DISASTER INFORMATION MANAGEMENT SYSTEM (DIMS)

FIELD SURVEY

FEBRUARY, 2021

BY

COUNTY GOVERNMENT OF ISIOLO

IN SUPPORT OF

WORLD FOOD PROGRAMME (WFP)

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ABBREVIATIONS

DIMS	Disaster Information Management System
DRM	Disaster Risk Management
GOK	Government of Kenya
ASALs	Arid and Semi Arid Lands
NGOs	Non Governmental Organizations
ICT	Information Communication Technology

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CHAPTER 1.0: INTRODUCTION

1.1 BACKGROUND INFORMATION

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can originate from human activities. An emergency is a situation that poses an immediate risk to health, life, property, or environment. Most emergencies require urgent intervention to prevent worsening of the situation.

Disasters in the world have been increasing in the last few decades and the consequences can lead to severe losses especially for those who are not prepared to deal with them.

Kenya experiences a number of natural hazards, the most common being weather related, including floods, droughts, landslides, lightening/thunderstorms, wild fires, and strong winds. Other hazards experienced in Kenya include infestation of 'Mathenge' tree species, resource based conflict, human and animal diseases. In the recent past, these hazards have increased in number, frequency and complexity. The level of destruction has also become more severe with more deaths of people and animals, loss of livelihoods, destruction of infrastructure among other effects resulting in losses of varying magnitudes.

The Arid and Semi-arid Lands (ASALs) of Kenya make up more than 80% of Kenya's landmass, supporting nearly half of the livestock population of the country and over 30% of the total human population. The ASALs are prone to harsh weather conditions rendering the communities within these regions vulnerable to natural hazards, mainly droughts and floods. The ASALS, due to their fragile ecosystems, unfavourable climate, poor infrastructure and historical marginalisation represent a major development challenge for the affected populations, the Government of Kenya (GOK) and its development.

1.2 UNCOORDINATED DISASTER RESPONSE

Over recent decades, relief agencies and local governments have become more intentional about coordination. Still, gaps remain, and are intensified by the severity of the disaster; number, size, and experience level of responding agencies; and functionality of local infrastructure and services. Coordination is central to improving the quality, effectiveness and efficiency of an emergency response and reducing burden on recovering communities. While time-consuming, coordination is vital to humanitarian organizations. By coordinating their response with other Non-Governmental Organizations

(NGOs), local authorities, and the communities themselves, they can ensure that the most-needed items reach disaster survivors as quickly as possible, without duplication of effort.

In Isiolo County have been experiencing an uncoordinated disaster response challenges over time. These challenges are projected to arise due to the following factors:

1. Lack of effective early warning system. Disaster response in Isiolo is often untimely and characterized by a failure to act on early warnings.
2. Lack of accurate data. A case scenario may be the number of people displaced by flooding in Iresaboru area of Isiolo shows that there was no assessment of the situation which was conducted before the rains started.
3. Poor infrastructure. The development of modern roads in rural areas will also help prevent disaster-affected populations from being cut off from aid. Poor infrastructure, and the complete absence of roads in some settlements makes rescue and relief efforts difficult, costly and risky for aid workers.

1.3 GENDER OF THE SELECTED RESPODENTS

Table 1: Gender of respondents

Gender	Frequency	Percentage
Male	137	50.88
Female	134	48.72

The DIMS Survey was unbiased as the interviewees in reference to their gender were almost to equate each other as evidenced by the above table and figure. This reflects quality data was collected that will guide the relevance and importance of the study in sampling villages and wards affected by disasters.

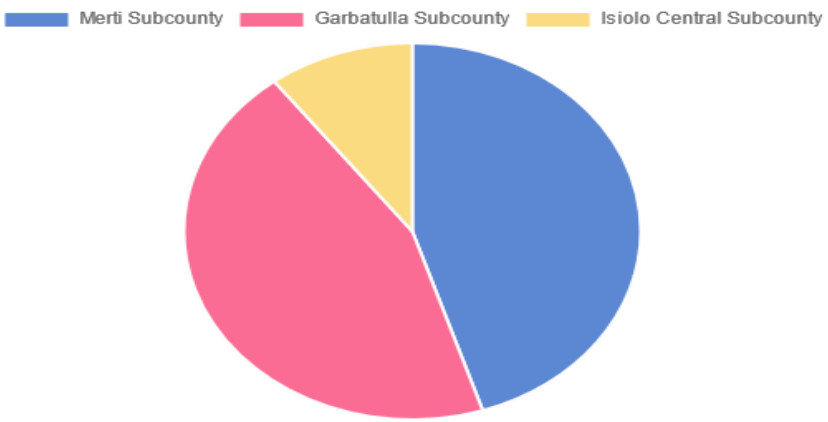
1.4 VILLAGES AND WARDS MOSTLY AFFECTED BY DISASTERS

The villages and wards listed in the table below are vulnerable to disasters to a large extent due to their location and exposure to natural risks. The natural unfavorable climatic conditions, inadequacy of pasture and water and being in low land areas, make them at risk to common disasters such as drought and floods.

Table 2: List of villages and wards mostly prone to disasters

SUB COUNTY	LIST OF SAMPLED WARDS PRONE TO DISASTERS	LIST OF VILLAGES MOSTLY PRONE TO DISASTERS	NUMBER OF RESPONDENTS SELECTED FOR INTERVIEW
ISIOLO CENTRAL	Oldonyiro	Nooloroi (8)	28
		Kipsing' (11)	
		Lobarishereki (9)	
MERTI	Cherab	Korbesa (16)	67
		Basa (18)	
		Merti (14)	
		Manyatta Sakuyie (7)	
		Biliqi (12)	
	Chari	Mataarba (10)	53
		Bisan Biliqo (17)	
		Bulesa (12)	
		Dhima Adho (14)	
GARBATULLA	Garbatulla	Garbatulla (12)	55
		Mogore (7)	
		Gafarsa (12)	
		Malkadaka (11)	
		Boji (13)	
	Kinna	Yaqbarsadi (5)	34
		Kulamawe (12)	
		Rapsu (6)	
		Kinna (11)	
	Sericho	Biliqi Noor (6)	33
		Iresaboru (15)	
		Sericho (12)	

Figure 1: Survey coverage to sub counties of Isiolo County



CHAPTER 2.0: SURVEY RATIONALE

2.1 RATIONALE FOR THE FIELD SURVEY

Field surveys are methods used in collection of qualitative and quantitative data that may mainly be primary data. The tool used in primary data collection is mostly use of questionnaire through interviews to give accurate and valid information.

Field survey enhances the understanding about the pattern of spatial distribution, their association and relationships at local levels. It also facilitates the collection of local level information that is not available through secondary source and helps in investigating the problem under investigation in depth as per the objective of the study. It helps in understanding of the characteristics of the nature and inter-relationship between physical, economic and social environment of a particular area.

It is in this regard that the field survey was conducted to sample villages and wards affected by Disasters which is designed to assess Disaster Risk Management (DRM) related risks to; infrastructure, service delivery and emergency response systems. The information will enable the County Government of Isiolo and her development partners to improve the information flow to and from the affected areas in our County in a bid to ensure effectiveness and efficiency in managing emergency information and feedbacks.

2.2 RATIONALE FOR THE DIMS

Disaster intervention is a practice that is as old as humanity itself. Different people and organizations have engaged in different disaster response strategies over the years. In an effort to make the responses more meaningful and coordinated, the County Government of Isiolo in collaboration with World Food Programme (WFP), opted to embrace the idea of engaging the communities and related stakeholders by providing a digital platform that shall help in coordinating disaster management and response dubbed Disaster Information Management System (DIMS). Isiolo County aims at leading the rest of the country in improving the level of preparedness to deal with these calamities through low cost and highly effective technological mechanisms.

DIMS is a cloud based tool for disaster reporting coupled with a SMS based app for disaster mapping and coordinated disaster response.

With continuous data collection on the system, it will also serve to inform on patterns that some disasters follow and help in prevention efforts for disaster mitigation. The system will Increase citizen participation in disaster response and the reports will be received in a timely manner. Effort(s) in disaster management will be quantified and reports should show disasters that were averted since every incident is tasked to a particular officer. The system intends to incorporate conversations that are

generated from social media as one of the input (data collection) methods. As a result of using DIMS, the County hopes to accelerate the technology penetration to the communities that will be served by the system.

2.3 MAIN DISASTERS/ HAZARDS IN ISIOLO COUNTY

2.3.1 DROUGHT

Drought is mostly experienced in most parts of Isiolo County. The arid zones in of the County cover both Isiolo North and South Constituencies. Rainfall ranges between 300 and 350 mm annually and only supports grassland and few shrubs. Severe zones become barren, very hot, and dry most of the year, with annual rainfall averaging 150-250 mm. Such harsh climatic conditions do not favour crop growth in this zone. Given the aridity of the County, 80% of the land is non-arable and used for grazing. The erratic and unreliable rainfall cannot support crop farming, which partly explains the high food insecurity and poverty levels among the population in the County.

2.3.2 FLOODS

Floods are a result of overflow in river banks and can cause enormous damage to loss of life and property including crops and infrastructure. These are common phenomena and are costly natural disasters. In Kenya, the hazards and impacts of floods has led to severe loss of life (human and livestock) and property, destruction of infrastructure, disruption of the communication networks and large losses to the economy. The floods also lead to massive destruction of property and displacement of people. Floods are short-lived events that can happen suddenly, sometimes with little or no warning. They usually are caused by intense storms that produce more run-off than an area can infiltrate and store or a stream can carry within its normal channel.

When it rains in Isiolo, Mount Kenya and Aberdare Ranges increasing intensity and distribution during both the March, April, May (MAM) long rains season and the October-November-December Short rains season, Isiolo town and Ngaremara town experiences floods and rise in water level along Ewaso Nyiro River causing slow onsets of slight flooding on the very low-lying areas of Garbatulla, Sericho, Chari and Cherab wards. The unpredicted heavy rains in most parts of Isiolo County lead to destruction of roads and houses. Poor drainage systems are mainly caused by overpopulation and water force from the rain water that carries dirt through the drainage leading to blockages. As a result, Wabera, Bulapesa and Ngaremara areas experiences floods. The widespread vegetation helps prevent flooding by slowing down the water runoff.

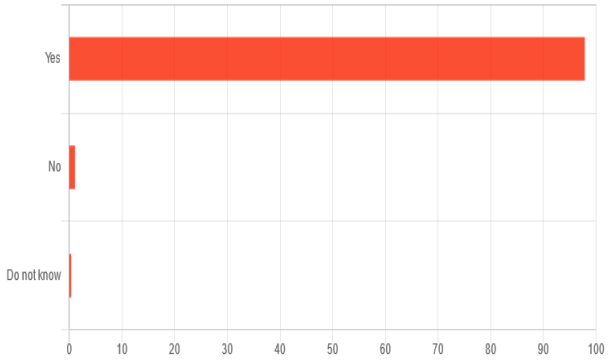
CHAPTER 3.0: SURVEY KEY FINDINGS

3.1 DISASTER KNOWLEDGE AND OCCURRENCE IN SAMPLED VILLAGES

Table 3: Disaster knowledge and occurrence

Value	Frequency	Percentage
Yes	272	97.84
No	3	1.08
Do not know	1	0.36

Figure 2: Disaster occurrence



The above shows that 98% of survey targeted County residents have knowledge on disasters and are fully aware of their occurrences. They understand a disaster as fear of destruction or danger of a problem that may affect human and animals as well as loss of lives and properties.

The figure also displays that about 2% of the people in the sampled villages above have no knowledge on disasters with their happening; whilst 1% do not know the occurrence and meaning of disasters.

3.2 COMMON DISASTERS THAT OCCUR IN THE COUNTY

Table 4: Common Disasters occurring in the county

Occurring disaster	Frequency of response	Percentage
Drought	266	76.22
Floods	73	23.78

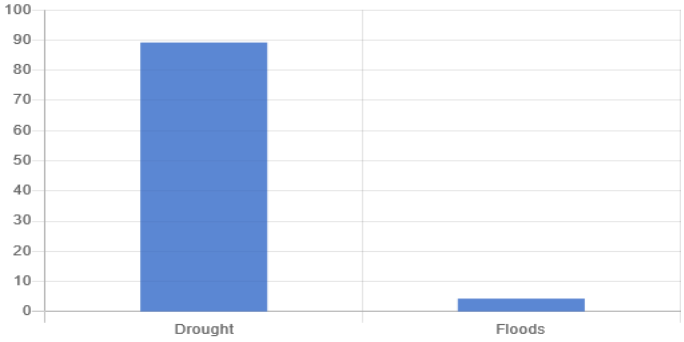
Table 4 shows that 76% of the people living in Isiolo identified drought as the most occurring disaster while 24% revealed that floods is another common occurring disaster after drought. This makes drought a major disaster that hugely affects human lives, animals, properties, delivery of services, infrastructure and other livelihoods.

3.3 EFFECTS OF DISASTERS TO THE VILLAGES

Table 5: Effects of Disasters

Disaster	Frequency	Percentage
Drought	253	89.21
Floods	18	4.32

Figure 3: Effects of Disasters to the area



Both Table 5 and Figure 3 demonstrate that drought as a disaster has to a large extent in the last six months affected all of the mentioned villages above. This was in either loss of animals' or people's lives or loss of essential life supporting resources. The possible causes of drought and floods as common disasters to the villages named above according to the survey are: Failure of rains, Inadequate pasture and water, Changes in the climatic conditions of an area, Free movement of animals, Deforestation, Overflow of rivers, Charcoal burning and sometimes overstocking in an area.

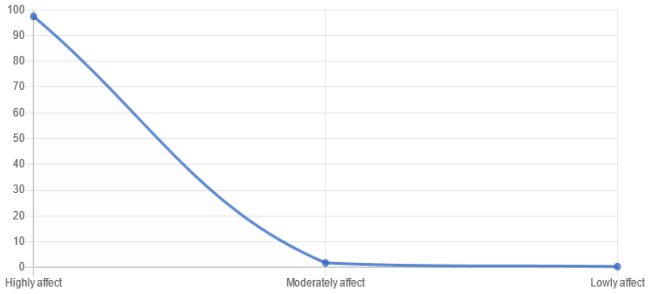
3.4 EXTENT OF DISASTERS/ HAZARDS EFFECTS

3.4.1 EXETENT OF EFFECTS TO PEOPLE AND ANIMALS

Table 6: Effects of disasters on living things

Extent of Disaster Effect to people	Frequency	Percentage
Highly affect	271	97.48
Moderately affect	5	1.8
Lowly affect	1	0.36

Figure 4: Effects of disasters on living things



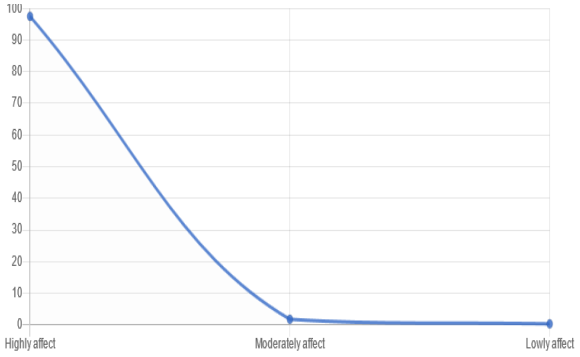
Both Table 6 and Figure 4 demonstrate that the effects of disasters to living things. It is clear that people and animals are very highly affected when disasters occur or hit a village. This is confirmed by the use of force applied by disasters like; shortage of food, hot sun and dry water points, poor vegetation, bush fires, and water pressure from uplands.

3.4.2 EXTENT OF DISASTER EFFECTS TO PROPERTIES

Table 7: Extent of disasters on living things

Extent of disaster effect	Frequency	Percentage
Moderately affect	123	44.24
Lowly affect	114	41.01
Highly affect	40	14.39

Figure 5: Extent of effects of disasters to properties



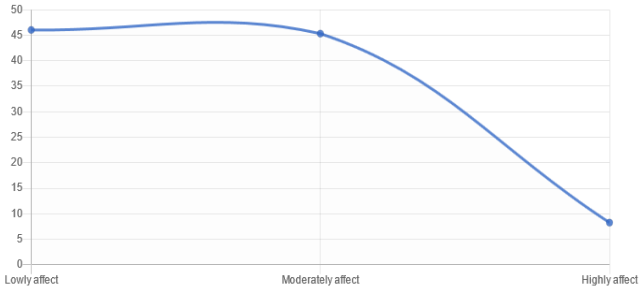
Both Table 7 and Figure 5 demonstrate that occurrence of disasters in an area, moderately affect the physical properties. This is mainly displayed through property damage and breakdowns and sometimes sweeping away due to flooding in some villages of Isiolo County. Lack of or delay in interventions may worsen the property situation.

3.4.3 EXTENT OF DISASTER EFFECTS TO SERVICE DELIVERY, INFRASTRURE AND CULTURAL SITES

Table 8: Effects of disasters on service delivery, infstructure & cultural sites

Extent of disaster effects	Frequency	Percentage
Lowly affect	128	46.04
Moderately affect	126	45.32
Highly affect	23	8.27

Figure 6: Effects of Disaster on service delivery, infrastructure & cultural sites



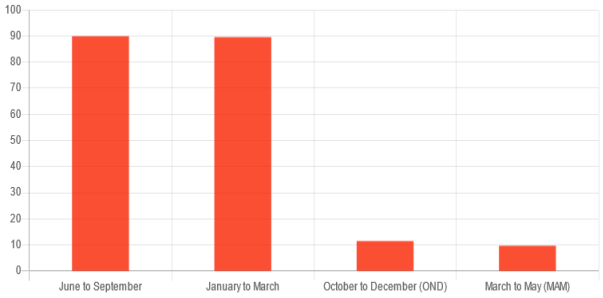
Both Table 8 and Figure 6 illustrate that disaster that happen in Isiolo County in most cases lowly affect infrastructure, cultural sites existing and delivery of services. This is according to a large number of the survey respondents. One could deduce this was because targeted county residents mainly depend on animals for food and livelihood strategy and majority have therefore no attachment to infrastructure and cultural sites. The later may have been of less use to them thus effects of disasters on them is lowly visible to them.

3.5 PERIOD OF OCCURRENCE

Table 9: seasons of the year during which disasters occur

Period (Months)	Frequency	Percentage
June to September	250	89.93
January to March	249	89.57
October to December (OND)	32	11.51
March to May (MAM)	27	9.71

Figure 7: Period of occurrence



Both Table 9 and Figure 7 show the times of the year when common disasters strike the villages in Isiolo County. June to September and January to March are those specific times of the year when Drought highly hits the wards and villages listed initially. These are said to be dry seasons of the County's calendar year; whereas October to December and March to May are mainly rainy seasons of the year during which the villages experience floods.

The figure and table also shows that the frequency of occurrence of disasters in a year are projected to be twice a year per common disaster.

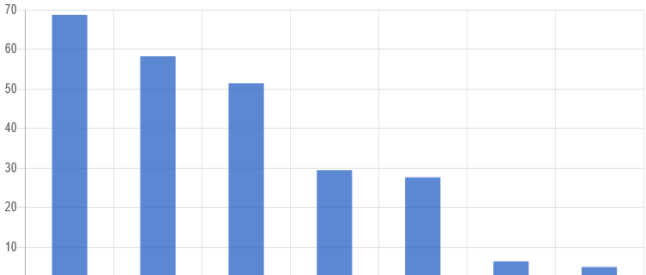
Therefore, from this, Isiolo County can now be considered as a disaster prone County to perfectly befit ASAL Counties.

3.6 RESPONSE TO DISASTERS- FIRST TO REACT

Table 10: Order of reaction to disasters

First to react to disaster	Frequency	Percentage

Figure 8: First to react to a disaster occurrence



Community	191	68.71
County Government	162	58.27
NGOs	143	51.44
National Government	82	29.5
Kenya Red Cross Society	77	27.7
Others	18	6.47
Religious Organizations	14	5.04

Both Table 10 and Figure 8 depict that when a disaster strikes a village, community members are the first group to react in terms of taking action of curbing the impact of the disaster followed by the County Government and development partners mostly NGOs follow closely. The community starts by alerting local authorities on emergence of a disaster, mobilize neighbors for rescue mission and move to safer places: the County Government mobilizes resources required to achieve successful rescue, inform respective organizations of help and involve the media: NGOs and other partners send alarming messages on occurrence of a disaster, involve the County Government and community in the rescue intervention, and mobilize trained personnel on response and rescue mission.

3.7 TECHNOLOGICAL KNOW HOW

3.7.1 USE AND EFFECTIVENESS OF COMMUNICATION PLATFORMS

Table 11: Commonly used communication platforms

Mode of communication	Frequency	Percentage
WhatsApp	134	48.2
Radios	73	26.26
Face book	71	25.54
Televisions	51	18.35
Twitter	13	4.68
Others	13	4.68
Websites	9	3.24

Figure 9: Use of communication platform

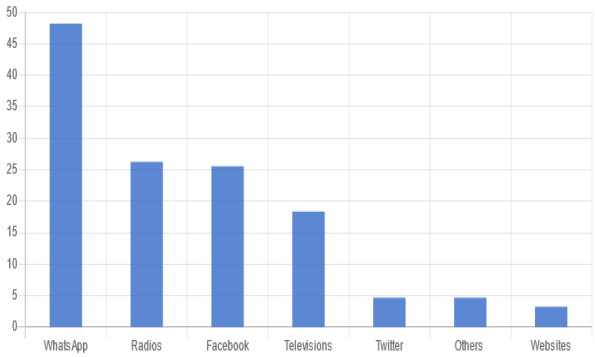


Table 12: Communication effectiveness

Communication Effectiveness	Frequency	Percentage
Highly effective	261	74.79
Moderate	78	22.35
Not effective	10	2.87

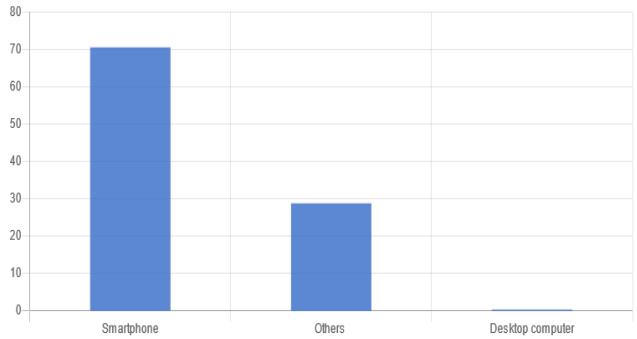
Survey results presented in Table 11 and Figure 9 shows that a good number of people are aware of the digital communication platforms compared to those that do not know. Community members are able also to operate digital communication platforms like; WhatsApp, Facebook, Websites, Televisions and radios. WhatsApp is the common communication channel among the villages in Isiolo County as shown above. On the effectiveness variable, the study clearly depicts that communication platforms are highly effective with 75% compared to moderate and ineffectiveness.

3.7.2 PRIMARY CONNECTIVITY

Table 13: Primary connectivity in Isiolo County

Primary Connectivity	Frequency	Percentage
Smartphone	196	70.5
Others	80	28.78
Desktop computer	1	0.36

Figure 10: Primary connectivity in Isiolo County



Both Table 13 and Figure 10 illustrates 70% of the community members in Isiolo County acknowledge the use of smart phones as their primary connectivity. This is because of accessibility and affordability of the smart phones compared to desktops and laptops.

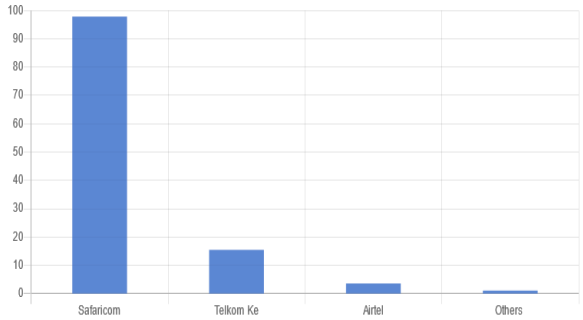
The level of Information Communication Technology (ICT) skills for a larger number of community members also makes them to only use phones to access internet. The survey shows that most of the people are either learners or know very little on ICT.

3.7.3 NETWORK PROVIDERS

Table 14: Network providers in Isiolo County

Network Provider	Frequency	Percentage
Safaricom	272	85.84
Telkom Ke	43	12.47
Airtel	10	2.6
Others	3	0.08

Figure 11: Network providers in Isiolo County



The survey shows that about 86% of the people know and have access to Safaricom as their main network provider. The network provider is used for communication and for internet connectivity. One could deduce that target survey respondents believed that this particular network provider was effective and efficient compared to other service providers thus their heavy reliance.

CHAPTER 4.0: CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSION

The survey concludes that there is uncoordinated response to disasters and emergencies by different actors in the County making it ineffective and inefficient.

From the survey findings, it is concluded that the community is not utilizing most of the communication channels to disseminate critical disaster information for timely response. Therefore, it is important for them to be trained on better use of more media platforms to disseminate relevant information useful for stakeholders in making actionable interventions in the event of disasters.

Study findings also portrays that ICT skills is a great challenge in most villages as people know very little or some being learners of the process, thus the need for training on general computer and other IT skills; sponsoring youth could help solve the situation.

4.2 SURVEY RECOMMENDATIONS

The following are the survey recommendations;

a) Based on findings, the study recommends that a county Disaster Risk Information Management System (DIMS) that integrates Bulk SMS should be established. This will enhance both the timely community and stakeholders' response to disasters.

b) Further, derived from study findings it is recommended that funding for training on how to manage Bulk SMS system platforms. High number of the village members in the County is not aware of the system and its use.

c) Study findings also demonstrate that users should be trained on how to operate and dispatch sensitive disaster related information that may be of good use to the government and its very able partners.

ANNEXES

A.1 COMPOSITION OF THE FIELD SURVEY TEAM

SURVEY TEAM 1		SURVEY TEAM 2	
NAME	**DESIGNATION**	**NAME**	**DESIGNATION**
Anthony Kiarie	Team Leader	Kinoti Simon	Team Leader
Amina Abdi Ismail	Enumerator	Gabriel Lekalkuli	Enumerator
Hussein Ali	Enumerator	NuriaAbdullahi	Enumerator
KabaleJimale	Enumerator	Beth Kamau	Enumerator
GodanaBalla	Driver	Abdi Mohamed	Driver

A.2 ISIOLO COUNTY POPULATION STATISTICS

Distribution of Population by Sex, Number of Households, Land area, Population Density and County							
County	**SEX**				**Households**		
	TOTAL	**MALE**	**FEMALE**	**INTERSEX**	**TOTAL**	**CONVENTIONAL**	**GROUP QUARTERS**
ISIOLO	268,002	139,510	128,483	9	58,072	53,217	4,855

Distribution of Population by Sex, Number of Household and Sub-county						
	SEX			**HOUSEHOLD**		
Sub-County	**MALE**	**FEMALE**	**TOTAL**	**CONVENTIONAL**	**GROUP QUARTERS**	**TOTAL**
GARBATULLA	54,661	45,068	99,729	17,047	1,614	18,661
ISIOLO	60,414	60,647	121,061	27,612	2,241	29,853
MERTI	24,435	22,768	47,203	8,558	1,000	9,558

A.3 SURVEY TOOL

Questionnaire link: https://ee.kobotoolbox.org/x/dIVV5Ny