

**DISASTER AND ITS SOCIO-ECONOMIC IMPACTS TO COMMUNITY  
LIVELIHOODS CASE STUDY RONGAI SUBCOUNTY, NAKURU, KENYA**

**PETER MAGU KIMWAKI**

**SSC-G-4-0377-17**

**RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF HUMANITIES AND  
SOCIAL SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR  
THE AWARD OF DEGREE IN BACHELORS OF ARTS IN COMMUNITY  
DEVELOPMENT GREYSA UNIVERSITY.**

**DECEMBER, 2020.**

**DECLARATION**

This project is my original work and has not been presented for the award of a degree or for any other similar purpose in any other institutions.

Signature *pmagu* Date 18/12/2020

Peter magu kimwaki.

SSC-G-4-0377-17

Supervisor

This proposal has been submitted with my approval as a university supervisor

Signature *Stallam* Date 18/12/2020

Sheilla Tallam.

School of Humanities and Social Science.

Gretsa University.

## CONTENTS

DECLARATION .....	<b>Error! Bookmark not defined.</b>
ABSTRACT.....	9
CHAPTER ONE: INTRODUCTION.....	10
1.1 Background to the study. ....	10
1.2 Statement of research problem.....	12
1.3. Purposes of the study. ....	13
1.4. Conceptual framework.....	14
1.5. Objectives of the study.....	15
1.5.1 General objective .....	15
1.5.2 Specific objectives. ....	15
1.6 Hypothesis of the study.....	15
1.7 Significance of the study.....	15
1.8 Delimitations or scope of the study. ....	16
1.9 Limitations of the study. ....	16
CHAPTER TWO: LITERATURE REVIEW.....	17
2.1 Review of literature related to main concept. ....	17
2.2. Floods.....	18
2.3. Famine.....	19
2.4. Crops pest and livestock diseases. ....	20
2.4.1. Crops pest.....	20
2.4.2. Livestock diseases.....	21

2.5 Theoretical frameworks. ....	22
2.5.1 The system theory. ....	22
2.5.2 Organizational theory. ....	22
2.6 summary of identified gaps in literature review. ....	22
<b>CHAPTER THREE: RESEARCH METHODOLOGY. ....</b>	<b>24</b>
3.1 Research design. ....	24
3.2 Study area. ....	24
3.3 Target population. ....	24
3.4 Sampling techniques. ....	24
3.5 Sample size. ....	25
3.6 Measurement of variables. ....	25
3.7 Research instruments. ....	25
3.8 Validity of measurement. ....	25
3.9 Reliability of measurement. ....	26
3.10 Data collection techniques. ....	26
3.11 Data analysis. ....	26
3.12 Logical and ethical consideration. ....	26
<b>CHAPTER FOUR: DATA ANALYSIS AND FINDINGS ....</b>	<b>27</b>
4.0 Introduction. ....	27
4.1 Response rate ....	27
4.2 Bio-data information of the respondents. ....	29
4.2.1 Literacy levels ....	29

4.2.2 Gender of respondents .....	31
4.2.3 Age bracket of the respondents.....	35
4.2.4 Work experience of respondents.....	36
4.3 Discussion of the findings.....	<b>Error! Bookmark not defined.</b>
CHAPTER FIVE: RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS. ....	44
5.1 Introduction.....	44
5.2 Research findings.....	44
5.3 Research conclusions.....	45
5.4 Research recommendations. ....	45
REFERENCES. ....	46
APPENDICES. ....	48
BUDGET .....	48

**LIST OF TABLES.**

3.6 Measurement of variables.....25

List of figures

1.4. Conceptual framework..... 14

## **ABBREVIATION AND ACRONYMS**

IFRC.	-International Federation of Red Cross.
NDMU.	-National Disaster Management Unit.
MDGS.	-Millennium Development Goals.
SDGS.	- Sustainable Development Goals.
UNDP.	-United Nation Development Program.
KHRC.	-Kenya Human Rights Commission.
KNBS.	-Kenya National Bureau of Statistics.
FAO.	-Food and Agriculture Organization.
WHO.	-World Health Organization.
DRR.	- Disaster Risk Reduction.
NGOs.	-Non-governmental organization
WFP.	-World Food Program.

## OPERATIONAL DEFINITION OF TERMS

**Disaster.** Any calamitous events that lead to destruction of properties, loss of live economic as well as devastating impact.

**Disaster management.** Organization of resources and responsibilities in preparedness, response and recovery in order to achieve resilience to disaster and its impact.

**Disaster preparedness.** Measures taken to prepare for and reduce impacts created by a disaster in the case of it's occurrence.

**Disaster resilience.** Abilities to cope up, mitigate, predict, respond to disaster and minimize it's disruption.

**Livelihood.** Means of securing necessities of life such as economic activities, basic needs, shelter etc.

**Impacts.** The anticipated results or effects that are usually experienced due disaster occurrence especially negative effects including loses.

**Famine.** State at which is characterized by prolonged starvation due to lack of enough food to eat which result to death, suffering and malnutrition.

**Floods.** Overflow of water that submerge the dry land causing devastating effects such as loses, destruction and displacements.

**Natural disaster.** Catastrophic events due force of nature which beyond abilities of human being. For example; floods, pest infestation, diseases outbreaks, hurricane among others.

**Manmade disaster.** This are types of disaster that usually occurs due to human negligence or caused by human and causes destruction and loses as well as devastating impacts.

**Vulnerable.** Level of exposure or likelihood to get affected by disaster due to lack of resources to mitigate disaster or location and surrounding environment.

**Foot and mouth disease.** A disease that causes mouth ulcers and lesions on foot of animals such as cattle, sheep and goats.



## **ABSTRACT**

Disaster continues to pose great challenges to many governments, organizations and institutions across the world. By assessing past disaster experience, one can tell that disaster preparedness, response and mitigation to disaster are proportional to country level of development. Developed countries tends to suffer less as compared to developing countries which are at risk of being overwhelmed by disaster. Efficient and effective management of disaster has great potential of enhancing economic and social development in the country. The purpose of this study was to assess the impacts of disaster on the livelihoods of community in Rongai sub-county, Nakuru County. The study was influenced by many disaster that affects citizens, society, institutions, counties and the nation as a whole. Disaster include, fire, floods, landslide, terrorism, post-election violence among others. The objectives of the study is; 1. To assess socioeconomic impacts of floods on livelihoods of community, 2. Assessing socioeconomic impacts of famine on livelihoods of community, 3. Assess the socioeconomic impacts of crops pest and livestock diseases on livelihoods of community members Rongai sub-county. The study will be guided and influenced on theoretical framework including the system theory which emphasizes on the role of the systems for example family, society and organizations coming together and working as collaboration or in partners. The research would be in the form of case study research design because it offers in depth information of population, trends and picture of a particular area. Sample will be collected from 100 households by use of simple random sampling. The instrument for data collection would be based on questionnaire. Data will be cleaned and coded for analysis. Descriptive data analysis where by data will be analyzed by use of frequency distribution tables and inferential data analysis where by data will be analyzed by use of regression analysis.

## CHAPTER ONE: INTRODUCTION

This chapter consists of the following subtopics: Background to the study, statement of research problem, purposes of the study, the conceptual framework, objective of the study which comprises of general and specific objectives, research hypothesis which are stated in null, significant of the study, delimitation or the scope of the study and finally the limitations of the study.

### **1.1 Background to the study.**

Disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or a society and causes human, materials, economic or environmental losses that exceeds community or society's ability to cope using it's own resources. Though often caused by nature, disaster can be man-made (IFRC).The combination of hazard, vulnerability and inability to reduce potential negative consequences of risk result in disaster.

Natural disaster such as floods is costly in the need towards improving the livelihoods of residents and nation building towards the UN 2030 Agenda. This sustainable development agendas includes 17 goals that are set by United Nation members. The 2030 Agenda encourages all UN member state to develop national responses to overall implementation of the Agendas.

At UN summit held in New York in September 2015, world leaders adopted strategies to guide sustainable development goals of all member state in next 15 years. This Agenda define 17 SDGs. The 2030 agenda will assure possibility of future generations, as in clean, healthy and safer world. Again these Agenda adopted the work of Sendai framework for disaster risk reduction (DRR) 2015-2030 that was welcomed during the UN world conference on disaster risk reduction 2015. The framework emphasis was as follows; Understanding disaster risk, strengthening disaster governance to manage disaster risk, investing on DRR for resilience and enhancing disaster preparedness.

National Disaster Management Unit (NDMU) was established by presidential Directorate communicated through Ref .No CAB/NSC/14/2/32 dated 8th August 2013 as an effective and component disaster management Unit with an established command structure, budget and Standard Operating Procedures (SOPs) based at best practices. NDMU with ministry of interior and coordination of the government came up with a plan on 2014.The plan is

anchored in support of the long term vision 2030 where it seeks to promote safety, security and protecting Kenyan assets from adverse impacts of hazards and disaster.

Emergency planning provides strategies for disaster management with focus on effective preparedness, response to disaster and emergencies. In past Kenya has experienced many hazardous and emergencies events that have led to loss of lives, displacement of people, massive destruction of property among others. Kenya disaster profile is dominated by drought, fire, floods, terrorism, diseases and epidemics that disrupts the livelihoods destroy infrastructure interrupt economic activities and retarded development (George Khaniri. Mp 2018).

The government through its agencies is ultimately responsible for disaster reduction, preparedness and management. Government agencies involved in disaster management sometimes are usually overwhelmed when called upon to provide response services during disaster and emergencies. Several incidents that have happened across the country have shown how the government agencies of disaster management and response are overwhelmed during outbreaks of disaster. For example, previously on June 2020 fire tragedy was experienced at Gikomba market and which is not the first time to happen. The fire destroyed a lot of property and the county government of Nairobi was unable to put off the fire on time.

Early this year there was an incident at kakamega primary school where many of pupils died more than 20 due congestion at staircase. 47 people died, massive destruction of properties, displacement of many and other rendered homeless by Patel Dam tragedy Solai, Nakuru (KHRC 2018). Landslide have also claimed a lot of lives across the country for example 29 people were killed as a result, displacement, and destruction, others rendered homeless due to the tragedy as usual. 2008/2009 post-election violence which also had the similar effects that a disaster pose to the individuals, society, economic activities and the nation as a whole.

There are many hazardous, disaster and tragedies experienced by the nation and across the country as days go by. Disaster have always co-existed with civilizations. According to UNDP 2008), there is no country that does not stand a threat of a disaster, though they must be threatened at different levels. This means that every country is prone to disaster but the level of preparedness, skills and knowledge and technology will determine how the country would be affected and how they will handle that disaster and how they will come up with it. We should not argue and say that there is no country that cannot experience disaster but

rather and decide to stay and look but rather we should focus on effective measures, policies, knowledge gap and plans for disaster management.

Kenya is one of the most vulnerable developing countries to suffer very often from various natural as well as manmade disaster which strike causing devastating impacts on human life, economy and environment (Alexander 2002).The disaster include; droughts, floods, fire, landslide, transportation accident, terrorisms and post-election violence amongst others. Kenya is also vulnerable and exposed to several disaster crisis caused by climate variability and change. This crisis have derailed socioeconomic development and impacts negatively on achievement of millennium Development Goals (MDGs) and Kenya vision 2030.

This risks is hazardous turning into disaster with households or communities being affected such a manner that lives and livelihoods are seriously disrupted beyond capacity to cope or withstand using their own resources rendering them being dependent on aid by government and nongovernmental organizations. Level and nature of disaster preparedness is the determinant of how the institutions, organizations or nation will cope with the disaster. It is evident that a country, institutions or organizations with high level of skills, knowledge and preparedness in disaster management will suffer less compared to one with low level of skills, knowledge and preparedness in disaster management in case a disaster occurred.

Majority of residents in Rongai sub county involves themselves in agricultural production hence depend on agriculture to meet their livelihoods needs. The research study aimed at emphasizing the need for disaster preparedness at all levels be it individual, family, group, society, communities, institutions up to national level since there is need for everyone to be safe, secure, healthy and productive.

## **1.2 Statement of research problem**

The above background study has generated a public concerns with an impression that we are not actually very safe. We are prone and vulnerable to disaster on our day to day activities. This current situation is not actually better therefore we need to do something.

According to the research in the background study it's clear Kenya is vulnerable and prone to disaster and its evident that Kenya experience sorts of disaster nearly every year in some parts of the country which claims people lives, widespread human suffering, causes destruction as well as economic and environmental losses.

There is a need to know and have understanding of the impacts of disaster so that the responsible agency of disaster management and individuals can take the appropriate and effective actions in disaster management.

### **1.3. Purposes of the study**

The purpose of the study is to assess the socioeconomic impacts caused by natural disaster on the livelihoods of the community in order to make recommendations and informed policies and strategies in disaster management.

## 1.4. Conceptual framework

### Independent variable

#### Natural disaster

1. floods.  
-Prevalence.

2. famine.  
-Prevalence.

3. crop pest and Livestock diseases.  
-Prevalence.

### Dependent variables

#### Socioeconomic impacts of disaster

on  
community.

#### Social impacts.

- lose of lives.
- malnutrition.
- displacement of people.

#### Economic impacts.

- economic losses.
- destruction of property.
- destruction of infrastructure

Figure 1.4 conceptual framework.

## **1.5. Objectives of the study**

The study will have two types of objectives as follows:

### **1.5.1 General objective**

To assess the socioeconomic impacts of natural disaster on the livelihoods of community in Rongai sub county Nakuru.

### **1.5.2 Specific objectives**

1. To assess the socioeconomic impacts of floods on the livelihoods of community.
2. To assess the socioeconomic impacts of famine on the livelihoods of community.
3. To assess the socioeconomic impacts of crop pests and livestock disease on the livelihoods of community.

## **1.6 Hypothesis of the study**

The research proposal will be guided by the following hypothesis:

H01. Floods have no socioeconomic impacts on livelihoods of community.

H02. Famine have no socioeconomic impacts on livelihoods of community.

H03. Crops pests and livestock disease do not have socioeconomic impacts on livelihoods of community.

## **1.7 Significance of the study**

The study will be significant and beneficial as follows:

The information that would be provided would also be useful to the agencies of disaster management and other stakeholders of Nakuru County that works in the line of disaster and risk reduction .The study is significant in the sense that it will provide information to the government in formulation of policies and strategies for disaster management by the county government.

The study will also be significant to academician. It will inspire and provide helpful information to researchers who will come and do the research in the same field of the study that is disaster management at Nakuru County or somewhere else.

The study will also benefit the civil society, NGOs and other organizations that work in provision of safety care and assistance to the people affected by disaster as it will provide with information about those affected by disaster.

### **1.8 Delimitations or scope of the study**

The study would be limited in studying on sub county of Nakuru that is Rongai because previously the area had been affected by several disasters including floods, famine, crops pests and livestock disease among others. Rongai Sub County has a population of about 198,000 people according to KNBS. The population of study will be the community that have been affected by previous disaster including floods, famine, crops pest and livestock diseases in Rongai sub county.

### **1.9 Limitations of the study**

During the period of research there is no assurance that the process will be smooth and easy to take. There are some challenges that I might face during my research work. However, there are also ways in which I can cope with them in order to accomplish my research work. The following are the challenges and how I will come up with them:

1. Cooperation by the respondents. Some respondents may fail to cooperate or provide with some information. I will assure them that the information provided will be safe and confidential.
2. Transportation issues. The area of study is characterized by lack of all-weather roads which hinders the means of transport. I will try and use the alternative means of transport when one fails.
3. Climatic conditions. The area climate is characterized by hot and dry climate because it experiences sunny days so hot but I will start my activities early in the morning before it gets hot.



## **CHAPTER TWO: LITERATURE REVIEW**

This chapter consists of review of related literature used in conceptualization of research theme. It provides with information on disaster related to floods, famine and crops pest and livestock diseases. Disaster have become a main obstacle in the achievement of sustainable development in country, (Owour 2015). This chapter also consists of theoretical framework that will guide the research objectives. Theories include, system theory by Ludwig Von Bertalanffy. The basic idea behind this theory is that the whole is greater than the sum of its part. And organizational theory which studies organizations to identify patterns and structure they use to solve their conflicts, improve production and meet expectations of its stakeholders. It recognizes subsystems by understanding the interconnectedness, interdependence that is vital between to develop complete system. This chapter also consists of the summary of identified gaps in the literature review.

### **2.1 Review of literature related to main concept**

The measurement core disaster resilience are further categorized in such a way that we have; economic, social, institutional, information, infrastructure and environmental resilience (Cutter, 2018). Disaster stress is concerned when we evaluate the disaster resilience, This is according to (Fang, 2018). There is need for disaster evaluation especially how organizations, institutions, livelihood and environment cope with disaster so as to enhance disaster resilience. Social resilience is that ability by social institutions and mechanism to effectively predict, mitigate and respond to disaster, and minimize social disruption. This according to (Teo and Ziyath 2018).

However, (Fang et al., 2018) argued that the trend focusing on resilience has left a gap in the understanding of livelihood resilience and made it difficult to identify critical indicators for the livelihood resilience across different scale indicators of livelihood resilience. It was placed into four categories that is; individual livelihood coping capacity, individual wellbeing, social physical robustness of community and finally access to livelihood resources.

## **2.2. Floods**

Since 1996, around 150,061 floods events have occurred globally representing about 11% of global disaster fatalities. This is according to information provided by United Nation Office for Disaster Risk reduction (UNDRP) (Hong et al., 2017). According to Global Humanitarian Overview ( 2019), climate related disaster including floods and drought accounts for more than 90% of world disaster and affects greater number of people. Between the year 2014 and 2017 floods were most prevalent type of disaster in the lines of global trends.

Natural disasters can result to huge loss of lives and socioeconomic damages as well (Hyndman 2016). Among natural disasters, flooding is considered as the one that can cause devastating damages as well as fatalities in the world. According to Natural Climate change center of China report, average amount of economic losses that is experienced in China due to floods is about 17billion US dollars since the year 1990 (Hong et al.,2008;Zhang et al.2015)

According to WHO report, between 1998 and 2017 floods affects more than 2 billion people globally. People who lives in floods or buildings prone to disaster or lack warning system and awareness of flooding effects are most vulnerable to floods. Kenya also like other nations affected by disasters it is also included in the list of the countries affected by floods episodes over two decades. More recently Kenya have experienced floods which have caused devastating impacts on its economy. It is estimated to have affected 3.4 million people.

At county level Nakuru also have not been left behind in experience of floods. Some reports shows that it have been affected by floods recently. Some part including estates were occupied by floods causing devastating damages. Also the county have experienced a tragic disaster of floods that is Solai dam tragedy which was experienced 2018.

Therefore, there is great need for the identification of ways or how we can reduce the impacts of floods to avoid loses and expenses that the country may be subjected to. Disaster management is vital in ensuring that the nation is prepared to cope with disaster especially floods. Identification and prioritization of areas that are prone to floods is necessary so that to prepare arrangement for mitigation of floods (Hong at all., 2018).

Geographical Information System (GIS), has been used as effective tool for analysis of spatial data because it is able to handle large amount of data (Khosravi et al 2016). Large varieties of models have been used in determining susceptibility in different areas including,

Frequency ratio (FR), Logistics Regression (LR) (Nandi et al., 2016). More recently machine learning methods in floods studies have been shown by many researchers (Khosravi et al. 2018).

However, no general agreement have been reached upon especially selection of best models for natural hazard assessment such as floods. (Chapi et al., 2017) has claimed that machine learning methods is the main source for data driven modelling which can be applied for modelling.

### **2.3. Famine**

According to the encyclopedia of food science and nutrition, Famine can be said to be a prolonged scarcity of food causing starvation and or diseases related from malnutrition. Famine have occurred from time to time throughout the history of mankind and there are records that shows this including the Bible and Quran other literally works by researchers. Around 9 million of the population die every year of hunger and hunger related diseases accounting much more than death caused by HIV/AIDS and malaria and TB combined. Globally reports are saying that 822 million people suffer malnutrition in 2018.

Famine exposes challenges to nation in achievement of United Nation sustainable development goals of zero hunger by 2030. The number of affected population lie hugely on Africa especially developing countries where 20% of the population don't get enough food to eat. In 2015 leaders of the world discussed new strategies of sustainable development goals to eradicate hunger, achieve food security, nutrition and promote sustainable agriculture that is interconnected with poverty, disaster, among effects of social, political, environmental, demographic, and societal factors.

WFP provided a prediction that number of people facing acute food insecurity stood at about 265 million people by 2020 up from 135 million in 2019. Famine have been attributed to have been caused by several factors including war, climatic change, crop pest and animal diseases, among others. Kenya was ranked position 86 out of 117 countries affected by hunger on 2019 this is according to Global Hunger Index reports on hunger crisis in the world. According to the WFP people who are vulnerable to food insecurity in Kenya live in dry areas which is about 80% of the country. At least 2.5 million Kenyans are facing starvation due food insecurity in the country.

According to the Drought Management Authority, those that are affected are from arid and semi-arid land in Kenya. People living in poverty frequently are exposed to food insecurity since they cannot afford to buy or access food that is safe for their health. Conflict is the key driver or causes of food crisis including famine. This is according to recognition by United Nation Security Council 2018. Weather related effects associated to climate change will also impact on food security leading to food insecurity. Meanwhile, some reports are showing that locust invasion across East Africa, outbreak of corona virus pandemic also exposes nations to great risks of famine.

Locusts have caused devastating damages to crops which is likely to cause low production while corona virus have caused low economic activities exposing many to food insecurity. There is call for urgent, coordinated actions to step up public health response efforts in order to ensure food security by strengthening social safety, protection of vulnerable population, encouraging cooperation among governments among other strategies.(Brigitte 2019)

## **2.4. Crops pest and livestock diseases**

### **2.4.1. Crops pest**

According to information provided by Integrated Research on Disaster Risk (IRDR) program, insects infestation classified as biological hazard and described as the pervasive influx, swarming and or hatching affecting humans, crops or animals. Examples includes locust, armyworm, African bees etc. Also it is good to note that not all insects are pest but there are some which are harmful to crops, livestock and human. Insects especially pests are responsible for devastating loses to worlds crop production annually, this is according to IRDR.

A study that was commissioned last year by British government Department for International Development found that in 12 African countries the loses that would arise from devastating impacts of crops pest could range from 252 billion to about 600 billion. According to information provided by FAO on the report of pest, one major reason for occurrence of this pests man manipulated habitats, with crops selected for their large size, high yields, nutrition values clustered in a confined area. This provides conducive environments for the insects that consume or depends on plants as their food.

Kenya and some parts of Kenya have continued to experience infestation of pests which includes, armyworm, and more recently the desert locusts. US Agency for International Development have estimated that up to 50% of maize crops could be destroyed by fall armyworm (USAID 2019). Maize is a staple food the larger population of Kenyans which accounts for about 80% of population hence devastating losses by these pests could lead to food insecurity and large population will be starving or suffer.

Last year the government of Kenya spent about 6 billion for maize subsidiary program. This anticipated destruction from caterpillars also armyworm worsen food shortage affecting part of Kenya and other African countries (Ms Eddy).

#### **2.4.2. Livestock diseases**

According to FAO Trans boundary diseases are highly contagious epidemic disease that can spread rapidly without boundary or border consideration. They cause great losses as well as serious socioeconomic and sometimes public health consequences. Globalization, climate change have been attributed to outbreak of these diseases. Such diseases include foot and mouth disease, anthrax, Rift valley fever, swine fever, yellow fever amongst others.

Livestock offers support out of poverty for an estimate of 750 million people of Africa and Asia who depend on livestock for food, nutrition and economic stability. The animal health experts continue to support the government to manage the outbreaks of these diseases especially foot and mouth disease, anthrax, rift valley fever among others that pose a threat to devastating damages across Africa.

According to FAO representative, Gabriel Ragalena said that strengthening capacity to control the damages by animal diseases, FAO's animal health activities protect the livelihoods of those who depend on livestock for their livelihoods need. FAO also in 2018 trained more than 3,000 professions so that to strengthen skills and capacity for surveillance, early warning system, diagnosis and risk communication.

According to the report by media that is Daily Nation provided 6 October 2019, Nakuru County has been hit by the disaster of foot and mouth past two decades and was struggling with an outbreak of foot and mouth disease which is contagious and causes mouth ulcers and foot lesions to cattle, goat and sheep. It killed dozens of animals in the region including

Rongai, Elburgon, Solai and Subukia. The case was confirmed by county agriculture minister Dr Immaculate Njuthi Maina (2019).

## **2.5 Theoretical frameworks**

The study was influenced by two theoretical framework that is the system theory and organizational theory in trying to understand the roles of individuals, groups, society and government in disaster management.

### **2.5.1 The system theory**

The system theory comes from general system theory proposed by a biologists Ludwig Von Bertalanffy. The basic idea behind system theory is that "the whole is greater than some of its parts". This try to implies that coming together in collaboration by the subsystem ie family, society, groups, organization among others is more important as it is effective than working in isolation of subsystem. It also borrow some idea from biology where by systems of the body working together for the better of individuals for example breathing system, cardiac system among others that play critical role for the living organism.

### **2.5.2 Organizational theory**

This theory studies organizations so that to identity patterns and the structures they use to solve problems as well as improving production and meet expectations of stakeholders. The theory also recognizes subsystem by understanding interdependence which vital between so that to develop a complete and effective system. Systems rarely exist in isolation it consists of subsystem with different roles but working for common good.

## **2.6 summary of identified gaps in literature review**

Although many studies and literature have pointed out that is actually very important to understand the relationship between sustainability, livelihood resources, natural disaster and livelihood strategies, the work on assessments studying their interconnectedness is still very scarce.(fang 2018).Disaster stress is more concerned when we evaluate the disaster resilience in all systems including subsystems such as, individual, family, society, institutions, environmental up to national and international levels of disaster resilience.

Understanding the impacts of disaster or disaster awareness on livelihood of the community creates a basic foundation for understanding disaster resilience of the community. There is

need of knowledge and understanding of what are the impacts that a natural disaster cause to the community so that we can develop strategies and measures for disaster preparedness to promote disaster resilience. Hence this research work is aimed at assessing the socioeconomic impacts of disaster or livelihood of community so that it can promote disaster awareness in promoting resilience.

The research is also in line with Sendai's framework of disaster risks reduction DRR that was discussed in 2015 by world leaders in that it will promote disaster awareness which is one of its agenda in promoting sustainable development goals by 2030. Residents of Rongai sub county relies mostly on agriculture hence large population of the region involves themselves in agricultural production activities. More recently the area have been experiencing various natural disasters including floods, famine, crops pests and animal diseases.

The research therefore aimed at assessing the socioeconomic impacts that natural disaster for this case floods, famine crops pests and animal diseases on socioeconomic livelihoods of the community in that area.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

This chapter explains the methodologies that the researcher will use in the research. It consists the research design that this research will adopt, the study area where the researcher will be carrying out research, the target population which the researcher aimed to study. It also explains techniques that researcher will use such as sampling, measurement of variables, the research instruments that will be used, validity of measurement, reliability, data collection and analysis as well as logical and ethical consideration.

### **3.1 Research design**

This study research adopts case study research design. Case study design provide with in depth information and picture to the reader of the existing condition, phenomenon, population, traits, frequents and trends. The study also adopt the survey method of the study because it involves collection of information and recording them on questionnaire.

### **3.2 Study area**

The area of study or where the research will be carried out located at Nakuru county, Rongai Sub County, in Kenya. The area have experienced several disaster recently and some occurs over decades. This disaster include, famine, floods and crop pests and animal diseases outbreaks.

### **3.3 Target population**

The research aims at studying the population that have been affected by the disaster in Rongai sub county Nakuru. The population of study includes those who have been either directly or indirectly affected by disaster such as floods, famine, crop pest and animal diseases in the region. Member, groups or organization in Rongai constituency including famers and individual forms the target population of study. The target population of the study included 2000 house holds

### **3.4 Sampling techniques**

The research will use simple random sampling whereby every respondent is given equal chance to offer with in provision of information. It does not discriminate hence there is more chance of getting wide information about the community.



### 3.5 Sample size

Since Rongai sub country have large population that can be difficult for the researcher to carry out research, 100 households would be sampled for the assessment to represent the population. The research will adopt Cochran's formula for calculation of sample.

$$n_0 = (z^2 pq) / (e^2)$$

Whereby  $n_0$  is the sample,  $e$  is desired level of precision ie margin of error.  $P$  is estimated proportion, and  $q$  is  $1-p$ .

### 3.6 Measurement of variables

Variables.	Measurement.	Question number.
1. Floods. -prevalence.	- ordinal	2, a
2. Famine. -prevalence.	-ordinal	2,b
3. Crops pests and livestock diseases. -prevalence.	-ordinal	2,c 2,d

### 3.7 Research instruments

The research will use questionnaires to collect data. The questions will be both open ended and closed ended where by it will contain questions that requires yes or no answers and some part where respondents will be required to give a little detailed information.

### 3.8 Validity of measurement

To ensure that the instrument valid and also measurements the research will use literature review looking at what other researcher have said or done.

### **3.9 Reliability of measurement**

Also in order to ensure that measurement provided in the research work are reliable or measurements are reliable and consistent the research will use the Cronbach's alpha formula which is provided by the university guide.

### **3.10 Data collection techniques**

Questionnaires will be used to collect information from the area of study. Questionnaire saves time and also resources as it is easy for one to collect wide range of information from many respondents as possible.

### **3.11 Data analysis**

Data collected will be clean and coded for analysis. Data will be analyzed by use descriptive method of analysis where by data will be analyzed by used of frequency distribution tables, pie charts and graphs. It will also be analyzed by use of inferential analysis whereby data will be analyzed by use of regression analysis for example using this formula.

$Y=a+bx+c$  to find out the relationship between dependent variable and independent variable, where y- represents dependent variable, x- independent variable, a- is the intercept, b- is the slope and c- represents residual error. [Statisticshowto.com](http://Statisticshowto.com), linear regression 2020.

### **3.12 Logical and ethical consideration**

To avoid chaos and embarrassments, the research will be guided by informed consent, voluntary participation, and confidentiality, doing no harm and only assessing the relevant components.

## CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

### 4.0 Introduction

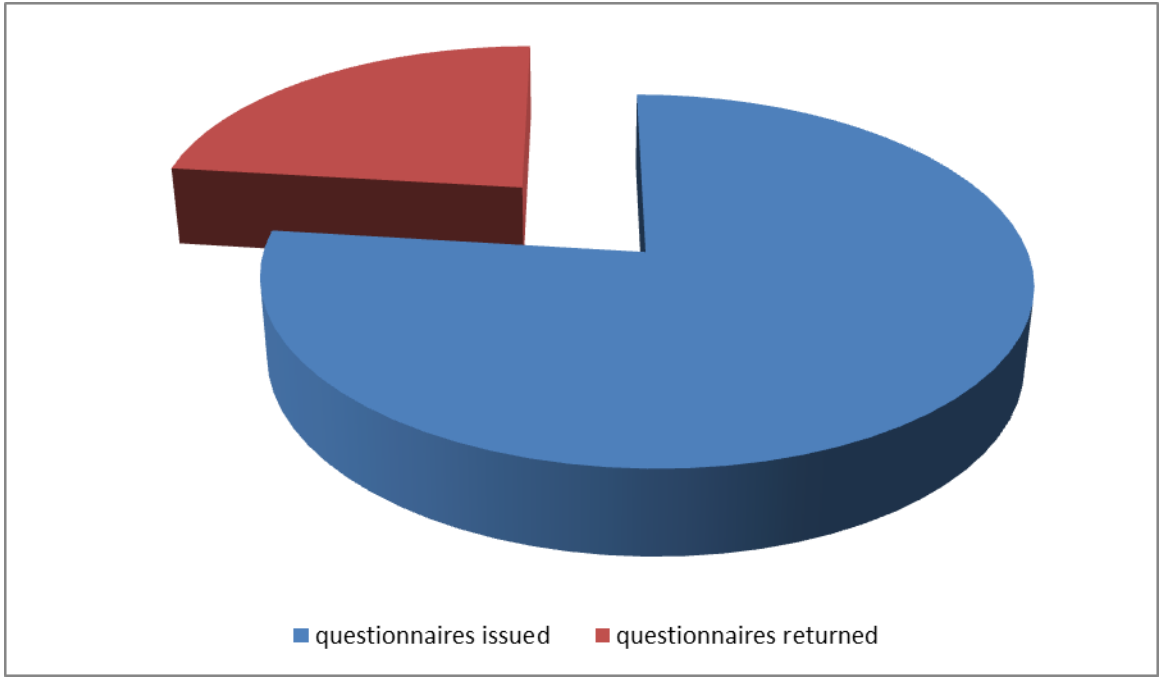
This section mainly contains the various information pertaining the data analysis that was mainly conducted by the researcher and the various findings that were in turn accounted for by the researcher.

### 4.1 Response rate

The research study was able to engage a sample size of 100 respondents in which the researcher was able to issue all the respective respondents with the questionnaires. After one week of timely allowing the respondents to answer the questionnaires, the researcher was able to get back all the necessary questionnaires for the sole purpose of data analysis.

The research study was able to account that out of the 100 respondents that were engaged in the study, 30 of the respondents were able to answer effectively the questionnaires while 70 of the respondents did not engage themselves in the process of answering the questionnaires.

	Numeric figure	Percentile index figure
<b>Questionnaires issued</b>	100	100%
<b>Questionnaires returned</b>	30	33.33%



## 4.2 Bio-data information of the respondents

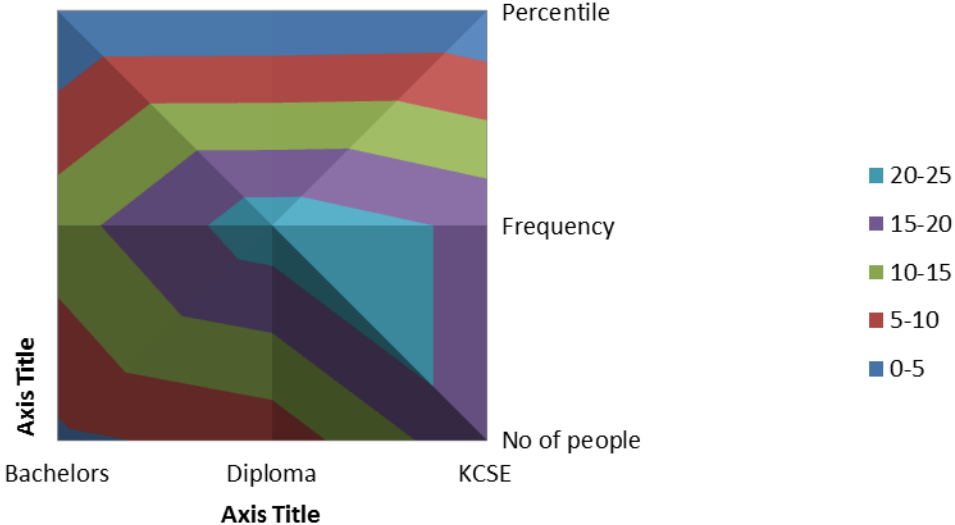
The researcher was able to carry out an extensive research study under which the researcher was able to account out several information about the respondents bio-informational data. The findings of the respondents were as below.

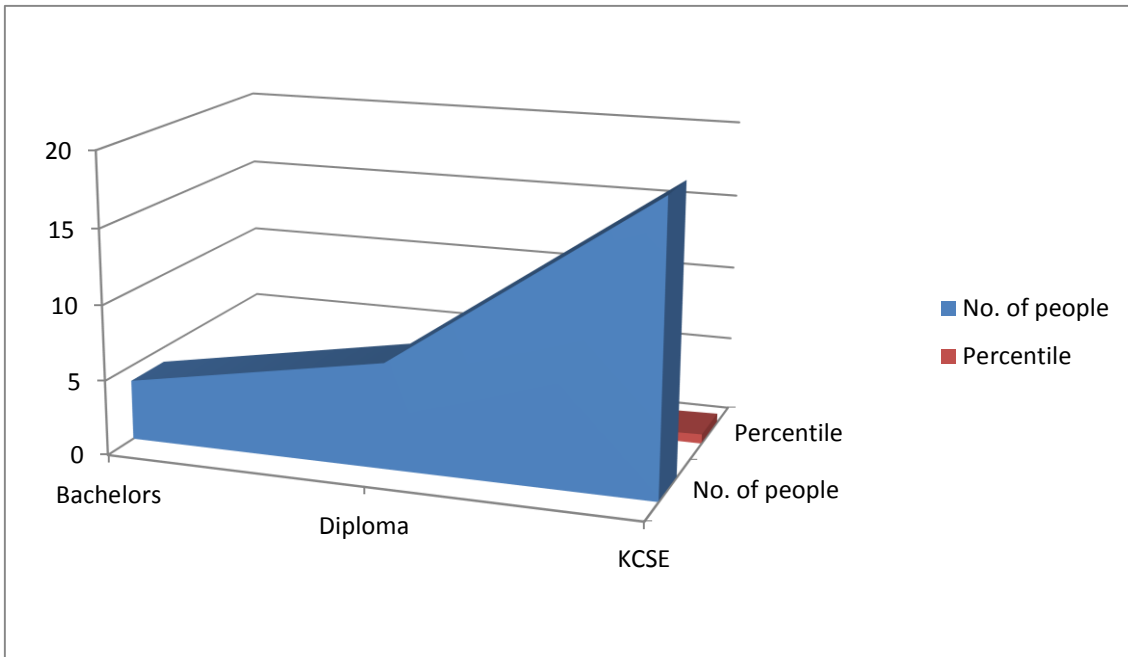
### 4.2.1 Literacy levels

The researcher was able to computatively analyze the given data below and was able to account out that out of the thirty respondents that were sampled out by the respondents a given fraction of the respondents represented respondents that had attained a bachelor' s degree in business related courses while the remaining number of respondents had attained a master' s degree in business.

	<b>No. of people</b>	<b>frequency</b>	<b>Percentile</b>
Bachelors	4	13	13.33%
Diploma	7	23	23.33%
KCSE	19	19	63.33%

# LITERACY LEVELS



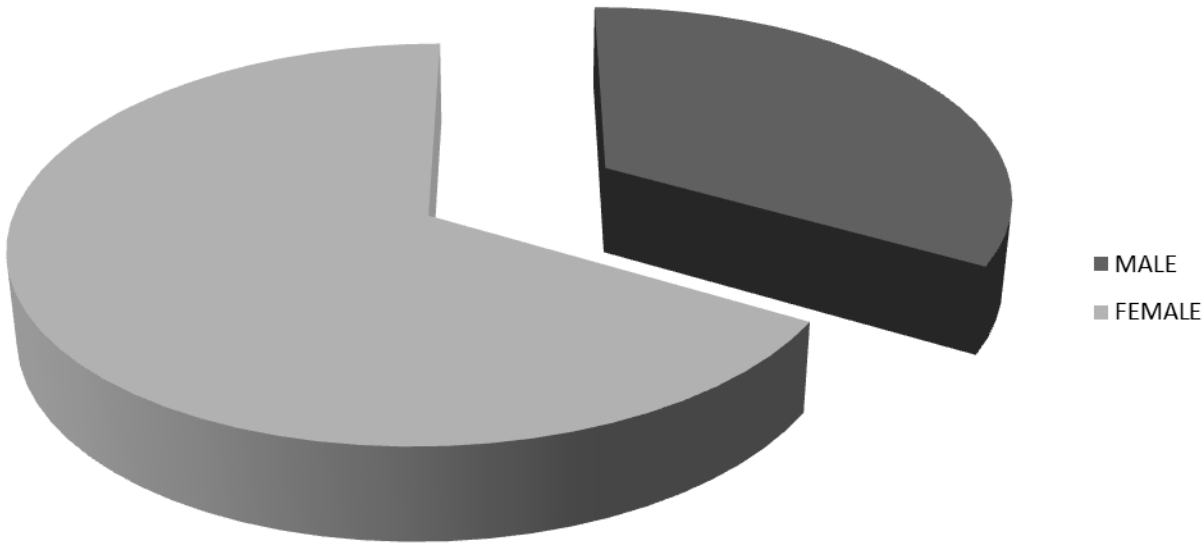


#### 4.2.2 Gender of respondents

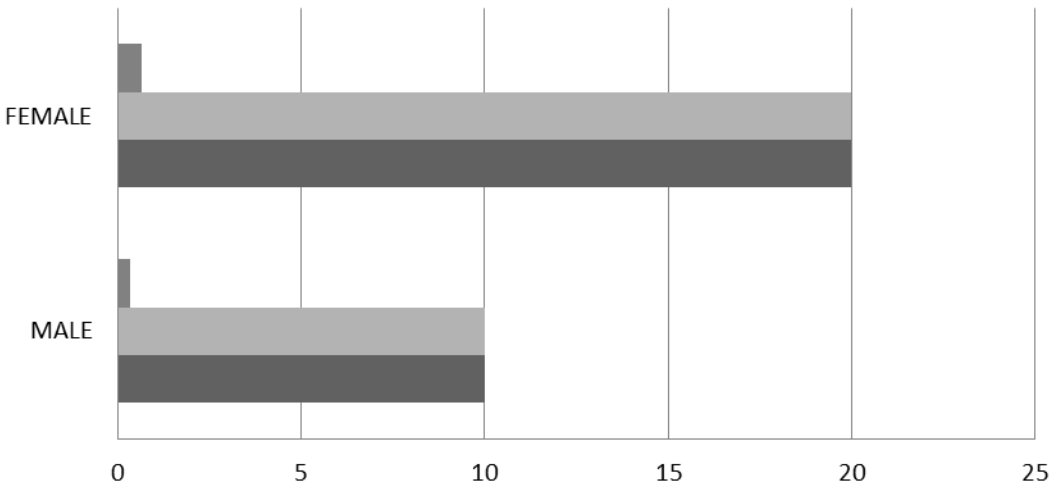
The research study was able to computatively analyze fraction percentile of the number of male and female workers in the organization and in turn the researcher was able to account out that out of the 30 respective numbers of respondents sampled out the researcher was able to find out that 20 of the respondents were female while the remaining number of respondents were male.

Gender cluster	Total number	Cumulative	Percentile
Male	10	10	33.33%
Female	20	20	66.67%

### GENDER OF THE RESPONDENTS



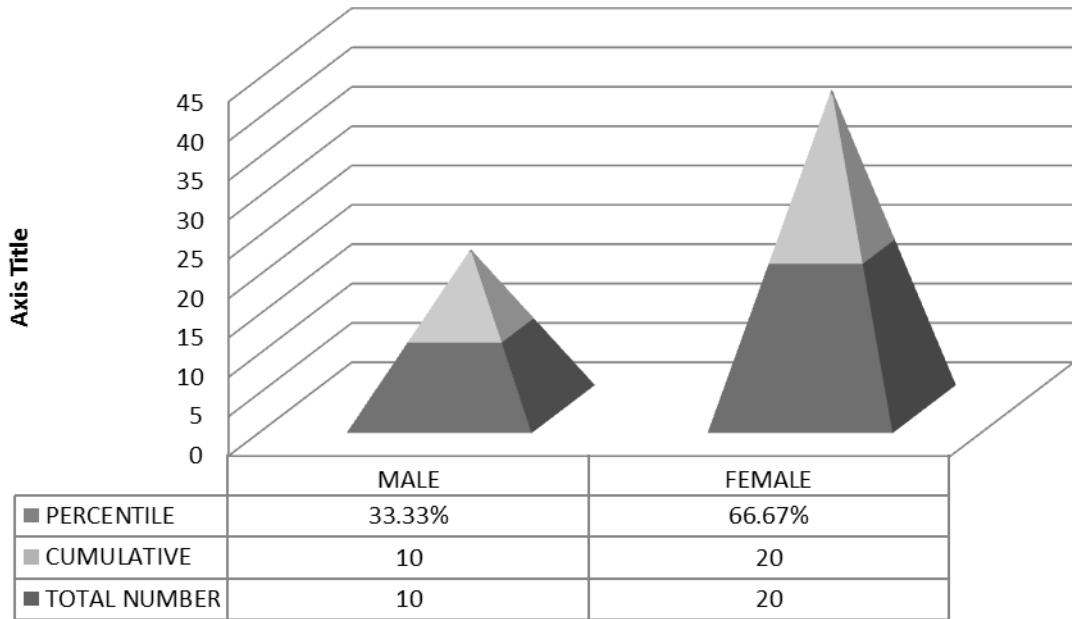
### GENDER OF THE RESPONDENTS



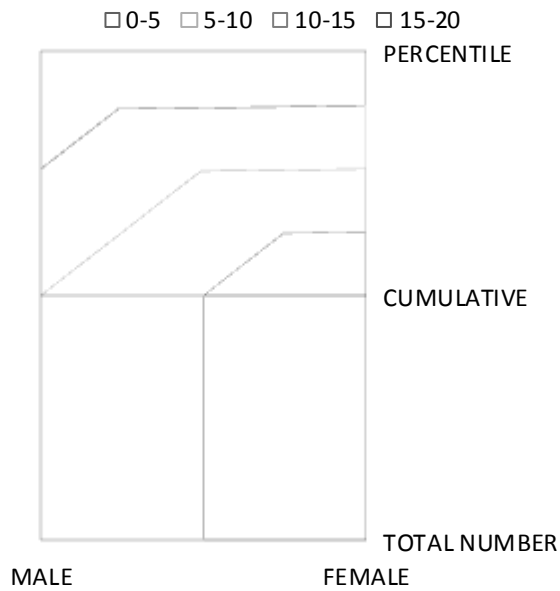
	MALE	FEMALE
■ PERCENTILE	33.33%	66.67%
■ CUMULATIVE	10	20
■ TOTAL NUMBER	10	20



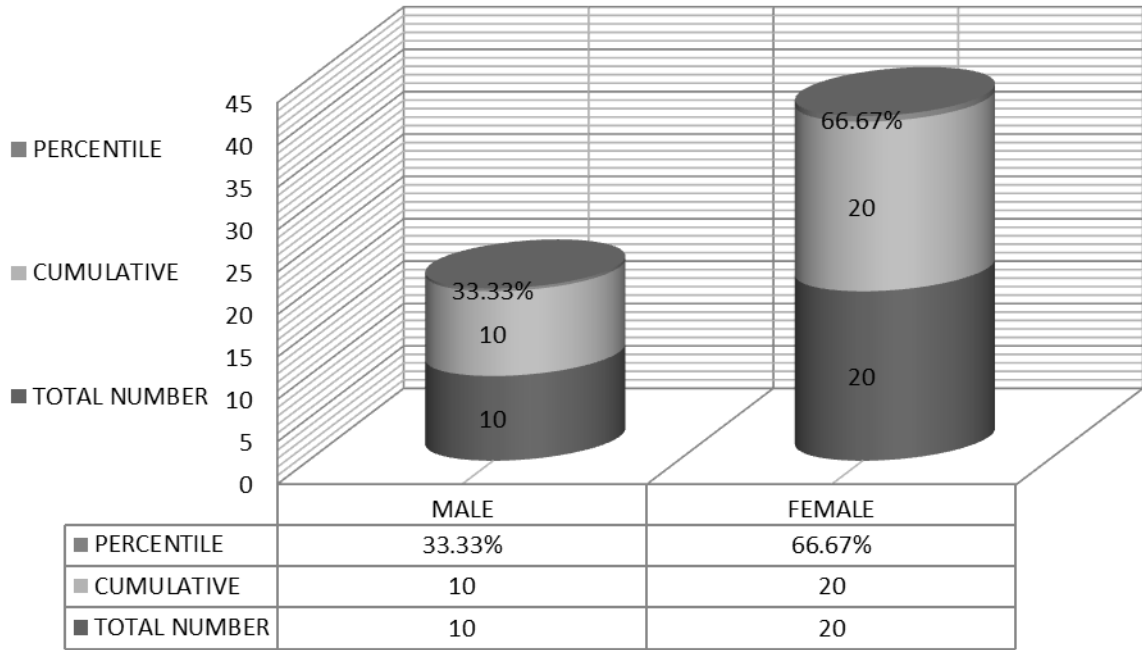
## GENDER OF THE RESPONDENTS



## GENDER OF THE RESPONDENTS



## GENDER OF THE RESPONDENTS



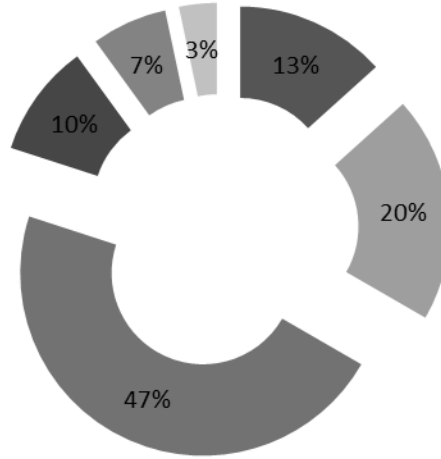
### 4.2.3 Age bracket of the respondents

The researcher was able to carry out an extensive research analysis on the age bracket of the respondents that were mainly taking part in the research. The research study was able to verify out the following analysis pertaining the age bracket of the respondents.

<b>Age bracket cluster</b>	<b>Total number</b>	<b>Cumulative</b>	<b>Percentile</b>
20-25 years	4	4	13.33%
26-30 years	6	6	20%
31-35 years	14	14	46.67%
36-40 years	3	3	10%
40-45 years	2	2	6.67%
46-50 years	1	1	3.33%

## AGE BRACKET OF THE RESPONDENTS

20-25  
  26-30  
  31-35  
  36-40  
  40-45  
  46-50



### 4.2.4 Work experience of respondents

The researcher was able to extensively calibrate and validate the various working experience of the respondents who were in turn working at the respective organizations. Upon an analysis of the findings the research study was able to outline the various working experience of the respondents as below;

Working experience cluster	Total number	Cumulative	Percentile
Below 5 years	9	9	30%
5-7 years	5	5	16.67%
8-10 years	3	3	10%

11-13 years	7	7	23.33%
14-16 years	1	1	3.33%
17-19 years	2	2	6.67%
Above 20 years	3	3	10%

## Descriptive Data

Analysis of the data collected from the research was done based on the variables of the study, floods, famine crops pest and livestock diseases and their result to social impact and economic impact to the community.

### 4.41. Descriptive Analysis of floods

To analyze how floods as a variable affects the real livelihood of the community in Rongai sub county Nakuru, the respondent were asked on questions about disasters impact to the community in respect to it being a variable. Using the Likert scale of 1 to 5, the responses ranged as follows; 1-Strongly Disagree, 2- Disagree, 3-Neutral, 4-Agree and 5-Strongly Agree.

Descriptive Statistics			
	N	Mean	Std. Deviation
There is likelihood of occurrence of floods in the region	30	3.83	1.020
floods have led to destruction of properties and loss of lives	30	3.83	1.289
Floods forms one of the major natural disaster in the region	30	3.93	1.112
Valid N (list wise)	30		

From the scale based on the mean of the responses, 1-2.4 stood for ‘ Strongly Disagree’ and ‘ Disagree’ , 2.5-3.4 symbolized ‘ Neutral’ and 3.5-5 stood for ‘ Agree’ and ‘ Strongly Agree’ .

There is likelihood of occurrence of floods in the region had a result of moderate degree (Mean 3.83), floods have led to destruction of properties and loss of lives was the next variable with a (Mean 3.83) and the likelihood of occurrence of the floods in the region had a mean of (Mean 3.93). The aggregate mean of the findings of this research (Mean 3.86). This indicated that most of the respondent agreed to the term of flood destruction in the region as a natural disaster

#### 4.42. Descriptive Analysis of Famine

The Linker scale of 1-5 was also applied on famine where 1 represented Strongly Disagree, 2 Disagree, 3Neutral, 4 Agree and 5 Strongly Agree. Table 4.42 shows the findings of the research.

<b>Descriptive Statistics</b>			
	N	Mean	Std. Deviation
Famine contribute to the loss of live in the region	30	3.07	1.143
Famine has contributed to the raise of cases of malnutrition among community members	30	3.23	1.104
Famine occurs frequently in this area	30	3.90	.885
Valid N (list wise)	30		

From the scale based on the mean of the responses, 1-2.4 represented ‘ Strongly Disagree’ and ‘ Disagree’ , 2.5-3.4 symbolized ‘ Neutral’ and 3.5-5 stood for ‘ Agree’ and ‘ Strongly Agree’ . From the study, an average number of respondents agreed that famine regularly occurs in the region had a (Mean 3.90) and those who agreed that famine contribute to loss of lives had a (Mean 3.07). A higher number agreed that malnutrition was as a result

of famine had a (Mean 3.23). The aggregate mean of data collected on demand (Mean 3.53) shows that famine had an effect on community livelihood.

#### 4.43. Descriptive Analysis of crop pest and livestock diseases

The respondents' data on wages were analyzed using the same scale as the other variables; 1 being Strongly Disagree, 2 being Disagree, 3 being Neutral, 4 being Agree and 5 being Strongly Agree. Analysis of data was done based on their strengths from the respondents' choices.

Descriptive Statistics			
	N	Mean	Std. Deviation
Crop pest and diseases contributes to destruction of properties	30	3.77	1.194
Crop pest and livestock diseases have contributed to economic loses	30	3.83	1.053
Crop and animal diseases have occurred regularly along the region	30	4.00	1.017
Valid N (list wise)	30		

Of the questions asked, the range 1-2.4 represented ' Disagree' and ' Strongly Disagree' , which were moderate responses, 2.5-3.4 showed neutral responses and 3.5-5 part of the scale was an indication of ' Agree' and ' Strongly Agree' . The findings of the research showed Crop pest and diseases contributes to destruction of properties had a (Mean 3.77), Crop pest and livestock diseases have contributed to economic loses had a (Mean 3.83), Crop and animal diseases have occurred regularly along the region had a (Mean 4.00), The aggregate



mean of these responses (Mean 3.92) indicated that crop pest and diseases had a major impact to the community

#### 4.5. Regression Analysis.

This study applied regression analysis to determine the relationship between the independent variables floods, famine and crop, pest and diseases. The dependent variable social economic impact.

Firms. Given the variables under study were four, the study used multiple regression analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	
1	.777 <sup>a</sup>	.604	.558	.47004	.604	13.193	3	

a. Predictors: (Constant), floods famine and crop pest and livestock diseases

The R Square coefficient of this study 0.604 which shows the extent to which the independent variables affect the dependent variable. This means that the variables floods famine and crop pest and livestock diseases contribute to up to 60.4% impact to the community livelihood. Other factors not addressed by this study influence 39.6% of the performance. Further studies therefore need to be conducted to fill the gap of the other disasters and social economic impacts and their impact to the livelihood of the community.

ANOVA <sup>a</sup>					
Model	Sum of Squares	Df	Mean Square	F	Sig.

1	Regression	8.745	3	2.915	13.193	.000 <sup>b</sup>
	Residual	5.744	26	.221		
	Total	14.489	29			
a. Dependent Variable: social economic impact						
b. Predictors: (Constant), econ loses destruction deaths malnutrition displacement						

ANOVA results from the study showed a significance level of 0.00 hence showing the regression model used was significant. Moreover, F being 13.19 at 5% level of significance indicate a significant relationship between the independent variables and their impact on disasters and social economic impact to the livelihood of the community.

		Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.824	.716		2.793	.049	.528	
	Floods	.121	.138	-.109	-.881	.012	-.405	
	Famine	.997	.211	.658	5.225	.001	.670	
	Crop pest and diseases	.574	.131	.550	4.379	.000	.843	
a. Dependent Variable: social economic impact								

From the coefficients table, price had a significance level of 0.012, floods 0.001 and famine 0.010. At 95% level of significance, the B values of the independent variables were - 0.121 for floods, 0.997 for famine and 0.574 for crop pest and diseases. The p values of the variables; floods 0.012, famine 0.001 and crop pest and diseases 0.00 indicate a significant relationship between the variables and their impact in the region.

With the regression model being  $Y=B_0+ B_1X_1+B_2X_2+ B_3X_3$ , the equation of this study was;

$$Y= 1.824- 0.121X_1+ 0.997X_2+ 0.574X_3$$



## **CHAPTER FIVE: RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter mainly highlights on the research study, research findings, research conclusions and the research recommendations as well as the suggestions for further studies.

### **5.2 Research findings**

The researcher was able to conduct out a wide research in the respective case study area at large. Some of the challenges that the researcher was able to overcome in order to ensure that the research study is successful is the aspect whereby the researcher had not all of the questionnaires returned towards him for the aspect of data analysis and thus resulted towards impartial data that was analyzed by not the exact number of sampled respondents used in order to facilitate them with the aspect of analyzing and drawing out conclusions of the research study.

The other research finding that the researcher was able to identify was the fact that there was necessary information on the aspect of data compiled with respect to the gender of the respondents. The researcher was able to identify and find out that in turn a higher percentile number was significantly evident towards the aspect of female population compared to the ample population of the sample size at large.

The researcher was able to find out at large that most of the literacy levels of the respondents were mainly clustered into between three common levels which were mainly respectively, masters, and Bachelor' s degree and diploma holders whereby 40% of the respective sample size were classified as Bachelor' s degree holders.

Lastly the other aspect that had keenly been observed was Some of these finding were that any occurrence of natural disaster may in turn result towards the aspect of various challenges such as -loss of lives, malnutrition, displacement of people while various economic impacts result to a challenge in the following aspects to the community at hand respectively i.e. economic losses, destruction of property, destruction of infrastructure

### **5.3 Research conclusions**

The researcher in turn was able to conclude that the aspect of natural disaster does indeed have an impact towards the aspect of social and economic impact towards the respondents at large who indeed were investigated in the research study.

### **5.4 Research recommendations**

Some of the researcher' s recommendations were as of the following:

- a. The research recommends more research to be carried out in order to improve the social challenge aspect that is being experienced in the research study
- b. The research recommend that there is need to provide educational information to citizens on disaster management and mitigation.
- c. The research gives out recommendations that there should be further research carried out to identify and realize some of the other challenges affecting the respective sampled residents in the research study.

## REFERENCES

- Alexander,D. 2002. Kenya is one of most vulnerable developing countries from natural and manmade disaster.Kenya.
- Brigitte, R.2019 situation analysis. Kenya.
- Chapi, K, & Shahari ,H,2017, Forecasting approach using combination of machine learning and statistical models for floods susceptibility mapping.
- Cutter, SL.2018. Natural climate change, building community resilience.8.(3) (9) 199,2018.
- Daily nation reports published 10th October 2019, disaster of crops, foot and mouth outbreak, floods occurrence.Kenya.
- Encyclopedia of food science and nutrition. Famine.
- FAO 2018, www.fao.org animal health, animal disease outbreak. Kenya.
- Fang, Y. F, Zhu, & X, Qiu. Disaster resilience, habitat international 2018, 76, 19-28 2018.
- George khaniri 2018.Kenya disaster profile is dominated by floods, fire, diseases and epidemics that disrupt the livelihood, destroy infrastructure.
- Global Hunger Index 2019 report.Kenya was ranked 86 out of 117 countries.
- Hong,H, 2008 &HW, Zhang 2015, Average economic losses by floods events in China.
- Hyndman, Do,& Hyndman,Da,2016, natural hazards and disaster. Cengage learning 2016.
- Hong H,2018, necessity of identification and prioritization of floods prone areas. natural disaster 2018 springer.
- Khosravi et al 2018, geographical information system (GIS), flood susceptibility map (FSM), application of machine in floods control.
- Mugenda, A. & O, Mugenda ( 1999). Research methods, qualitative and quantitative approach. Nairobi.
- Nandi et al 2016, variety of models on floods susceptibility.

National Disaster Management Unit. Presidential directorate communicated through Ref .Number CAB/NSC/14/2/32 on 8th August 2013. Plans of disaster management

Owuor ,P, 2015, disaster have been obstacle to achieving sustainable development in the country, Emergency and disaster Reports.

Sciencedirect.com.natural disaster, foods, famine.

State of food security. (SOF). [sustainabledevelopment.in.org](http://sustainabledevelopment.in.org)

Statisticshowto.com, linear regression 2020.revised.

Teo, M,& Ziyath, AM 2019. Critical review of social resilience assessment in disaster management. Elsevier. International journal of disaster risk reduction. 35 101096, 2019.

WFP report 2019. Food insecurity. May 2019 .Nairobi.

WHO.2018 report. Between 1998 and 2017 floods affected more than 2 billion people globally. Those people who live in floods places, non-resistant buildings or lack warning system and awareness of flooding hazards are most vulnerable to floods.WHO,2018.

[www.worldcounts.com](http://www.worldcounts.com)

[www.globalhungerindex.org](http://www.globalhungerindex.org)

## APPENDICES.

### BUDGET

<b>Activities.</b>	<b>Details.</b>	<b>Approximate costs.</b>
Development of research proposal.	Online communication.	Ksh 2500
Data collection	Transport.	Ksh 3000
	Payments to research assistant for 3 days	Ksh 2500
	Other expenses which includes personal emergency.	Ksh2000
Research writing.	Research assistant payment for data entry 3days.	Ksh 2500
	Printing of research copies, about 10 copies.	Ksh 3000
	Further communication with supervisor ie emails, online platforms etc.	Ksh 2000
	Emergency.	Ksh2000
Total approximation.		Ksh 19,500



## **QUESTIONNAIRE.**

I take this opportunity to welcome and thank you to filling in this questionnaire. Thank you for your valuable time. The purpose of this questionnaire is to facilitate research through collection of information on socioeconomic impacts of disaster on livelihoods of the community. The information provided will remain confidential, relevant and of informed consent. The information provided to this questionnaire will be of great relevance as it will assist on the study and in making recommendations for improvement of policies and strategies for disaster management.

Please fill in the required parts as directed by the questionnaire.

### **SECTION A: BACKGROUND INFORMATION.**

1. Name of the person \_\_\_\_\_
2. Gender, male (    ). Female. (    )
3. Highest level of learning. Certificate (    ). Diploma (    ). Masters (    )
4. Age, how old are you? \_\_\_\_\_
5. Do you have a family    yes (    ).    No. (    )
6. If you have a family, how many are you \_\_\_\_\_

### **SECTION. B. INFORMATION ON DISASTER AND LIVELIHOODS OF COMMUNITY.**

1. Considering your level of knowledge on disaster and its consequence, how likely are you to recommend someone to learn on disaster management? Please tick one.

1 _____	2 _____	3 _____	4 _____	5 _____
---------	---------	---------	---------	---------

Very likely.

Likely.

Very likely.

2. What is likelihood of following natural disaster to occur in your area? (**Please tick one.**)

(a). Floods.

(    ) highly possible.

probably.

probably not.

(b). Famine.

highly possible.

probably.

probably not.

(c). Crops pests

highly possible.

probably.

probably not.

(d). Animal diseases.

highly possible

probably

probably not.

3. Have you been affected or encountered by any of the following natural disaster?, (**please tick if yes.**)

Floods.

Famine.

Crops pests .

Animal diseases.

4Floods have lead to destruction of properties, loss of lives

5There is likelihood of occurrence of floods in rainy seasons

6Floods form one of major natural disaster in the region

7famine contributed to loss of lives in the region

8Famine have contributed to the rise of cases of malnutrition among community members

9Famine occurs frequently in this areas.

10Crop pest and animals diseases have contributed to destruction of properties

11Crop pest and animals diseases have contributed to economic loses

12Crop pest and animals diseases have occurred more frequently along the region