**Table 1.1 : Sampled Sub-counties, Locations and Villages (Project area)**

S/N	Sub-county	Location	Village	No. of FGDs
1.	Pokot West	Serewo	Cheptuyis	6
2.		Embasis	Chesakam	
3.		Embasis	Kutum	
4.		Serewa	Katokol	
5.		Embasis	Chesakam	
6.		Riwo	Kalapatai	
7.		Muskwony	Chemakio	
8.		Muskwony	Chemakeli	
9.		Kong'elai	Kong'elai	
10.		Embosis	Lokatukoy	
11.		King'elai	Kiriaete	
12.	Pokot North	Kopulio	Atulia	
13.		Kopulio	Pokatusa	

Source: Field data, 2019

Data analysis was by qualitative and quantitative techniques.

### 2.1 Study Strategy and Data Collection

Both qualitative and quantitative research approaches were utilized to gather data for the study. Qualitative approach was exploratory where information was retrieved from project beneficiaries and relevant stakeholders through interviews and review of secondary data sources. Direct observations, Focus Group Discussions (FGDs) and ground truthing further enhanced qualitative data from these sources. Quantitative approach involved use primary sources by administering questionnaires to households and also analysis of secondary sources. The questionnaires were analyzed by use of Statistical Package for Social Sciences (SPSS) to generate descriptive statistics.

### **2.1.1 Key Informant Interviews (KII)**

Key informant interviews were held with officers from key government and non-governmental organizations working West Pokot County. Non-affiliated persons who were considered knowledgeable in the subject matter were also consulted. Targeting was done through the County Steering Group (CSG) forum coordinated by National Drought Management Authority (NDMA). These included but were not limited to: NDMA staff, Assistant County Commissioners, staff drawn from sectors including agriculture, livestock, water, education, health and security. Humanitarian organizations implementing sectoral interventions with the communities were also interviewed by use of KIIs guide (Annex I).

### **2.1.2 Focus Group Discussions (FGD)**

The study conducted six (6 No.) FGDs in the two sub-counties of Pokot North and Pokot West as shown in table 1.1 above. The discussion groups comprising men, women and youth provided information using an interview guide (Annex II). This diversity of participants was meant to solicit and record the views of a maximum number of rural livelihood groups. In some instances, disaggregation by gender was done due to cultural sensitivity and to allow greater freedom of expression by the participants, particularly women. Focus group sizes ranged from 5 to 9. Communities were informed of the study by the CDMC members.

### **2.1.3 Semi Structured Household Questionnaires**

The study also used semi-structured questionnaire which was administered to households (Annex III). In cases where the head of the household was absent, the questionnaire was administered to another household member present. Thirteen (13) questionnaires were administered.

### **2.1.4 Document Review**

Project reports and other publications focusing on literature relating to early warning early action research were sought and used. It is an accepted operation technique in applied science research to use documentary reviews as sources of data and information. Some of the materials reviewed had used mixed research methods such as questionnaires, surveys and interviews.

### **2.1.5 Sampling**

Sampling was done in the two sub-counties of Pokot West and Pokot North.

## **3.0 HAZARD/RISK PROFILE**

West Pokot County is disaster prone; the most common disasters experienced are triggered by hydro-meteorological and environmental processes leading to hazards such as floods, droughts, landslides, lightning and earthquakes. Poorly managed agricultural and environmental practices including overgrazing, deforestation, irrigation and mining have left fragile ecosystems even more vulnerable. Climate change is exacerbating these hazards, increasing their variability and scale of impact. Human induced disasters such as conflicts, transportation accidents, fires and civil unrest are also frequent.

### **3.1 Climate related Hazards**

Temperatures have risen throughout the county. Rainfall has become irregular and unpredictable, and when it rains, downpours are intense. The impact of climate change in West Pokot County is mostly manifested by flooding, prolonged drought and landslides. Parts of Kongelai and Sigor divisions have experienced adverse soil erosions with huge gully erosion, while landslides and flooding frequently affects parts of Muino, Sondany and Ptirap in Pokot Central Sub-County<sup>1</sup>. Due to rising demand for forest products as well as poverty and urbanization, there has been an upsurge in encroachment in forest and water catchment areas, charcoal burning and deforestation. This has in effect led to increased desertification.

#### **3.1.1 Drought**

The frequency of drought in the region is high. In most cases, the community members are caught unprepared and the level of devastation is high. The intensity is so high that it results in migration of families and widespread suffering. It leads to loss of livelihoods when livestock die. Livestock keeping is the key livelihood for the Pokot.

When drought sets in, men move with their livestock to Lake Kyoga in Uganda in search of pasture. The migrating families often live in the new environments for years and this causes environmental stresses that usually result in conflict. Women are left with the burden of taking care of the families<sup>2</sup>. Boys stop going to school because they have to accompany men in herding, loss of livestock and often humans.

#### **3.1.2 Floods**

Flooding in the county causes submerging of land, leading to property damage and often forces evacuation of people and vital resources. In parts of the county, floods develop slowly as rivers swell during an extended period of rain.

Mostly it happens when rivers or streams overflow their banks. Parts of West Pokot have suffered from failure of the annual rains, however, In 2011 the region experienced a higher than expected rainfall which resulted to flash floods with many parts of the county leading to loss of Livestock, houses and pasture. The surface runoff is usually extremely high, which often causes interruption in major livelihood activities.

#### **3.1.3 Flash Flooding**

In 2018, River Suam flooded killing livestock and washing away crops. People therefore opted to cultivate farms that are away from the river regime. The current drought in the area makes it difficult for farming practices in areas the community members targeted for cultivation.

#### **3.1.4 Diseases**

Human and Livestock diseases contribute greatly to the underdevelopment of the region. Typhoid and diarrhoeal diseases that are frequently experienced are caused by poor hygienic

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<sup>1</sup> West Pokot County Integrated Development Plan 2018 - 2022

<sup>2</sup> Draft National Disaster Management Policy, Kenya, 2009

practices among households. Brucellosis is also common among these pastoralist communities. Trachoma has been a major challenge to the residents, especially those living in rural areas. The health worker (doctor, nurses and midwives) population ratio stands at 1:1563 as compared to the 1:400 ratio recommended by the World Health Organization. This coupled with the average distance of 25Km to the nearest Health facility makes access to quality health poor<sup>3</sup>. Livestock management systems in the ASALs rely extensively on natural systems such as rain fed pasture. These livestock systems are very climate sensitive, being vulnerable to the impacts of changing and irregular rainfall patterns and droughts<sup>4</sup>.

### **3.1.5 Conflicts**

Violent conflicts are a major risk in the county, especially along the borders. Most of these conflicts cause loss of life, land and loss of property. Most raids involving livestock are experienced with members of neighboring communities. This cultural practice results in loss of lives, displacement of persons, loss of property and other serious socio- economic effects. It is becoming more violent, sophisticated and destructive.

Violent conflict poses a significant threat to pastoral livelihoods which are already under pressure from recurrent drought, diseases outbreaks and previous political marginalization. Karamojong people from Uganda steal livestock at night and kill the Pokots. The community members also lose lives when they cross the Kenya – Uganda border in search of pasture.

### **3.2 Nexus between Drought and Conflicts in West Pokot**

The study sought to find out the extent conflict cases resulting from the current and previous droughts (2017 – 2019). Serious issues of conflict were cited between the Pokot, Turkana and Karamajong of Uganda over pasture and water resources. Interviews with administrators and local chiefs indicated there was serious conflict between Turkana and West Pokot communities leading to loss of lives and cattle rustling. At household levels, cases of theft of livestock have been on the rise particularly in Pokot North Sub-county (Kacheliba).

Further probing of the local administrators revealed that peace accords exist between these communities to enhance peaceful co-existence and harmonious sharing of resources. The peace accord between Kenya and Uganda allowing the Pokot and Turkana from Kenya to access grazing grounds in Uganda during drought was hailed as an excellent model. This has been operating and during drought, it is estimated that over 70,000 Pokot and Turkana herders migrate to Uganda with their livestock in such periods. Due to such migration, a number of the livestock escaped deaths in the recent drought but a number of goats and sheep which had remained in the county had the highest mortalities.

KIIs indicated that the peace accord between the Pokot and Turkana has been violated on various occasions leading to conflicts, displacements and cattle rustling. At household level, it was noted

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<sup>3</sup> West Pokot County Integrated Development Plan 2018 - 2022

<sup>4</sup> Draft National Disaster Management Policy, Kenya, 2009

that *Nyumba Kumi* initiative has occasionally supported peaceful coexistence. However, at the height of drought, most households moved away from their residents thus hampering the effectiveness of the initiative.

### **3.3 Market Dynamics**

Analysis of the market prices of various livestock units during droughts revealed that the prices of cattle dropped by between KSH 5,000 and 20,000 per unit. The unit price of goats and sheep dropped by up to KSH 2,000 per unit. Generally, market prices of camels and poultry units are minimally affected. Interviews during FGDs indicated that poor market prices were as a result of poor livestock body condition. The households' purchasing power was reduced substantially thereby contributing to household food insecurity, adoption of negative coping mechanisms and migration.

### **3.4 Vulnerability Factors**

Climate change has worsened water scarcity with subsequent impacts on pastoral and agricultural livelihood systems. Potential impacts include declining forest coverage, of water quality and quantity through the destruction of catchments and underground aquifers reduced water quality and quantity.

Environmental degradation is a major risk in most parts of the county. Some of the major contributors to the degradation include steep and rugged landscape, poor road network, unsustainable farming methods, human encroachment of the protected areas, charcoal burning, overgrazing and deforestation. Effective protection and conservation of environmentally sensitive areas (degraded lands, protected areas, water catchments, hilly terrains etc.) which has been undertaken by both government agencies and NGOs has also been aggravated by insufficient and untimely funding. The impact of poor waste disposal is evident in all centres, especially Makutano trading centre, where there is no sewerage system. Charcoal burning is largely prevalent in Kongelai, Marich and Sigor. Human encroachment into forest has adversely affected Pokot South Sub-County.

#### **3.4.1 Agriculture**

Rain-fed subsistence agriculture, which is the main livelihood in many parts of the county is significantly impacted by unpredictable rainfall, reduced soil productivity through erosion and increased evapo-transpiration. The region is projected to experience a significant decline in crop yields.

#### **3.4.2 Livestock Development**

Livestock in the area traditionally relies on natural systems such as rain fed pasture. These livestock systems are very climate sensitive, being vulnerable to the impacts of changing and irregular rainfall patterns and droughts. Greater drought frequency in the ASALs increases livestock morbidity and mortality because of reduced availability of forage, increased disease incidences and a breakdown of marketing infrastructure.

### 3.4.3 Physical Infrastructure

The adverse impacts of climate change significantly affect improvement programmes that have been set for infrastructure facilities. Integration of climate change risks and opportunities in the design, operation and management of infrastructure has not been undertaken.

### 3.4.4 Poor Road Networks

Most roads in West Pokot are still in deplorable conditions. This is due to the fact most of these roads are not of bitumen standard and as the conditions worsen during rainy season.

Bad roads and poor infrastructure is the main obstacle to development in most ASAL counties.

The road linking Makutano and Alale through Kacheliba is currently under construction and motorists are using diversions in most of the sections. Feeder roads that are essentially earth roads are at times rendered impassable due to washout by flash floods.

### 3.4.5 Weaknesses in Disaster Management Capabilities

The linkages on disaster management capabilities between local communities, on the one hand, and sub-county and national levels, on the other, are weak. Additionally, the general degradation of traditional African socialism and livelihood systems has resulted in the progressive erosion of the traditional coping strategies.

The community has not been sensitized sufficiently on disaster management and risk reduction, especially, in on preparedness and coping mechanisms thereby increasing vulnerabilities and potential impacts on the community members.

## 3.5 Environmental Hotspots

The county major environmental hotspots include massive soil erosion, unpredictable weather patterns, resource-based conflicts, water pollution, air pollution, reduced agricultural outputs/yields, increased drought incidence/desertification, reduced and diminishing forest products and flooding.

## 3.5 Sector /Subsector Development Needs, Priorities and Strategies

The priorities for county, mainly peace and security over period include; promoting community policing in the County through *Nyumba Kumi* Initiative, support opening up of more security roads, promoting and supporting the establishment of more water points for animals, establish more police stations/posts and promoting education, promoting climate change adaptation and mitigation programmes to help in reducing resource based conflicts ,creation of peace and reconciliation committee at the grass root level.

## 4.0 FINDINGS

Data collection for the analysis of community disaster early warning systems for early action in west Pokot County Kenya was conducted in the month of May 2019. The study was largely qualitative in approach. The subject matter was interrogated using KIIs and FGDs while also focusing on the level of integration between the conventional approaches and the indigenous EWEA systems.

#### **4.1 Operating Environment of the EWEA Institutions in the Project Area**

The effectiveness of the early warning largely depends on the organizations and mechanisms that control processing of information received and response. The players could be the government or NGOs, although often it could be a combination of both. Where there could be mistrust or suspicion between the two entities, then each works differently, creating duplicity in some cases.

##### **4.1.1 Kenya Meteorological Service (KMS)**

Skillful and timely weather forecasts can help the government and communities mitigate the negative impacts of severe weather events through proper planning. This is the essence of an effective early warning system. The basic idea behind early warning is that the earlier and more accurately we are able to predict the likelihood of occurrence of natural and human induced hazards, the more likely we will be able to manage and mitigate a disaster's impact on society, economies, and environment. The warning lead-time should be sufficient to allow appropriate measures to be put in place.

Despite the existence of wide knowledge on the hazards that cause disasters in West Pokot, disasters have continued to cause destruction, sometimes, leading to loss of lives among these communities. Year after year, the frequency and severity of such disaster have continued to rise. Whenever disasters associated with the weather occur, they often lead to massive destruction of property, displacement of populations, disruption of socioeconomic activities, migration, deaths, and many other miseries. The effectiveness of the early warning largely depends on the organizations and mechanisms that control the processing of information received and corresponding response. The players could be the government or NGOs, although often it could be a combination of both. Where there could be mistrust or suspicion between the two entities, then each works differently, creating duplicity in some cases. The diversity of climate and weather currently being experienced throughout the country need various approaches in designing the program. The long-term desertification, expected higher temperatures, loss of land under rain-fed agriculture, rising population, and uncertainty in the economic development motivate the need for an all-around approach. In the short term, drought and flood cycles, too little water or too much water, cause crop failure leading to unsustainable food supply and insecurity.

Accurate warnings will have no impact if the population is not prepared or if alerts are received and not disseminated by the agencies receiving the messages. This study considers that the monitoring, analysis, and dissemination of weather information to the stakeholders by KMS is crucial in early warning early action framework. Dissemination of weather information is the critical in constructing climate resilient societies especially in such areas that suffer major weather-related hazards.

Most of the products of KMS are highly time sensitive and thus need to be disseminated to the users in the fastest modes possible. Faster communication of weather information has proved to be a major challenge to many weather and climate organizations, although Kenya has developed a vibrant communication system. The channels used in the dissemination of the meteorological

products in KMS include press releases, interaction with media personnel, radio and TV channels, email services, government line ministries, website, and social media. At the county level where KMS has now decentralized its services, the information flow channels are offices of the county directors of meteorology, radio (currently on air in West Pokot is Kalya FM, Kass FM and Radio Kokwo), Internet communication projects, Community Based Organizations, sub-county development committee meetings, and chiefs' "barazas."

Different regions require different weather information. KMS produces various forecasts and early warning products. They include historical and past climate records, real-time and near-real-time weather information, now casting for airport services, short-range weather forecasts, medium-range weather, long-range weather forecasts, and climate predictions. KMS also provides climate change information and severe weather advisories. This information helps in identifying suitable activities for specific areas and period to reduce weather related risks.

The critical concern is that there is inadequate observational network and poor spatial coverage. Some remote areas especially those located in ASALs such as West Pokot County hardly have weather measuring/recording stations/equipment. Incidentally, these are the same areas, where weather information is of utmost importance for planning pastoral and agro-pastoral activities due to the high variability of the weather parameters in the region. To ameliorate this, rehabilitation of the existing observational networks and installing new stations to ensure a dense network is encouraged. For the remote areas, automated stations are a good choice. KII with Meteorological Director in West Pokot informed the study that KMS is in the process of expanding the network despite being at a slower pace. It also collaborates with other stakeholders with observational platforms such as remote sensing and other institutions.

#### **4.1.2 KOMESI Women Network CBO**

KOMESI Women Network is a CBO that partners with AAIK in a Local Rights programme. The CBO plays a cardinal role in the fight for the rights of women especially in prevention of Female Genital Mutilation (FGM), educating/enlightening women to participate in alternative livelihoods, sensitizing the people against early marriages and educating women about their roles in the family and in the society. Each location has an office run by five (5) officials. This office discusses matters in the location and plans for its own activities and report to main KOMESI office at Kongelai. The organization's twenty-five (25) officials meet once in a month and annually to review matters relating to the organization. Some of the activities include table banking; it organizes campaigns in FGM-prone areas to sensitize community members about the dangers of FGM and in areas with other challenges in order to assist people out of these problems. KOMESI sensitizes the community through schools, *barazas* and churches. They work with the local administrators (*nyumba kumi*, village elders, chiefs and assistant chiefs), Ward Administrators, education office, Ministry of Health, County Government of West Pokot, the police and Children's Department.

#### **4.1.3 Pastoral Livelihoods Resilience Project (RPLRP-Kenya)**

The Government of Kenya through the Ministry of Agriculture, Livestock and Fisheries is spearheading the World Bank aided Regional Pastoral Livelihoods Resilience Project (RPLRP-

Kenya), with the objective to enhance livelihoods resilience of pastoral and agro pastoral communities in cross border drought prone areas of selected countries and improve the capacity of the selected County Governments to respond promptly and effectively to Emergencies. RPLRP (Kenya) is focused on building and strengthening linkages between regional institutions, such as IGAD and AU, and the Ethiopian and Ugandan Governments to better tackle issues that affect communities in the ASALs, with a specific focus on sub-regional issues, including those related to Natural Resources Management, Market Access and Trade, Livelihoods Support, Pastoral Risk Management and Project Management and Institutional Support. In line with the demands of the Constitution of Kenya 2010 which ushered in devolved governments, most Agriculture related functions were transferred to the county governments.

Through this project, The GoK is committed to supporting pastoral and agro-pastoral communities in their efforts to reduce vulnerability to drought related shocks through participatory approaches, based on democratic governance principles. The contribution of affected communities is essential to the success of RPLRP (KENYA) because they have often faced severe droughts that strike with increasing severity each drought cycle. Mechanisms for equitable and effective participation of vulnerable and marginalized groups such as women and youth in Natural Resource Management, Market Access and Trade, and Livelihoods are being enhanced in order to boost the delivery of tangible benefits and the long-term sustainability of RPLRP (KENYA). West Pokot County is one of the selected counties in which this project is being implemented.

The current IGAD DRM Strategy 2019 -2030 provides for avenues through which the cross-border issues affecting West Pokot County can be adequately addressed. For instance, the Implementation Structures provides for a Multi-Stakeholder representation and composition. The strategy identifies the various organs and institutional frameworks as essential for the implementation of the strategy in the region including IGAD Specialized institutions and Programmes, IGAD DRM Unit/Programme where RPLRP is housed.

The IGAD policy organs are the IGAD Summit, IGAD Council of Ministers and IGAD Committee of Ambassadors. IGAD Council of Ministers are empowered to establish sectoral ministerial committees under Article 10, Section (3) establishing IGAD. Article 13A shall guide the activities of the committee's section (r) which states:

*“At national level and in their respective relations with one another, be at all times be guided by the objectives of saving lives, of delivering timely assistance to people in distress and of alleviating human suffering. In this regard, Member States shall facilitate the movement of food and emergency supplies in the event of man-made or other natural disasters from surplus to deficit areas”.*

Further, Article 13A, section (t) states:

*“Workout programme and projects that would help establish a relief, rehabilitation and development continuum”.*

Clearly these policy organs within the IGAD provide a seamless flow of information and ideas between the county and the IGAD secretariat for targeted and timely assistance to the community.

#### **4.1.4 National Drought Management Authority (NDMA)**

Kenya has made reasonable progress in developing its early warning systems. Institutions such as the Kenya Meteorological Department, FewNet and NDMA are well established. The Ministry of Devolution and Planning through NDMA has a coordination and implementation role for DRM activities at the county. NDMA works with NDOC, Directorate of Special Programmes (DoSP) and any other Disaster Risk Management Institutions that may be established to ensure effective coordination at national and county level.

The main challenge has been linking the existing EW mechanisms to policy makers and communities for early action. As the secretariat of the CSG platform, NDMA should desire to support strengthening of existing early warning systems and where possible harmonizing and linking the information to relevant authorities and communities at risk. There should also be focus on developing community and county level contingency plans. Much focus should be on the following activities:

- Assess existing tools and practices for risk management and early warning and support their harmonization with existing conflict early warning tools and frameworks;
- Strengthen risk analysis capacities of the community and county government;
- Support local communities and the county government to develop risk and hazard maps for each sub-county and strengthen DRM database at the county;
- Explore the development of a comprehensive community based early warning and risk awareness framework that explores the range of shocks in a multidimensional way; and
- Support communities and the county government to develop and/ or update disaster response contingency plans for all hazards and link them to the county contingency funds.

## **4.2 Linking EWEA Practices, Strategies, Policies and the National Agenda on DRR**

### **4.2.1 KMS Weather Outlook Bulletins**

KMS has a series of activities geared towards weather early warning. The link between weather institutions and policy decision takers both in government and in NGOs with the local communities strengthens access to weather information. For the information to be beneficial, it is paramount that the early warning in KMS be strengthened and improved. Building credible weather data inventories and identifying and continuously monitoring risk indicators, for example, rainfall, temperature, and the vulnerable local residents, are prerequisites for successful early warning.

#### **4.2.2 Conflict Early Warning Early Action Mechanisms**

The Kenyan Conflict Early Warning and Response Mechanism (CEWARN) is adopted from the Intergovernmental Authority on Development (IGAD) CEWARN. The system conducts conflict monitoring by receiving and analyzing information from Peace Actors (local peace structures) that operate across the counties and in conjunction with the media. The conflict early warning information generated is disseminated to different actors for possible action. The study found that there is no one institution at county level charged with the coordination and management of CEWARN data. This results in delay in responses, which goes a long way in undermining early recovery from such events and development at scale.

Notably, the government (both National and County) have in the recent months resolved to promote Peace Early Warning Mechanisms. Peace Early Warning Mechanisms involve the monitoring and analysis of specific conflict factors that sustain peace. The community is then involved in monitoring when these peace indicators stop prevailing hence forecast an impending conflict. Indigenous knowledge is still intact amongst the Pokot Community in West Pokot County. The community has a vast body of knowledge on conflict early warning indicators and resolution mechanisms that are part of a well-structured, time-proven social system inclined towards reconciliation, maintenance and improvement of social relationships. The methods, processes and regulations are deeply rooted in the customs and beliefs of the people. However, the knowledge and skills are not applied to mitigate prevailing risks.

#### **4.3 The Level of Synergy among Organizations for Purposes of Climatic Hazards Risks Redetection in the Project Area**

The study noted that there are a number of sectoral early warning systems operating in West Pokot County. The study focused on the active role Kenya Meteorological Service KMS plays in providing weather related information. KMS provides early warning information for the utilization in virtually all sectors of economy, which are sensitive to weather anomalies using the most current state-of-the-art technology.

#### **4.4 Review of Best Practices on Synergy and Harmony between the EWEA and Meteorological Departments/Organizations to Support Learning Good Lessons**

KMS utilizes the services of volunteer weather observers across the country. New techniques are emerging as technology evolves. It is very difficult to provide location specific forecasts. KMS lacks modern facilities for data analysis and integration of products necessary to overlay various products for realization of more accurate forecasts. Therefore, there is need to improve and refine the weather models used and enhance the capacity in numerical weather prediction and dynamical modeling as well as the remote-sensing techniques. Ultimately, KMS should acquire modern facilities for data analysis and information presentation.

There is limited clarity on what forecast formats are best suited to user needs although it is known that the optimal format may vary between applications. Use of information, once received, is not straightforward and if inappropriately used may lead to further difficulties. Production and delivery systems are somewhat fragmented and consequently it is sometimes difficult for forecasts to reach those end users who may have particular need for the information. End users

often perceive a need for temporal and spatial detail (e.g., exact rainfall amounts, onset, and cessation dates) in the prediction that currently cannot be achieved with much accuracy. Best method from the scientific perspective of delivering outlooks is through probabilistic approaches. Probability forecasts, however, are often viewed as being difficult to understand and act upon. To overcome this problem, meteorologists should consider linkages with end users of forecast information to develop user-oriented products, communicate the information in the user's local languages (particularly the pastoral communities), and develop techniques for of the user communities on the benefits of using weather information raising the awareness in decision-making. There is need for improvement of the modes of communication, for example, short messaging service (SMS) and common alerting protocol (CAP). Through collaborating with intermediaries, KMS is able to disseminate weather information services to county and sub-county levels using modern technology available, that is, SMS at reasonable speed and cost.

#### **4.5 AAIK Strategy for Gaps Identification in EWEA Practices**

AAIK runs programmes that support Early Warning and Early Action in the area. KOMESI Women Network partners with AAIK in a Local Rights programme. Activities include educating/enlightening women to participate in alternative livelihoods, sensitizing the people against early marriages and educating women about their roles in the family and in the society. KOMESI sensitizes the community through schools, *barazas* and churches. They work with the local administrators (*nyumba kumi*, village elders, chiefs and assistant chiefs), Ward Administrators, education office, Ministry of Health, County Government of West Pokot, the police and Children's Department. They have structures, though undeveloped, that can support integration of traditional and conventional Early Warning Systems.



**Plate 4.1:** KOMESI Women Network Rescue Centre, a Capacity Building Facility for Women Empowerment

#### 4.5.1 Role of KOMESI as a Community - Based EWEA Structure

An important element of EWEA is community awareness and participation. Awareness of potential risks and the desire to live in safe spaces help motivate development of community own mitigation, Knowledge of what to do in the event of an emergency can be increased by regular drills and public awareness programmes. Community firefighting, search and rescue, and first aid training groups can also be formed.

Community organizations such as KOMESI should develop plans to prepare and react to the emergencies. The plans might include the following elements and activities:

- identifying and training teams for search and rescue operations;
- ensuring the rapid availability of response personnel and equipment where applicable;
- identifying and training teams for disaster risk assessments;
- identifying safe sites and emergency shelters where vulnerable populations could be relocated – (e.g. KOMESI building in plate 4.1);

- training personnel in trauma care and first aid;
- planning for an alternative water supply;
- preparing plans to clear roads and routes for emergency access;
- preparing emergency communication systems and messages to the public regarding their security;
- training teams to determine if villages are safe for re-occupancy especially after conflicts
- preparing flood plans for susceptible areas (e.g. river Suam) ;
- coordinating preparations with voluntary organizations (AAIK, KRCS etc).

#### **4.6 Community Early Warning Systems**

The framework of early warning systems is composed of three phases: monitoring of precursors, forecasting of a probable event, and the notification of a warning or an alert should an event of catastrophic proportions take place.

Among the Pokot community, indigenous early warning systems are deeply embedded in their culture. The Pokot community has long-standing indigenous knowledge that enables them to live in changing and challenging situations. The community for many centuries and through many generations has accumulated a good wealth of knowledge that can be of crucial importance in addressing the major impacts. The knowledge had, and still has, a high degree of acceptability amongst the majority of population.

Communities possess a broad knowledge base in their own localities. The indigenous early warning knowledge systems are a repository of intergenerational knowledge that is based on observing and experimenting with nature. In West Pokot, communities' ability to predict and interpret changes using indigenous knowledge has been vital to their livelihoods, survival and well-being. Communities rely on their indigenous knowledge as a buffer against turbulent changes, allowing them to identify, predict and adapt accordingly. Indigenous knowledge is therefore an essential element in the development process and livelihoods of many local communities.

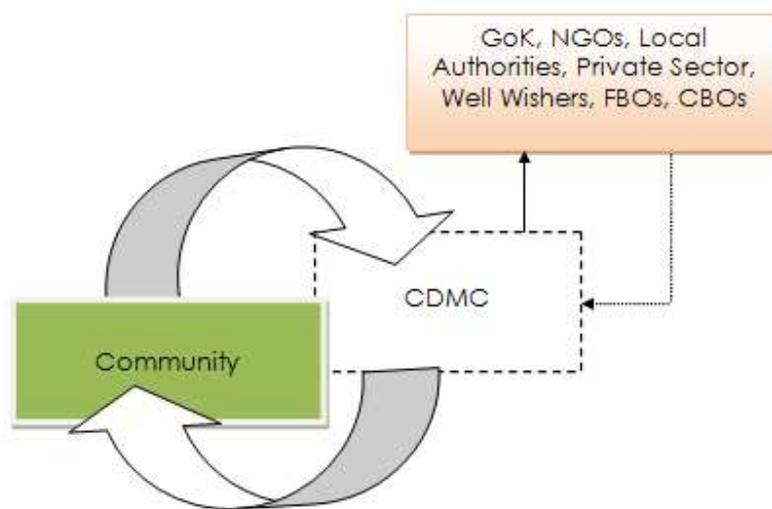
The indigenous early warning systems represent the whole body of knowledge among agro-pastoralist and farming communities to anticipate the coming of hazards and risks and thus enable them to mitigate the effects on the environment, lives, food security, livelihoods and nutrition. Indigenous early warning systems have helped communities to survive for generations. This study however, makes an early concern that the indigenous methods are slowly fading with the changes in civilization and religious ideologies.

##### **4.6.1 Kongelai Community Disaster Management Committee (CDCM)**

CDMC is community managed initiative in the quest to place communities at the helm of managing disasters. AAIK recognized that communities are better placed in understanding the risks and hazards that face them on a day- to- day basis and communities are normally among the first responders when disasters strike. It is because of this important role played by communities that necessitated the formation of CDMCs in Kongelai area. The committee has

been informed and trained on issues of community disaster management. The Kongelai CDMC was formed in 2014 with the aim of empowering the community to take the leading role of disaster management effectively. The committee comprises of members spreading across the entire ward and cutting across gender and age. Within the committee there are various teams charged with unique responsibilities on issues of community disaster risk reduction.

The CDMC draws annual work plans for the community and the activities outline are implemented with the support of partners which include GoK (National & County), NGOs, Local Authorities, Private Sector, Well Wishers, FBOs and CBOs operating in the area of interest. At the time of the field visits it was evident that the CDMC was the link EWEA structure between the community and actors drawn from state and non-state organizations.



**Figure 4.1:** *Community Partnership Structure for EWEA Operational Environment*

#### **4.7 Role of Traditional EWS in Community Disaster Preparedness and Mitigation Plans**

The role of traditional knowledge in disaster preparedness and mitigation plans is critical in many ways. First, traditional knowledge employs information which is already possessed by communities and which is valuable to Disaster Risk reduction. In West Pokot County, the local communities have accumulated a wealth of experience and information regarding prediction, reaction and recovery from risks and hazards. The traditional wisdom, knowledge and practices of communities gained over time through experience and orally passed on from generation to generation – has over the years played a significant part in solving problems, including problems related to climate change and variability. Communities often observe the activities around them and are the first to identify and adapt to any changes.

Communities in West Pokot have indigenous systems and mechanisms of dealing and coping with hazards and risks. The indigenous practices rely heavily on repeated observations of nature and natural processes and surrounding and help predict future trends and events, some of which could be threats. The indigenous early warning systems include indigenous prediction practices that are based on indicators established over generations through keen observation.

They range from changes about the weather conditions, cloud movements, wind direction, sun, moon, stars, insects, seasons, and the feeling of human body, activities of animals and birds and any specific changes occurring in the development of plants. The communities recognize unique situations associated with behaviour of the above, and locations and patterns of clouds, wind, the moon, the sun and stars. The predictions based on the indicators and human feelings support the indigenous early warning issued by the elders to enable the communities cope with the anticipated natural hazards.

Indigenous early warning systems improve early warning, hazards and risks identification and as system to foster or trigger appropriate and timely disaster risk reduction action at different levels.

Indigenous early warning systems are based on three precepts:

- (i) Detailed knowledge of exact arrival of the major hazards and risks – understanding the forecasting and probability of future based on variance in the wind;
- (ii) The interpretation of behaviours which serve as valuable indicators. Local communities can forecast major hazards and risks before they arrival;
- (iii) Observed historical trends allow for reasonable predictions of future patterns. However, the increasing severity and frequency of hazards and risks over the last few decades have rendered this latter form of forecasting less reliable than it was in the past.

Communities are for instance able to effectively predict and forecast impending events, calamities and disasters early enough by watching nature and associated behaviour of animals and plants. They are able to sound an alert in a timely manner to enable the communities to adjust and cope with the coming disasters.

Processes of urbanization, development, displacement, formal education and changing religious ideologies have all contributed to the decreasing practice of traditional early warning systems, early warning indicators and coping strategies. Because the knowledge is in many cases preserved as an oral tradition, the increasing absenteeism of youth from communities and the decreasing practices of indigenous knowledge pose a threat to the continued existence of this body of experience.

#### **4.7.2 Community Participation and Contribution in EWEA**

This study established that the Pokot community has a rich repository of indigenous early warning indicators that are useful in the prediction and fore sighting of future events including disasters that are of negative impacts to normal functioning of the community systems. Most of these indicators are based on behavioral observation of domestic and wild animals, people, environment and state of celestial bodies. Much of this body of knowledge remains undocumented but can be retrieved from oral sources as shown in table 4.1 below.

**Table 4.1: Indigenous Early Warning Indicators among the Pokot Community**

	<b>Indicator/Observation</b>	<b>Interpretation</b>
1.	Prophet(foreteller) seers ( <i>Werkoyon</i> )	He/ she can predict future events through dreaming and this gift is only bestowed on a specific clan
2.	Livestock behavior	Livestock are anxious and have a reduced appetite as they keep on raising their heads while grazing is interpreted as anticipation of danger
3.	Braying of Donkey	Although it is a fact that donkeys like to bray in the morning or evening, braying consistently especially at odd times of the day and wee hours of the night (1-4 am) could be associated with occurrence of unusual/suspect events
4.	Barking of baboon	Whenever baboons bark at night, it is an indication of presence of a stranger
5.	Examination of goat intestines	Elders or gifted community members examine goat intestines' position to predict threats of attack as well as remedy to forestall such threats. This is a secret thing and a few gifted members of the clan would wish to remain anonymous. Traditionally this was a big event. A goat skin was shared among the people to wrap around their wrists as a way of welcoming the rains and chasing away bad omen
6.	Rock Hyrax	Noise by Rock Hyrax in the night is an indicator of strangers and hence possible attacks
7.	Moon	Appearance of reddish color in the new moon is associated with calamities to occur within that month
8.	Morning drizzles	It is believed that when rain drizzles in the morning it is a sign of tears and killing or raids likely to take place
9.	Throwing of shoes	An expert in shoe throwing can predict future events of destructive nature, example if the shoe is thrown and lands with the front pointing on "enemies" direction then it is interpreted that enemy is coming
10.	Rainbow	The Pokot community believes that when the sun is surrounded by a rainbow it indicates an impending disaster
11.	Footprint	The Pokot community wears shoe designs that are different from their neighboring communities whom they perceive as "enemies" therefore if the footprint of an "enemy" is found within the Pokot territory then it's a sign of an impending raid
12.	Migration of Elephants	It is believed that Elephants are sensitive animals, they can predict drought, once Elephants migrate the elders anticipate a drought
13.	Singing of women	In pastoralist communities, women can provoke young men by singing songs that incite them to undertake cattle rustling

14.	Rain season	Pastoralist communities during the dry spell often call for a peace truce so that they can share the little resource at conflict hotspots and boarder regions. However, once the rains start peace concessions are mutilated and raiding begins so as to replenish stock that could have died due to drought or simply to expand herds which are linked to higher social status
15.	The behavior of the <i>male</i> and <i>female</i> stars	Whenever the male star takes lead and is followed by the female star and a small star (child) it rains. The recent observation is that the female star is ahead and therefore the male is complaining that the female one is urinating on him and therefore there is no rain. Notably the small star (child) has been apparently missing hence there are no rains. Traditionally the people could sing some songs and the child comes out but today this is not always the case
16.	Position of the sun	Positioning of the sun at some place between some hills signifies rains and if not signifies drought
17.	Direction of wind	If wind blows from Ugandan side to Kenyan side (Pokot and Turkana) then it is accompanied with rains. If it blows in the reverse direction then it takes away the rains
18.	Singing of birds	When some birds migrate from Turkana/Pokot to Uganda is an indication of hunger <i>Teltel</i> birds sing to indicate a coming conflict
19.	Cloud cover	Blue clouds indicate oncoming droughts and white clouds indicate on-coming rains
20.	Direction of lightening	Lighting in the side of Mt. Elgon and Turkwell indicate on-coming rains. This rain normally comes within a few hours.

**(i) SIMAR – An Annual Early Warning Ritual of the Pokot**

Simar is an old age annual cultural event conducted by the Pokot community where burnt offerings are made and the resultant smoke movement and characteristic is keenly studied by the elders to give interpretation of events and happenings of the year that are likely to affect the community in one way or another. To a larger extent, Simar has been useful in prediction of rainfall partners and other weather/climate related events. The event is normally held at a strategic central location in a place popularly referred to as *Mwino* Shrine in Lelan, Pokot Central Sub-county.

**(ii) Putyon Rite**

To further ensure the community is protected from deluge a ritual called '*putyon*' was performed. In this ritual, elders advised the community to sacrifice a goat of a specific colour to the *gods* so as to protect the community from external attacks and disastrous events. Warriors were also sent to survey the community's territory and borders so as to look for presence of foreign (external) shoe footprints made by the warring neighbouring community. It was also noted that women especially girls were catalyst of conflicts as they often sang songs that praised successful warriors and ridiculed those considered as under performers in cattle raids. Warriors who had

killed enemies were spoon-fed by girls and given special goatskin clothes (*Atele*) as a sign of honour. Brave warriors were also smeared with special oil made from milk or animal fat on their foreheads. Such practices were noted to prompt warriors to engage in cattle raids and kill as many enemy warriors as possible so as to be considered brave in the eyes of the girls and society. Further in-depth discussions with community elders revealed other superstitious beliefs that pre-empted misfortunes, for instance if such animals like warthogs crossed paths of warriors on a raid mission, they would abandon the raid as a warthog is considered a bad omen and such raids would certainly fail. Similarly, warriors falling sick suddenly before a raid and if a tree fell on the path of warriors on a raiding mission were all seen to spell doom.

### **(iii) Indigenous Peace Building Initiatives**

The study found that Inter-community meetings and negotiations were extremely important in preventing inter-ethnic conflicts. During the dry season, the Pokot engaged in peace seeking missions with other communities as dry season grazing areas are often located in other communities' territory. The study established that even after brokering of peace pact through the council of elders, sometimes conflicts flared up depending on the intensity of the socio-economic hardship the communities were undergoing.

Peace building initiatives in West Pokot County have been enhanced by Tegla Lorupe Peace Race Foundation which was founded in 2003 by the renowned world athlete Tegla Lorupe, who is a member of the Pokot community. This peace initiative engages warring communities in sporting activities as well as sensitizes them on the importance of peaceful coexistence. The rival communities, through the help of the foundation, organize annual cultural fashion shows and peace races which bring together the Pokot, Turkana (both from Kenya) and the Karamoja (Uganda) communities.

The study also learnt through interviews and secondary literature that Pokot elders-initiated negotiations with enemy communities. Such meetings involved highly respected community elders. The elders tabled their collected intelligence information while negotiating for peace. If convinced that the consultations were genuine especially when there is a traditional peace pact between the said communities, the respective elders would promise to go back home and advise their warriors (*Ngoroko*) to abandon the planned raid. During this meeting, neutral communities were sometimes requested to act as mediators and arbitrators. Decisions were made by consensus.

Among other things, the elders came up with a compensation scheme to appease affected communities in case there was a revenge or retaliation attack planned after the death of a community member. For instance, the elders could agree that the concerned community would pay 100 heads of cattle to the family of the slain person as compensation. The compensation scheme is not uniform as supported by various literature. For example, between the Pokot and Turkana communities the compensation is currently at 100 cattle for every slain person while between the Pokot and Marakwet, the Kolowo declaration puts the figure at 40 cows. The Pokot community usually enters into peace pacts during the dry season. The peace pact allows them access to pasture and water in the neighbouring communities territories. After the elders agree

that a peace pact has been brokered, the communities are asked to donate bulls, milk, honey and come with “instruments of death”. During the material day of the ritual, the donated steers are slaughtered. All the instruments of death that is spears, arrows, bows, knives, and swords are collected destroyed and are buried in a pit with a mixture of milk, honey, traditional beer and intestinal fluids. The mixture is then buried while elders from the concerned communities verbalize curses to whoever flouts the brokered peace pact.

However, despite all these elaborate rituals sometimes the youth who mostly take part in raids undermine the elders’ authority when the rainy season sets in and engage in commercial driven cattle rustling. Despite women being identified as one of the conflict instigators, KIIs and FGDs revealed that women also play a key role in conflict prevention and resolution. For example, conflicts between Pokot and Marakwet came to an end during the period when a Marakwet woman Honourable Chebii Kilimo became a Member of Parliament. She asked young men who used to participate in cattle rustling to take an oath not to engage in conflict by jumping over the birth belt called *leketio*. *Leketio* is a belt, which supports pregnancy hence life. It is considered a powerful charm that protects children from harm. Before warriors set out for a raid, each of them informs his mother so that she can wear the belt while he is away. To prevent conflicts, women can sometimes refuse to wear the belts prompting the warrior to abandon the raid mission. Women may also lay their belts in front of warriors who are about to go for a raid. Crossing a *leketio* is considered a curse. For instance, when fighting is raging, a woman may remove her *leketio* and lay it between the fighting men. The fight ceases immediately. The concept of using pregnancy belt to halt or prevent conflicts is the same in all the 18 sub-tribes of the Kalenjin community.

#### **4.7.2 Community Knowledge on Potential Risks and EWEA**

##### **Preparedness currently in place**

People have cultivated their farms and are waiting for the rains so that they can plant.

- **Appropriateness of the Systems**
  - o **EWEA Indicators / M & E Parameters**

##### **Early Action measures**

2016-2019- Assistance

- 1) Cash transfer by World Vision. The response took four (4) months
- 2) Cash transfer by ACF-Action Against hunger for malnourished children from drought.  
It took three (3) months to respond.
- 3) Distributing of mosquito nets to the households

This activity is spontaneous.

Lower region areas like Kongelai are hit most by malaria

Community Health Volunteers are supposed to participate in early warning and early action.

They are constrained by resources in transport and upkeep.

Livestock disease

The community prioritized early warning in the following:

- ii. Black water
- iii. Foot and mouth diseases

iv. CCP –Loukoi

**Partners**

- NDMA is not known to most of the people in the community.
- County government issued 513 2 Kgs of maize seeds to each household and Kshs. 3,000.00 as empowerment.
- World Vision supported the people in terms of cash transfer in 2018.
- Ministry of Health tested children for malnutrition and issued Kshs. 12,000.00 to each family with young children for child support.
- Action Aid offered assistance in terms of Ken Tanks, camels, dairy goats and seeds, money maker pumps, relief food to schools for ECDs and community, and seeds. Action Aid also trained people in agriculture, health, livestock, forestry, management of social groups and the need for education irrespective of sex of the child. Village elders have been enlightened on the need to ensure every child goes to school. Action Aid does assessment on disaster risk conditions in the area and take about a month to provide assistance. Action Aid targets people based on their needs. For instance, money maker pumps are issued to small-scale farmers for irrigation and livestock assistance to the poorest people especially those without livestock.

○ **Dissemination and Communication**

Public participation sessions involve public meetings organized by the administration (chiefs and assistants), village elders and agency agents to determine the vulnerable people especially orphans, the aged, physically challenged and those who have no assets. These are targeted for assistance.

Kalya Radio often broadcasts information about weather. These messages can also be specific. For instance, the people in Central Pokot have been warned through Kalya Radio of staying near hilly areas to avoid landslides. However, most people don't have radio sets and therefore do not get this important information.

Sometimes the meteorologists report about weather but in 2018 it was not done in a timely manner.

Rain in the area is unreliable. When people plough along the river, flooding is experienced and they are forced to plough away from the river. They often experience severe effects of drought due to this.

Some community members have been trained in some risk reduction measures against weather but patterns are very unpredictable.

Many members of the local community are not aware of other conventional early warning systems available.

○ **Integration into livelihoods systems**

Irrigation holds the key to sustainable farming practices. The people have weak financial strength to use moneymaker pumps especially during times of hunger and because they sometimes cultivate away from the river in fear of floods. With an irrigation system, there will be more vibrant livelihoods.

#### **4.8 Level of Integration of Early Warning Information into Production Systems and Resilience Building**

The level of integration of EWEA information into production systems and resilience building in West Pokot county can be viewed in terms of crop production, livestock production while connecting these to the challenges and opportunities they are present as discussed here below. Majority of the population resides in rural areas and predominately depends on pastoralism as their main source of livelihood. Subsistence crop production is also undertaken in the arable areas. Most land in the county is communal with only land in West Pokot and Pokot central sub-counties having title deeds.

This report has pointed out both government and community approaches with regard to integration of EWEA into current production systems.

##### **4.8.1 Livestock Production**

KIIs with county veterinary officers revealed that vaccination is done against most endemic diseases in the county including LSD, RVF, FMD, CCBP and CCPP. However, coverage was generally fair and this had been hampered by a number of factors including high mobility of herders, poor mobilization of herders during vaccination, inadequate logistics by the county government and partners and high cost of vaccines. It was noted that generally the vaccination coverage for donkeys, camels and poultry had been very poor.

##### **RPLRP – West Pokot County**

The study also established through key informant interviews with officers at the project offices in West Pokot that RPLRP is major contributor in addressing Pastoral Risk Management issues through various activities. Livestock disease surveillance has been highlighted as a key intervention being done on a quarterly basis. The main consumer of these quarterly reports is the County Government of West Pokot, Ministry of Livestock and Fisheries. These in turn are meant to inform vaccination calendar drawn by the relevant department together with its stakeholders.

RPLRP West Pokot engages in surveillance of the following livestock diseases:

- (i) Foot and Mouth Diseases (FMD) – Affecting cattle
- (ii) Peste des Petits Ruminants (PPR) (Losir) – Affecting sheep and goats
- (iii) Contagious Bovine Pleurophen (CBPP) – Affecting cattle
- (iv) Contagious Caprine Pleurophen (CCPP) – affecting goats

The RPLRP utilizes five (5) field monitors for data collection using an all-hazard tool distributed to cover the lower areas. This data is significant in the production of the monthly bulletin in collaboration with National Drought Management Authority (NDMA). As a project, support can only be channeled through the relevant departments at the county as opposed to direct intervention. The project has an emergency response plan kitty that is only activated whenever there's a national disaster declared by the President of the Republic of Kenya. It was however noted that the project had not taken cognizance of the West Pokot County draft Policy on Disaster Risk Management 2016 which bestows powers to declare a County Level disaster which

in essence would require activation of emergency plans by organizations working within and in support of the people of West Pokot.

High animal disease prevalence occurs during the dry months and during the on-set of rains. Veterinary drugs and services are offered by extension workers from the county government's livestock department who work closely with community-based animal health workers and markets in the sub-counties. Animal diseases act as a brake on the development of the livestock sector. They expose animal producers to high risks and uncertainty, which limit opportunities for producers to escape from the poverty trap and exacerbate their food insecurity.

Animal diseases have both direct and indirect effects. Each disease acts in a different way on the animal's body, affecting organ systems (digestive, respiratory, reproductive and musculoskeletal etc.) and specific functions. The disease effects are the source of direct economic impact by hampering the animal's productivity (Milk yield and beef). Diseases and infections can also interfere with the quality and value of animal products.

Animal diseases may pose the greatest immediate threat when they result in epidemics. In such circumstances, diseases often have most evident economic impact and, in many cases, affect marginalized people most severely.

The most direct impact of animal diseases is the loss or reduced efficiency of production, which reduces income. The impacts of reduced productivity of animals can be long-lasting and diseases can have lasting effects on livestock output in a number of hidden ways. Productivity losses can persist even in individual animals that survive diseases. Abortions do not only entail the loss of off-springs but also the loss of one lactation and thus reduced milk supply for human consumption. Further, the loss of food due to animal diseases in West Pokot may appear to pose a threat to food security or rural livelihoods. Animal diseases can often have significant negative impacts on food security and nutrition.

Animal diseases have the potential to kill affected animals. Further, some animal diseases can affect humans directly. For instance, cases of brucellosis have been in an all-time high which is as a result of consumption of infected milk. The threats to food security and nutrition can arise from animal diseases. Particularly in agro-pastoral livelihood zones, livestock contribute directly and indirectly to food security and nutrition as sources of protein, micronutrients, animal power and tradable assets.

This study notes that the level of integration of indigenous early warning and the institutional early warning systems has been on a fair scale. Disease surveillance livestock department and other partners take cognizant of indigenous knowledge on animal behavior shared by the community. The biggest challenge lies on the delayed response whenever a red flag on an outbreak has been raised. At this point the communities are forced to resort to their own coping mechanisms which include quarantine, vaccination using drugs from commercial dealers and traditional vets, slaughter and migration of livestock.

#### 4.8.2 Crop Production

Crop farming has not been the mainstay of the Pokot community over the years, as they are mainly known for livestock keeping. However, with limited land resources to sustain the large number of cattle by this pastoral community, people have slowly come to accept crop production as a form of livelihood. The community mainly engages in cereal crops comprising of maize, millet, sorghum, beans in both the highlands and the low lands. Short seasoned food crops such as tomatoes and bananas are also grown in the lower lands along the Suam River which is the main source of water in the lowlands for human consumption, agriculture and wildlife.

One of the problems in the agropastoral livelihood zones of West Pokot especially along River Swam and the numerous Lagas (dry river beds) across the county's lowlands is the cyclic and perennial flooding during peak rainfall events of short heavy convective storms. According to the early warning unit in the ministry of agriculture, flooding displaced hundreds of people and destroyed a significant acreage of crops (in Pokot North) in the year 2018. Planning for disaster risk reduction therefore requires an integrated flood management system.

In West-Pokot several government and non-governmental joint initiatives are currently working to increase women's role in agricultural productivity and access to markets. The initiatives have encouraged women to share knowledge and productive assets including land, livestock and credit. This supportive collective structure is also extended to marketing systems where the women form producer organizations so as to have a better bargaining power for their produce. These social networks also create a safe environment for women to meet, share information and tackle social problems such as gender-based violence. These groups have also empowered women allowing them to participate in decision-making and take up leadership roles. Several women in West-Pokot have been elected as local councilors. In July 2015, FAO-UN and county government of West Pokot did capacity building for eight groups comprising of a total of a hundred persons who were mostly women. The groups were taught how to propagate fruits (papaya, banana, avocado and mangos). The seedlings are grown in the county government of agriculture fruit nurseries and then sold to farmers who grow the trees in their farms this has dramatically changed the landscape of West Pokot Central region. Demonstration plots managed by FAO are being used to train pastoralists drop outs who are transitioning into farming. These farms also grow green vegetables. Farm produce has improved the nutritional levels of children and diversified household diets hence increasing household food and nutritional security as well as improving incomes as farm produce is sold within and outside West Pokot to towns such as Kitale and Eldoret. This is one worthy example that can help the County of West Pokot can learn from in terms of dealing at a larger scale, with her current nutrition challenges. In addition, the women project beneficiaries are gradually being assisted to sell their produce by creating market linkages with consumers and encouraging value addition of the products. For instance, one of the women groups in Lomut is currently producing mango chips that are sold in the local markets. FAO-UN has also helped construct market stalls along the Lodwar -Turkana highway where fruits are sold by women.

### **Women as disseminators of agricultural EWEA information**

Women are able to obtain early warning information on agricultural related activities from NDMA county offices, county government, non-governmental organizations, Kenya Meteorological Department and Agricultural Sector Development Support Programme (ASDSP).

Key informant interviews indicated that the women are hosted in radio talk shows of which they talk on the issues surrounding fertilizer distribution, food security and seed distribution. This information is disseminated through the local vernacular radio stations such as Kalya FM, North Rift FM and Saposema FM. Women are therefore at the fore front of strengthening capacities in agriculture and advocating for crops that can be grown. For example, on 29th Feb 2016, *Maendeleo ya Wanawake* members were hosted in the local vernacular radio station to inform farmers how the issuing of subsidized fertilizers to farmers in West Pokot will be carried out by the national cereal and produce board (NCPB) West Pokot branch.

### **4.9 Opportunities and Challenges for Integrating EWEA for Sustainable Development**

The most trusted indigenous early warning indicators from the communities in West Pokot County are connected with behaviour of certain animals and wild animals, wind direction, the shape of the crescent moon, behaviour of birds, insects, plants, stars, sun, temperature, clouds and human feelings. The communities have trust in the presence of indigenous early warning indicators that are monitored over time and appropriate to trigger signals relayed to communities. Moreover, the FGDs revealed that indigenous early warning indicators are the most dependable and as such, most likely to set in motion proactive hazards and risks mitigation actions.

It was clear from the group discussions by men and women present that knowledge of the indicators, when and when not to expect hazards and risks helps to reach conclusions on the probability of hazards and risks and subsequent course of action on the part of communities. This study's interaction with both genders revealed that women are well conversant with indigenous early warning indicators especially those related to flooding, prolonged droughts, crop pests and conflicts. First, this could be explained from their traditional roles of interacting with the events more than their male counter parts. Secondly, and significantly so, the personal concern about the welfare of their families could strongly explain this high level of awareness about early warning indicators among women.

Interestingly, the indigenous early warning indicators provide information that is no different from scientific data and information. Though not quantitative, the conclusions obtained from community indigenous knowledge are not far different from those disseminated through KMS bulletins and other institutions.

Communities have indigenous early warning indicators; they expressed their frustration caused by the changing patterns which have made it extremely difficult for them to predict hazards and risks as they used to be in the past.

The biggest challenge facing indigenous and conventional early warning systems is the lack of a common framework for integration. This means actions are mostly uncoordinated and reactive rather than preventive. In addition, the warnings are not always accurate hence it is hard to persuade leaders, state and non-state actors to mount an early action.

### **Challenges in working with partners**

- Limited funding that does not meet the needs of all the people in the society. For instance, there is only one Ken Tank in the whole location.
- Most partners such as Action Aid reach the people through groups and therefore most of those who are not in groups do not receive assistance. This is because groups require members to register and subscribe periodically with some money and since most people cannot afford this, they are left out.
- Poor accessibility due to poor roads and lack of means of transport.

### **Recommendations**

It is recommended that timely and appropriate prevention initiatives should be undertaken by various actors considering the risk continuum as applicable in West Pokot County:

- Assistance in terms of livestock that are resistant to drought such as camels.
- More sustainable water solutions through community mobilization of resources and work with donors in implementation.
- Healthy facility
- County government to help in establishing a cattle dip so that people can keep healthy animals that can attract market and better prices.
- Challenge in water distribution since the only available source is River Suam.
- Support for livelihood especially businesses where women can buy and sell clothes, maize, chicken, goats and cattle.
- School fees support for children in schools.

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## **5.0 POLICY REVIEW AND RECOMMENDATIONS**

The County Government of West Pokot has drafted two (2) policy documents addressing EWEA in emergencies: (i) Peace Building and Conflicts Management Policy 2018; and (ii) Disaster Risk Management Policy 2016. Both policies are in preparation stage and will be enacted by the County Assembly of West Pokot soon or later.

### **5.1 Peace Building and Conflicts Management Policy 2018**

This policy strategy suggests mechanisms to enhance the gendered and indigenized transformation (prevention, mitigation, management, resolution) of violent conflicts. As such it provides mechanisms for coordination and synergy among stakeholders involved in peace building and conflict transformation. Such is a mechanism with intentions to enhance the consistency and efficiency with which the county government and stakeholders design and implement appropriate interventions aimed at promoting gender sensitive peace building and

conflict transformation. It should guide all stakeholders in realizing synergies and achieving the desired peace and just. As to whether the policy shall realize the aspiration is something that will await implementation.

## **5.2 Disaster Risk Management Policy 2016**

The overarching aim of this DRM Policy is that it takes an “all hazards” approach which means that the institutions, coordination mechanisms, processes and principles provided strive to be relevant for any type of hazard or disaster scenario that may affect the Communities within the County. An all-hazards approach focuses on establishing lasting institutions and mechanisms that can be flexibly applied to any current or developing emergency. While this policy does not focus on hazard-specific scenarios and risks, it does appreciate the importance of hazard and scenario specific policy development and contingency planning. Such specific contingency planning and preparedness activities are valuable both in assuring readiness and identify particular incident command and coordination networks. This policy should be developed by the overarching institutions and networks provided for in the policy as part of its implementation.

## **5.3 Policy Recommendations**

### **(i) Involvement of Local Communities in EWEA**

For early warning early action (EWEA) to be effective, local knowledge should not be overlooked but incorporated in the conventional early warning systems. A wealth of knowledge among communities that have frequently been exposed to hazards and risks is available. Without involvement of communities at risk, the government / NGOs / UN and institutional interventions and responses to hazard/risk events are likely to be inadequate. It has further to be kept in mind that communities themselves will always be the first responders, which means that no system will be effectively functional without community participation.

### **(ii) Integration of Indigenous and Modern Early Warning Systems**

Indigenous observations and outlook methods may have scientific validity; there should be increased interest in harmonizing Indigenous and modern scientific methods. There is a need to review the value of bringing on board the Indigenous early warning knowledge of communities to be part of the bigger early warning systems. Where indigenous early warning indicators exist, they should be integrated in the system and not overlooked. A blend of approaches and methods from science, technology and from Indigenous knowledge opens avenues towards better disaster prevention, preparedness, response and mitigation.

### **(iii) Constant Monitoring**

Constant monitoring of possible hazard and risk parameter and contributing factors is critical. The regular monitoring of a range of variables (indicators) so that upward and downward trends are detected. The information will help to timely warn the government, NGOs, UN agencies, donors and communities about potential impacts of hazards and risks or other major disturbance.

### **(iv) Strengthening Local/Community FM Radios**

It is now clear that local radio stations airing programmes in local dialects play a very important role in dissemination of EWEA messages. It is therefore paramount that deliberate policy

frameworks be established that such programmes are strengthened particularly through PPP arrangements.

## 6.0 ANNEXURES

### Annex I: Efficacy and Limitations of EWEA Systems Matrix

<b>Disaster Incidence</b>	<b>Droughts</b>	<b>Floods</b>	<b>Human diseases-Malaria, Typhoid, Brucellosis, Diarrhea</b>	<b>Conflicts</b>
<b>Time of Occurrence</b>	2016 - 2019	2016 - 2018	2016 - 2018	2010 - 2019
<b>Estimated duration</b>	6 – 9 months	3 Months – 5 months	Ranges but some like Typhoid and Malaria are common at the onset of the rains	Every drought period, approx... 7 months per year
<b>Who were affected most</b>	Entire household	All	All	All
<b>How they were affected</b>	-Loss of crops -Lack of food -Loss of livestock -Migration for pasture -Deaths	Loss of houses, Crops, Loss of livestock, House damage Road damage	- It is costly to treat; Testing around KSh. 200; Treating KSh. 5,000 for each case; Loss of lives	Loss of lives; Livestock, Pasture lands
<b>Assistance received &amp; Sources</b>	In some cases, no assistance was forthcoming including the recent/current drought. In other cases: -Action Aid: food intervention in schools Government of Kenya: Vaccination of animals; Food donations including cup of seeds;	Assistance is often received - In recent times selected families given goats based on needs assessment by DMC. Action Aid- gabions; National Govt: River Bridges, Gabions  (Recommendation- giving goats during drought interventions); County government	Occasionally; Mosquito Nets	Assistance is rarely received. In one of the few cases, the governor, West Pokot County travelled to Uganda to negotiate for release of Pokot pastoralists

<b>Whether Early Warning (EW) was received &amp; Sources of EW</b>	-In many cases Meteorological information was shared through Kalya FM Radio Station. (NB: many HHs have radios) -The community often received some indigenous knowledge shared through DMCs,	Through Kalya FM- Meteorologists warning (residence close to river banks to move to upper areas)	Kalya FM Radio	None
<b>Time between EW &amp; Disaster Event</b>	In most cases it was done at the time drought struck	Ranges between a few days and two months	Ranges between a month and two months	N/A
<b>Action of Responders in time leading to disaster</b>	The most common was migration to Uganda	Evacuation (DMC assisted in constructing houses (Weakness – Needs assessment sometimes biased)	Distribution of mosquito nets	A week to a month
<b>Extent of Food reserves lost to event</b>	In all cases, households did not have food reserves	In all cases, households did not have food reserves	N/A	N/A
<b>No. of days btn event and completion of Needs Assessment</b>	Sometimes this was not done and where done, this ranged between two weeks and two months	Needs assessment was done in a period between a month and onset of flood event	Normally done between a month and the onset of flood disasters	N/A
<b>No. of days victims waited for assistance</b>	This ranges between a month, when	This ranged from a week to over one year.	No assistance	A week to a month

<b>after notification of agencies</b>	DMC requested Action Aid, and six months to get gala goats, maize and beans seeds from agencies including government departments	-The government was slower		
<b>Whether relief was received</b>	Relief food after about 5 months from the county government	It was rare but when its was brought, it came late (over 2 months)	No	No
<b>NFI Prepositioned</b>	None	None	Mosquito nets	None
<b>Whether health sensitization was done</b>	None	Community Health Volunteers (CHVs) and other health officers did sensitization	Community Health Volunteers (CHVs) and other health officers did sensitization	No
<b>No of days before Health Sensitization (HS)</b>	N/A	Almost at the onset of the flood disaster	Every year around April	N/A
<b>No. of beneficiaries of HS</b>	N/A	About half the population	Approx. a half	N/A

**Annex II: List of Persons Consulted**

<b>S/N</b>	<b>ORGANIZATION</b>	<b>CONTACT PERSON</b>	<b>TEL. NO.</b>
1.	SIKOM Peace Network for Development	Mr. Joseph Akoule Director, SIKOM sikompeace@yahoo.com	0711538258
2.	Regional Pastoral Livelihoods Resilience Project (RPLP)	Mr. Anthony Wesonga M & E Officer	0722146780
3.	National Drought Management Authority (NDMA)	Mr. Timothy Letooiya tim.letooiya@ndma.go.ke Mr. Stanley Tireito Stanley.tireito@ndma.go.ke	0725436069
4.	Pokot Inter Church Community (ICC) – CBO	Mr. Peter Sikamoi	0706333548
5.	West Pokot County Government	Mr. Lolentum Joseph DRM Dept.	0721101565
6.	Kenya Red Cross Society West Pokot Branch	Ms. Scholastic	0726743594
7.	The Presidency Office of the Assistant County Commissioner (ACC), Pokot West Sub-county	Noela Diffu	0721708732

**Annex III: Field Visit Photographs – Participatory Focus Group Discussions**



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