

**ASSESSMENT OF DISASTER MANAGEMENT PRACTICES, AT THE  
MINISTRY OF ENERGY AND PETROLEUM**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER  
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LIBRARY AND INFORMATION SCIENCE, UNIVERSITY OF NAIROBI**

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## DECLARATION

### Declaration by candidate

This research project is my original work and has not been presented for the award of a degree in any other institution.

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## **DEDICATION**

This work is dedicated to my family for encouraging and supporting me during the period of study.

## **ACKNOWLEDGEMENT**

I would like to acknowledge my family for their support and patience during my period of study. Special thanks to my supervisors Dr. George M. King'ori and Dr. Grace Irura for guiding and giving me direction tirelessly. Sincere appreciation to the entire staff and lecturers of the Department of Library and Information Science without whom, it would not have been possible to complete the course. My employer the Ministry of Energy and Petroleum for sponsoring and giving me the opportunity to advance my knowledge.

## **ABSTRACT**

Disaster is a common phenomenon that can happen when least expected and it often comes unannounced with disastrous consequences. Disasters are frequently happening around the world and organizations need to focus on risks that can affect and disrupt their normal functioning by taking mitigation measures. No organization may want to be out of business for any reason at this competitive era as this can cause losses in terms of finances and reputation. The aim of the study was to investigate disaster management practices in the Ministry of Energy and Petroleum, Nairobi. The study objectives were to find out existence of disaster management policy in the Ministry of Energy and Petroleum; find out types of disasters likely to occur; establish the state of disaster preparedness; determine the role of information communication technology (ICT) in disaster management; establish challenges faced by staff in regard to disaster preparedness. The study was conducted in the Ministry of Energy and Petroleum headquarters, which is located at Nyayo House, Kenyatta Avenue, Nairobi, Kenya. Both qualitative and quantitative research approaches were applied. The target population for the study was 208 members of staff from the Ministry of Energy and Petroleum. Sample size of 64 was selected comprising top management, middle level managers, supervisors, clerks and staff working in resource centres. Purposive sampling technique was used to select sample size because the study targeted a particular group of people. The study applied various data collection instruments namely unstructured/structured questionnaires, documentary source and observation. Data was coded, classified, analysed and presented in tables, pie charts, graphs and descriptive form by use of Microsoft Word and Microsoft Excel. The research key findings revealed that there is no disaster management policy or plan in the Ministry of Energy and Petroleum. In addition the measures taken to mitigate and prepare for disaster are inadequate. The researcher recommended that the Ministry of Energy and Petroleum should formulate disaster management policy, train staff, create awareness and allocate adequate funds for disaster management. The research findings would be valuable to the Ministry of Energy and Petroleum and the public sector, policy makers as it will give them basis for embracing disaster management.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>CARE</b>	Care for Assistance and Relief Everywhere International
<b>DRR</b>	Disaster Risk Reduction
<b>HFA</b>	Hyogo Framework for Action
<b>HIV/AIDS</b>	Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome
<b>IFRC RCS</b>	International Federation of Red Cross and Red Crescent Societies
<b>IRMT</b>	International Record Management Trust
<b>KRCS</b>	Kenya Red Cross Society
<b>NDOC</b>	National Disaster Operations Centres
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations for Development Programme
<b>UNISDR</b>	United Nations secretariat of the International Strategy Disaster Reduction

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the study

Disaster can occur anytime and anywhere whether manmade or natural the situation can be disastrous. Disasters have negatively affected humans since the dawn of our existence. In response individuals and societies alike have made many attempts to decrease their exposure to the consequences of these disasters, developing measures to address initial impact, regardless of the approach adopted all these efforts have the same goal (Coppola, 2001:2). Earthquakes, floods, drought and other natural hazards continue to cause tens of thousands of deaths, injuries and billions of dollars in economic losses each year around the world. Disaster frequency appears to be increasing and represent a major source of risk for the poor and wipe out development gains and accumulated wealth (Dilley et al. 2005:1). The term disaster is derived from the Latin roots *dis* and *astro*, meaning “away from the stars” or an event to be blamed on an unfortunate astrological configuration (Coppola, 2001:51). Disaster is from French word *Desastre* meaning bad or evil star.

A report on The Hyogo Framework for Action (HFA) and its implications for disaster management and reduction in Africa (2010:1) shows that all over the world there have been series of disasters that have caused devastation on lives and resources. Within the first decade of the 21<sup>st</sup> century alone, incidents of chemical spillage, explosions, earthquakes, landslides, thunderstorms, hurricanes, infernos, tornados, floods, wildfires, tsunamis, volcanic eruptions dam collapses, violent uprisings and massacres have been reported with various degree of destruction around the world.

Disaster management appears throughout the historical record, the story of Noah’s ark from Old Testament is a lesson in the importance of warning, preparedness and mitigation. Early inhabitants did not sit and let themselves become easy victims, they took measures to reduce or mitigate their risks by inhabiting caves (Coppola, 2001:15).

MacFarlane (2006:452) asserts that recent disasters worldwide such as the tsunami in the Far East, hurricanes and floods the author puts emphasis on the importance of disaster management in attempting to cope with those difficult situations. Africa has its own share of disasters, natural and the tsunami in Somalia, floods and displaced persons from political problems. They further point out that in Africa with its large and vulnerable population and scarce resources, the need for disaster management is of great importance. Africa has prevalent disasters on a continuous basis like famine, diseases including HIV/AIDS floods, drought, civil war and many others.

Globally disaster management initiatives indicate that there have been concerns over menace of disasters. At the 2005 conference in Hyogo Japan, the 168 governments addressed the need to reduce vulnerabilities to risk and hazards by building resilience of nations and communities. Hyogo Framework for Action adopted at the conference set the guidelines for the reductions of vulnerability to hazards and emphasized the mainstreaming of disaster risk reduction (DRR) into everyday decisions. The pillars, known as the “priorities for action 2005–2015,” are as follows: Ensure that Disaster Risk Reduction (DRR) is part of the national agenda but with a local priority with a strong institutional basis for implementation, identify, assess, and monitor disaster risks and enhance early warning systems, use education, knowledge, and innovation to build a culture of safety and resilience all levels, reduce the underlying risk factors, strengthen disaster preparedness programs for effective response at all levels.

In Africa disaster management initiatives include Hyogo Framework for Action for Africa, towards the global goals of disaster management and reduction, states of the African region have taken several steps, at least at the formal level, including conducting a baseline study of disaster reduction potential in Africa in 2004 by preparation of a preliminary African Regional Strategy Document by the African Union (AU), with the support of UN/ISDR Africa, African Development Bank. The hosting of an African Ministerial Conference to advise UN/ ISDR Africa and other institutions on DRR issues, in 2006; the organisation of an African Ministerial Conference on DRR in Addis Ababa to pursue the HFA (HFA) agenda, in December 2005; the establishment of an African Advisory Group on DRR to advise UN/ ISDR Africa and relevant regional institutions, 2005; the adoption of the African Strategy Document on DRR by the African Ministerial Conference on Environment

(AMCEN), in Brazzaville, in May 2006; the commencement of the projectisation of the African Regional Plan for DRR by the AU after May 2006 (Agbo, 2007); and more recently, the hosting of the Second Africa Regional Platform for DRR in Nairobi, Kenya, in May 2009 (AU, 2009) findings by (Olulwo, 2010:5).

In world disasters, it shows that internationally the worst bomb blast attack was at World Trade Centre in the United States where the twin tower was bombed simulatenously on 9/9/2011. And another major disaster was the earthquake in jamaica where a total of 1,800 lost lives and 450,000 displaced and property destroyed. Hallegate & Przuluki (2010), reports that the 2010 earthquake in port-au-prince and hurricane Katrina in 2005 have shown that poor as well as rich countries are vulnerable to these events.

Disasters in Kenya, according to UNDP report on kenya natural profile (2004:24) indicate that the country's landscape is grouped into geographical zones including, the savannah lands covering most of the arid and semi-arid areas, coastal margins, the Rift Valley, the highlands and lake victoria basin. The great Rift valley cuts across the country from the north through the south. This makes the country vulnerable to tremor and earthquakes. The analysis report on Kenya (March 2004:10) National policy for the sustainable development of the arid and semi arid lands of Kenya describes that 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 HIV/AIDS and conflicts such as post-election violence, tribal clashes, cattle rustling which end up causing damage and destruction to property and loss of life.

In recent times terrorism has become an issue and a major threat to the country as well as organizations. A typical example is the bombing of the US embassies in Kenya and Tanzania that happened almost simultaneously in which many resources including library resources were destroyed (McMichael, 2007:13) this happened in year 1998. The Westgate Shopping Mall terror attack in which at least 69 people died and more than 175 others injured has awakened the country on the need to have a concrete emergency and disaster preparedness mechanism. Kenya has been target of terrorists attacks whereby several churches ,vehicles and hotels have been bombed in

Mombasa, Nairobi and North Eastern. Kenya has also experienced disasters such as Mtogwe ferry 1994, Molo Sachagwan petrol fire in 2009, Nakumatt Supermarket fire in 2009, Nairobi pipeline fire in 2011, Nairobi airport fire in 2012 and in all these disasters property and lives were lost. Other disasters include elnino floods in 1998, 2012 in Nyando, Budalangi, Tana River and all were caused by banks of river nzioa and Tana river bursting and waters flowing on the mainland.

Institutional disaster perspective is that there are evidences that the frequency and extent of disasters are increasing on a global scale, where all organizations need to focus on the major risks that negatively affect on business continuity. The series of recent tragic events since 2001 have made businesses to be vigilant and consider how and what they could do in the event of a disaster to protect their staff, customers and properties and business. The worst for any organization would be when activities of the business are seriously affected. Disaster management would speedily and effectively attempt to limit the damage that may be caused by unforeseen event. Planning for what will happen after an emergency improves the organization's chances for quick and efficient business continuity (Dissanayake 2012:34).

Mathews & Eden (2005:30) state that organizations are vulnerable to a whole range of disasters. Fire is caused by arson or faulty electrical systems, flooding from burst pipes, or following heavy rains break-ins and theft as a result of inadequate security precautions all these incidents can be costly in terms damage and loss of material (some of which may be unique), equipment and systems. They can have serious financial consequences and cause considerable disruption to services. No organization is entirely free from risk, and disasters natural or otherwise can happen anytime, anywhere. Yet some organizations still do not have appropriate disaster management procedures.

Rattan (2013:2) agree that organizations have to safeguard and preserve the variety of precious and invaluable information sources, tools, staff and other infrastructure from any potential disaster or any risk. These disasters man made or natural can completely or partially damage the information sources and infrastructure kept and preserved for use by the present generation and for posterity. At the same time, it can also paralyse the functioning of that particular library and information centre where



the disaster has hit. It is in this light why planning to face any potential disaster is so important.

American Alliance of Museums (2012:1) asserts that preparing for disaster is one of the most important things a museum can do in order to safeguard its collections and protect staff and visitors from hazards. Organizations/institutions need to know their hazards and whether the risks are high or low so that they prevent and prepare in case disaster strikes. Several factors have been suggested as contributing to the rising cases of disasters, such as growing hazardous areas (such as coast lines, fault zones, high-density metropolises, increased societal brittleness from reliance on technology, growing wealth disparity, weaker community ties, computer failures and power failures. The severity of extreme events such as floods, waves, heat and drought are likely to intensify due to global warming. Although the number of disasters have increased information cooperation have helped the world community to address risk reduction and limit the human impacts of disasters.

### **1.1.1 Ministry of Energy and Petroleum**

The Ministry of Energy was formed in 1979 upon Kenya Government realization that energy was a major component in the country's development process. This realization was mainly due to the oil price escalations of 1973-74 and 1979 which resulted in the country spending relatively more foreign exchange to import oil. The new Ministry was assigned the following functions: - energy policy development, electric power development, oil and other fossil fuels exploration, development and exploration of non-conventional energy sources such as wind, biogas, solar, geothermal and wood fuel.

Prior to the formation of the Ministry of Energy in 1979, the function of the energy sector were scattered over several Ministries. The functions of the new Ministry of Energy were spelt out in the Presidential Circular No.1 of December, 1980 on organization of the Government of Kenya. The Ministry is in development, geothermal exploration and development, thermal power development, petroleum products import/export/marketing policy, renewable energy development, fossil fuels exploration and development, rural electrification.

The Ministry of Energy and Petroleum derives its mandate from the presidential circular no. 1/2004 of September, 2004 and other Act of parliament relevant to Energy. To effectively provide services as per their mandate the Ministry has three technical departments:- geo-exploration and production, electrical power development, renewable energy, administration department has seven divisions:- human resource division, human resource development, planning, procurement, information communication technology, accounts and finance. The Ministry also has regional offices headed by centre managers in Jamhuri, Wambugu, Kitui, Kisii, Mtwapa, Kericho, Uasin Gishu, Migori, Busia, Lodwar and Bukura Energy Centres.

## **1.2 Problem statement**

Ferris & Petz (2013:1) state that the increasing intensity and frequency with which disasters are being experienced worldwide demonstrates the critical need to enhance disaster risk management. However disasters like fire, burst water pipes, leaking roofs and vandalism are manmade and easily avoidable. A disaster whether minor or major can cause damage leading disruption in the functioning of an organization.

Disaster management plan of action includes programmes that are geared towards controlling and managing disasters before and after occurrence. Disaster management measures include having policies, training, awareness and preparedness as they ensure resilience. Ministry of Energy and Petroleum lacks disaster management initiatives. Members of staffs do not have the least understanding of disaster management plan or policy. Ministry of Energy and Petroleum is not adequately prepared in disaster management and incase of a disaster, resources could be destroyed or lost hence affecting the smooth running of the organization. Resources include finances, equipment and people without which normal functions of the organization would be disrupted. Information materials have benefits in that they save the organization from financial and litigation risks. They ensure correct decision making, proper strategic planning and allows organization to budget for risk. Disaster preparedness is important in the organization since it reduces the vulnerability to the consequences of disasters.

The Ministry of Energy and Petroleum does not have guidelines that can be followed by staff, since staff can be found cooking with electrical appliances without knowing

the dangers they are exposing the resources and themselves. It is often stated that the major problem in disaster management is not lack of technology or the existence of relevant information, but lack of information. Typically disaster management depends on accurate, on-time information.

Kirvan (2010:9) argues that a major part of a business is infrastructure which includes a range of facilities, systems and technologies. The inability of infrastructure to function can seriously impact businesses, which makes protection measures vital. Without a disaster management programme an organization may be caught unprepared when disaster strikes leading to loss of records, life, building and facilities. Ripley (2008:33), states that we could become far better at judging threats before catastrophe strikes, since we have technological advantages that our ancestors lacked.

Biswas & Choudhuri (2012:10) asserts that disaster planning is becoming an essential component of the overall management plan for a library and information centres. The importance of an effective disaster plan is regularly demonstrated in institutions which are strongly committed to their plans. A plan must be incorporated into the day to day management of an institution. Disaster planning is essential for the Ministry of Energy and Petroleum since it provides best possible protection for and minimizes business disruption and return the organization as quickly as possible to a pre-disaster state. The purpose of this study was to investigate and establish the possible disasters, preventative measures and ways of curbing the disasters in the Ministry of Energy and Petroleum headquarters, Nairobi.

### **1.3 Purpose of the study**

The aim of the study was to investigate the state of disaster management practices in the Ministry of Energy and Petroleum, headquarters, Nairobi.

#### **1.3.1 Objective of the Study**

Objectives of this study were to:

- i) Establish existence of disaster management policy in the Ministry of Energy and Petroleum.

- ii) Find out the types of disasters likely to occur at the Ministry of Energy and Petroleum.
- iii) Establish the state of disaster preparedness in the Ministry of Energy and Petroleum.
- iv) Determine the role of information communication technology (ICT) in disaster management in the Ministry of Energy and Petroleum.
- v) Establish challenges faced by staff in disaster preparedness in the Ministry of Energy and Petroleum.

#### **1.4 Research Questions**

The research question of this study are:

- i) What are the disaster management policies in place in the Ministry of Energy and Petroleum?
- ii) What are the types of disasters likely to occur in the Ministry of Energy and Petroleum?
- iii) How is the state of disaster preparedness in the Ministry of Energy and Petroleum?
- iv) How has information communication technology (ICT) contributed towards disaster management in the Ministry of Energy and Petroleum?
- v) What challenges are being faced by staff in relation to disaster preparedness in the Ministry of Energy and Petroleum?
- vi) What are the possible solutions to the challenges and problems raised in the study in the Ministry of Energy and Petroleum?

#### **1.5 Significance of the Study**

The study will provide useful information, which can be used to mitigate/prevent, prepare for disaster management measures in organization. The research intends to answer questions about disaster management programmes in the Ministry of Energy and Petroleum. The study's findings could assist in developing disaster management programmes and policy in the organization. The study is important since it can be used as a training tool in the Ministry of Energy and Petroleum in training of staff members. It can be used as a basis of emphasizing the need for disaster preparedness as a way of ensuring continued and undisrupted service in case of disaster. Public sector, information scientists are likely to benefit from the study since the findings can

be used to formulate policies which support disaster preparedness in the organization and ensure high level service development.

### **1.6 Justification of proposed Research**

The study was chosen because disasters are affecting organizations and those that are affected are not adequately prepared to cope with disaster incidents. The study will also seek to broaden the scope of research in the field of disaster management.

### **1.7 Assumption**

The assumption is that management and staffs are not conversant with disaster management issues

### **1.8 Scope and Limitations**

The study investigated the current state of disaster management practices in the of Ministry of Energy and Petroluem headquarter's, Nairobi.

#### **1.8.1 Scope**

The study was confined to the Ministry of Energy and Petroluem headquarters, Nairobi. The Ministry of Energy and petroluem is located at Nyayo house, kenyatta Avenue, Nairobi, Kenya.

#### **1.8.2 Limitations of the study**

The main concern for the researcher was lack of adequate funds. Availability of time has also to be taken into account in deciding a particular method of data collection since some methods take relatively more time while others take shorter duration.

### **1.9 Definition of Terms**

#### **Disaster**

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

## **Disaster Management**

The organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disaster.

## **Hazard**

A potentially damaging physical event, phenomenon, or human activity that may cause the loss of life or injury, property damage, social and economic disruption, or environmental degradation.

## **Preparedness**

The capacities and knowledge developed by governments, professional response organisations, communities and individuals to anticipate and respond effectively to the impact of likely, imminent or current hazard events or conditions.

## **Relief / Response**

The provision of assistance or intervention during or immediately after a disaster to meet basic needs of those people affected.

## **Resilience**

The capacity to absorb stress or destructive forces through resistance or adaptation, to manage or maintain certain basic functions and structures during disastrous events; and to recover or bounce back after an event.

## **Risk**

The probability of harmful consequences, or expected losses deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged.

## **Vulnerability**

The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of a community to the impact of hazards.

## **1.10 Chapter summary**

The chapter has an overview of topic under study, it contains introduction and background information of study, historical background of organization, problem

statement, aim, objectives, research question of study, significance and justification of study, scope and limitations of study, definition of terms as used in the study. The chapter shows the importance and need for the organization to be adequately prepared in disaster management, since a disaster can disrupt the smooth running of an organization. The next chapter is concerned with the review of the literature in disaster management and conceptual framework in area of study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews the necessary literature detailing disaster preparedness in organizations and is guided by objectives in the study. Kumar (2011:6) states that the review of literature involves searching literature in your area of study, provides a theoretical background to a study, helps establish link between what you are proposing to examine and what has already been studied and enables to show existing body of knowledge. Literature is reviewed from text books, journals, articles, academic papers and the internet on issues relating to disaster management. Conceptual framework will be used to support the need for disaster management. In whole it describes and gives a critique of some views on disaster preparedness in the world and in Kenya.

#### **2.2 Disaster management policy**

Disaster management policy is essential in every organization since it directs staff members what to do and not to do when disaster strikes among others. Oxford Advanced Dictionary (2012) defines policy as a statement of intent or plan of action, which has rules and regulations to govern an organization. The policy is normally a blueprint or written manual which has guidelines, procedures and rules and regulations which make an organization manage its operations with uniformity, co-ordination, standards and co-operations thus achieve its goals and objectives.

According to The state of Queensland emergency management policy framework (2010:12) states that the fundamental purpose of a policy is to advance an approach to disaster management that focuses on reducing risks, the loss of life, economic disruption and damage to the environment and property, especially to those sections of the population who are most vulnerable due to poverty and a general lack of resources.

The aim of a policy is to provide an enabling environment for disaster management, promote proactive comprehensive disaster management through risk reduction programme, improves the ability to manage emergencies or disasters and their consequences in a coordinated, efficient and effective manner. The policy also aims to



promote integrated and coordinated disaster management through partnerships between different stakeholders and through cooperative relations between all sectors of government. It ensure that adequate financial arrangements are in place by outlining the general terms for sourcing external assistance in times of disaster and promote disaster management training and community awareness.

### **Kenya's national disaster policy**

In view of the experiences gained and lessons learnt during the management of various hazards and disasters, the Government of Kenya has formulated the National Disaster Management Policy to emphasize proactive and preventive strategies in addressing disaster situations. The policy drafting process began in early 1999 after the bomb blast at the USA Embassy in Nairobi on 7th August 1998. The Kenya national policy was passed in 2008. The aim of this plan is to establish an understanding of the structure and operating procedures for addressing all aspects of disaster preparedness and response in Kenya. This plan seeks to ensure that disaster preparedness for response is carried in a coordinated and collaborative manner, ensuring the greatest protection of life, property, health and environment.

A report by Africa Regional Strategy Disaster Risk Reduction (ARS/DRR), (2004:6) points out that it is important to adopt cost-effective policies to lower risk and allocate disaster mitigation. Regional and sub-regional organizations and countries are making efforts to develop their policies, legislation and plans. Countries are at different stages in the development of institutional frameworks for comprehensive disaster risk reduction. Some embraced the need earlier, others are yet to understand the implications and lack the capacity to design them.

### **2.3 The possible types of disasters likely to occur**

Statistical Analysis System (SAS) Institute (2002:3) states that continuous operation of an organization depends on management awareness of potential disasters, their ability to develop a plan to minimize disruptions of critical functions and to recover operations fast.

## **Disaster**

A serious disruption of the functioning of a community or a society causes widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources. A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk (ISDR, 2007).

According to the UN/ISDR report (2008:10) disasters are categorized as manmade or natural.

### **2.3.1 Natural disasters**

These are disasters whose causes are beyond control of human beings. They are caused by natural phenomena and they include earthquakes, volcanic eruptions, elnino flooding, hurricanes, typhoons and lightening. They can be termed as geographic and climatic hazards that could jeopardize the building and the collection.

### **2.3.2 Manmade disasters**

Manmade disasters occur as a result of human negligence and intentions. They result from failings of human race and they include wars, fire, water leakage and theft. They are caused by industrial accidents such as nuclear or chemical spills, technological disasters such as viruses, computer equipment failures, electric faults and criminal behavior such as theft and arson.

The following are disasters that are likely to occur:-

### **2.3.3 Water damage**

According to Roper & Millar (2009:25) water damage can come from severe weather such as floods or hurricanes and also from building problems such as from leaks or poor drainage. Water is also a greater problem than fire, because if the fire has not consumed the materials entirely, they will inevitably be damaged by the water used to extinguish fires. Most often flood water carry with it mud/dirt and would put it on the document. Flooding can be caused by staff negligence, leakage by taps, roofs and pipes, blocked roofs drains or uncontrolled floods during heavy rains. A minor water

accident such as a leaking pipe can cause extensive and irreparable harm to collections. Floods may result from heavy rains (El Nino) or burst water pipes. Sometimes drainage systems if blocked may divert the course of water flow resulting to flooding.

#### **2.3.4 Fire**

George D. Haddow, Jane Bullock & Damon Coppolla (2008:30) argue that fire can be triggered or worsened by lightening, high winds, earthquakes, volcanoes and floods. Fire should be every manager's concern due to its devastating and irreversible results. Presence of materials which burn very easily like papers, bindery and glue can make information material vulnerable to fire hazards. (Ogden, 2009) observes that damage caused by fire can be even more serious than that caused by water. If collections survive at all, they are likely to be charred, covered with soot, brittle from exposure to high heat, wet from water used to extinguish fire, mould and smelly smoke. Causes of fire are quite varied, they can either be natural like lightening, volcanic eruptions and earthquake. Manmade causes of fire include arson, smoking, explosions of electrical wiring and appliances.

#### **2.3.5 Earthquakes**

According to Coppolla et al. (2008:30) earthquake is a violent movement of rocks in the earth crust. Earthquakes can cause flooding in the premises due to burst water pipes or electrical fires due to short circuit. United Nations Educational Scientific and Cultural Organization (UNESCO, 2007) report shows that the earthquake and subsequent tsunami on 26 December, 2004 devastated communities in coastal regions, primarily in Indonesia, the Maldives, Sri Lanka, India and Thailand. Nineteen months later, Indonesia experienced a second tsunami which destroyed villages and livelihoods. The devastating earthquakes and tsunami that occurred clearly highlighted that there is an urgent need to educate people to prepare sufficiently for natural disaster events (UNESCO, 2007).

#### **2.3.6 Lightening/thunderstorm**

Lightening according to National Geographic (1996-2012) occurs as a result of alteration between charged clouds. The lightening can cause fires which are more disastrous. Lightening is an atmospheric electric discharge (spark) accompanied by

thunder which typically occurs during thunderstorms and sometimes during volcanic eruptions or dust storms. This enormous electrical discharge is caused by an imbalance between positive and negative charges. During a storm, colliding particles of rain, ice, or snow increase this imbalance and often negatively charge the lower reaches of storm clouds. Objects on the ground, like steeples, trees, and the earth itself, become positively charged creating an imbalance that nature seeks to remedy by passing current between the two charges. Lightening occurs as a result of alteration between charged clouds and can cause fires.

### **2.3.7 Wars and riots**

Wars and riots caused by political differences and selfishness and the damage caused to people and resources can be extensive. This can be physical destruction resulting from bombs that may completely destroy the resources. It is also feared that a number of records can be lost during the war time as a result of looting which can paralyze the functioning of organizations. Riots by citizens or workers can end tragically causing damage to facilities and lives.

### **2.3.8 Intentional acts of destruction**

According to United States organization & employee's code, intentional acts of destruction involve vandalism, theft and arson. Man has also been known to destroy resources by setting them on fire deliberately. These acts of deliberate removal of resources from the institution can be done for personal gratification or reward. Theft and sabotage are not natural disasters as fire and floods but they are disastrous acts to the organization.

### **2.3.9 Technological disasters**

According to SANS Institute (2002:3) assert that due advancement of Information Technology (IT) businesses nowadays depends heavily on IT. With the emergence of e-business, many businesses can't survive without operating 24 hours per day and 7 days a week. A single downtime might mean disaster to their business. Most organization depends heavily on technology and automated systems which if disrupted could cause financial losses and threaten survival.

IT disasters include equipment failure (hard disk crash), disruption of power supply or telecommunication, application failure or corruption of database, human error or sabotage. Malicious software including viruses, worms, Trojan horses attack and corrupt documents hence loss of vital records. Hackers can access servers and manipulate or delete information for the organization. Power fluctuation can damage the hardware equipment's and cause loss of records if there is no backup. The hardware equipment can physically break and this could be a disaster for the organization.

#### **2.4 The state of preparedness in public organizations**

According to SANS Institute (2002:4) preparedness involves planning for what will happen before during and after an emergency. Disasters occur anytime so an organization must be must be prepared for any eventualities. Preparation improves the organization's chances for quick and efficient business continuity, since every organization is at risk from potential disasters.

##### **2.4.1 Risk**

Collins (2009:18) asserts that an assessment identifies which potential risks are greatest and which potential risks are substantially lower in terms of dollar losses, potential losses. If the risk is substantial, such as the potential of a fire in a paper facility, then appropriate resources can be expended to develop appropriate safeguard and the risk of loss can be shifted through insurance. However, where the potential risks is identified as low, then an assesemnt must be made of the time, resources and manpower necessary to minimize this potential risk. Safety professional will often need to educate management team members and broaden their thinking in order to acquire the necessary resources to properly develop a proactive plan of action to address potential catastrophic risk in the workplace.

Twigg (2009:17) states that risk perception is the key element of individual and collection disaster risk management. By increasing public understanding of hazard risks, disaster planners and managers seek to stimulate communities and individuals to take appropriate questions before and during crises. The importance of this kind of activity is emphasised in the UN's Hyogo Framework for Action 2005-2015 the international community's strategy for disaster reduction. Use of knowledge,

innovation and education to build a culture of safety and resilience at all levels working on the principle that disaster can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience. Creation of a culture of safety requires widespread popular understanding of the significance of risks and subsequent willingness to take action to reduce them. For an ordinary individual member of the public making judgement about risk is not simple. One must consider the nature of the hazards, the potential occurrence and impact of hazard events. Emergency and disaster planning is not cheap and proper planning and appropriate management of potential risks and disaster in the workplace can be minimized.

#### **2.4.2 Response and Mitigation**

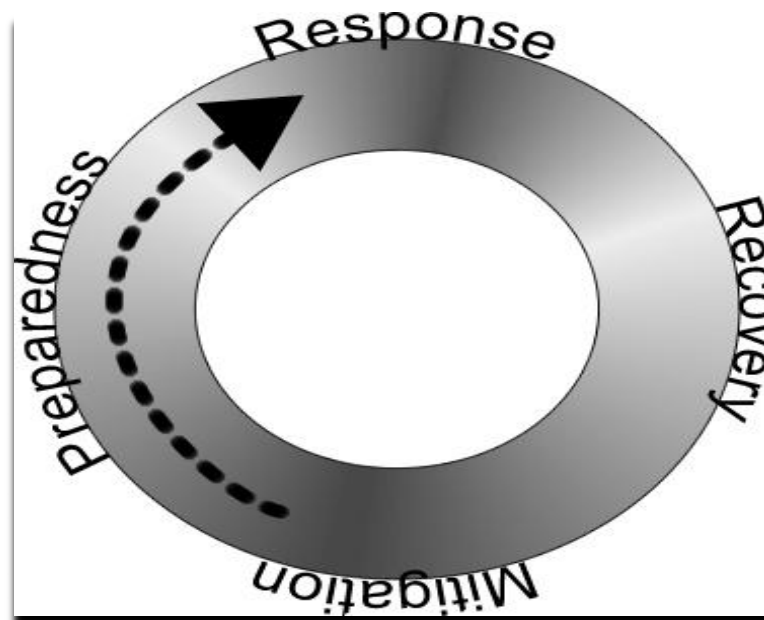
Noran & Bernus (2009:20) explain that effective disaster management depends on rate and force of natural and/ or man-made disasters. In this context, it is now essential to be able to promptly and effectively prevent and prepare for, respond to and recover from catastrophic events. Government typically responds by putting in place suitable policies and organizations. Disaster management requires additional effort towards proper and effective collaboration when coping with catastrophic events.

According to Warfield (2010:34) disaster management aims to reduce or avoid the potential losses from hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery. The disaster management cycle illustrates the ongoing process by which governments, businesses, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster has occurred. Appropriate actions at all points in the cycle lead to greater preparedness, better warnings, reduced vulnerability and prevention of disasters. The complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

### **2.4.3 The Comprehensive Disaster Management (CDM) Cycle by (ODPEM) office of disaster preparedness emergency management**

Jamaica, through the ODPEM, embarked on a comprehensive disaster management (CDM) programme that illustrates the cyclic process by which to plan for and reduce the impact of disasters, and take steps to recover after a disaster has occurred. Appropriate actions at all points in the CDM cycle will lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next repetition of the cycle. The figure illustrates the four phases of the CDM cycle: mitigation, preparedness, response and recovery.

**Figure 2:1 Disaster Management Cycle**



**Source: Edwards T. & Morris K (2008)**

There are four phases in the CDM cycle:

#### **2.4.3.1 Mitigation: phase one**

During the mitigation phase structural and non-structural measures are undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards. According the United Nations International Strategy for Disaster Reduction (UNISDR), the adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various

strategies and actions. Management activities in the mitigation phase encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness, as well as hazard vulnerability and risk assessment. Measures taken during the mitigation phase also address preventing natural or man-caused events from giving rise to disasters or any emergency situations.

#### **2.4.3.2 Preparedness: phase two**

During the preparedness phase, of the CDM cycle measures are taken to reduce the minimum level possible, loss in human life and other damage, through the organization of prompt and efficient actions of response and rehabilitation such as practicing earthquake and fire drills. Preparedness activities are geared towards minimizing disaster damage, enhancing disaster response operations and preparing organizations and individuals to respond. They also involve planning, organizing, training, interaction with other organizations and related agencies, resource inventory, allocation and placement, and plan testing.

#### **2.4.3.3 Response: phase three**

Actions carried out in a disaster situation with the objective to save life, alleviate suffering and reduce economic losses. The main tool in response is the implementation of plans which were prepared prior to the event. Response activities are post activities geared towards, providing emergency assistance, reducing probability of additional injuries or damage, speeding recovery operations, returning systems to normal level.

#### **2.4.3.4 Recovery: phase four**

In the recovery phase, also referred to as the recovery and rehabilitation phase, activities are geared towards the restoration of basic services and the beginning of the repair of physical, social and economic damage for example lifelines, health and communication facilities, as well as utility systems, the recovery phase also includes efforts to reduce disaster risk factors.



#### **2.4.4 Staff training and preparedness**

According to Mathews & Eden (2005:30) disaster training should aim to raise the awareness of all staff regarding everyday safety and security issues and the steps they can take to reduce the likelihood of a disaster occurring and prepare them on what to do in the event of a disaster. Training should be given to all staff and a clear idea of what they can expect to find in various disaster, scenarios, such as fires and floods, and make them fully aware of their roles and responsibilities. If staff are trained on disaster preparedness they would be on the look out for any potential dangers and report to concerned office before it can become a disaster.

#### **2.4.5 Health and safety laws**

It is the responsibility of every employer to ensure the safety, health and welfare of all employees working in his/her workplace. Kenya occupational safety and health Act No. 15 of 2007 and revised in 2010, provides for the safety, health and welfare of workers and all persons lawfully present at workplaces. The employers responsibilities are: to provide and maintain the plant, systems and procedures of work that are safe without risks to health and comply with the requirements of safety and health provision, ensure safety and the absence of risks to health, handling, storage and transport of articles and substances. Provide information, training and supervision as is necessary to ensure the safety and health work of every person employed. Provide and maintain a working environment for every person employed that is safe, without risks to health, and adequate as regards facilities and arrangements for the employees welfare at work.

#### **2.4.6 Insurance**

Coppolla et al. (2008:80) argue that insurance provides transfer of the risk from individuals or community to insurance company. Insurance mechanism can be a tool for mitigation. According to Kentucky medical association insurance model disaster plan, an organization should make sure that they have adequate insurance to cover losses in the event of a particular disaster. In addition it is necessary to consider if insurance provides the company with sufficient funds to get business back in operation and if they provide replacement value of assets that are lost. It is important to keep information about the insurance policies including agents name, address,

phone number, type of insurance, policy number, deductible, policy limits and coverage.

Insuring resources is a topic that is pertinent even though no amount of compensation can actually cover lost materials. Insurance claims are in most cases, causes of disputes and complaints and even when the settlement is made, it rarely restores resources to its former state. However, institutions should be aware of potential disasters like fire and water, and assess the risks as actual and not remote possibilities. Increased reports of disaster occurrences in organizations should make them more conscious of the value of their resources and their irreplaceable nature and vulnerability to loss from damage.

Frequent disasters occurrences should prompt institutions to incorporate disaster risk decisions on the development investment so as the disaster risks and costs can be shared through insurance premium. The sharing of the risks and costs of disaster through insurance arrangements will help to cope with potential economic losses and threats to continued operations. Though insurance does not reduce vulnerability to disaster, it however relieves the organization financial burden. Insurance helps to spread the costs associated with disaster among a broad group of policy holders and can induce mitigation measures if premiums reward such actions Australian Standard/Newzealand (AS/NZ 4360, 2013)

#### **2.4.7 Disaster preparedness in Kenya**

Kenya has a department incharge of disaster management known as National Disaster Operation Centre under the Ministry of special programme and Ministry of Interior. The department is charged with the responsibility of ensuring that when disaster strikes they are able to respond first in collaboration with their partners and other stakeholders. The response coordination in kenya include kenya red cross society/other non governmental organizations (NGO), Ministry of Interior and Internal Security, Ministry of state and special programmes, northern kenyan and arid and semi arid, national disaster operation centre (NDOC), relief and rehabilitation department (R&RD), western flood mitigation project, HIV/AIDS control unit, county representatives and community.

## **2.5 Role of information communication technology (ICT) in disaster management.**

Mahalingam, Jayaprakash & Karthikeyan (2011:77,80) observe that the internet has changed information handling and escalation of digital contents in recent years, but appropriate storage technology is needed for effective management of information which is critical to businesses today. The rapid growth of digital contents requires a technology that delivers high availability, scalability, and reliability. Storage Area Network (SAN) is one promising solution providing high speed data transfer with many other storage services, backboneed with a high speed Fibre Channel (FC).

Kizza (2013:171) states that in information technology disaster situations are big security problems to the enterprise information systems, that must be handled with skills just like other security problems for a modern society. Businesses fail or lose millions of dollars every year depending on the level of attention they give to their online systems against disasters like fire, power outage, theft, equipment failure, viruses, hackers and human errors. business cannot succeed in today's environment without plans to deal with disasters.

Mahitha & Sona (2009:6) states that cloud computing is the state-of-art technology in information technology industry. Cloud storage allows world wide storing and retrieval of any amount of data at anytime. One of the major contributions of the cloud is its capacity to handle enormous amount of data for either processing or storing customer satisfaction is one of the prime intentions service provider. Such satisfaction would bring long term business growth and better business returns. Cloud computing can be used by organizations to store data since it is offsite storage and can save organization incase of disaster the data can assist organization continue with its operation without disruption.

### **2.5.1 Social networking tools in disaster management**

Huang et al. (2010:9) asserts that internet social networking tools and the emerging web 2.0 technologies are providing a new way for web users in information sharing and knowledge dissemination. Examples of web 2.0 tools include search engines (e.g. google and Bing), encyclopedias (e.g. wikipedia), videos and photos sharing (e.g. youtube and flickr) blogs and social networking websites (e.g. facebook, twitter and

plurk. Users are able to send text, photos or audio clips to be viewed by anyone or specific groups which can be chosen by the user. These sites have empowered the public to share experience and information during emergency and disaster response activities. In addition social networking also serves as a platform in resource gathering, logistics allocation and the distribution of relief supplies. Volunteering is another activity promoted through social networking and spreading news on volunteering opportunities and locations. By using telecommunications technology governments could revolutionize infrastructure to help individuals and communities respond to and recover from disasters.

### **2.5.2 Application of disaster information system for disaster management**

Kim et al. (2012:4) observe that geographic information systems (GIS) technology developed the recent wireless communication and it technology were used to study on the real time disaster damage information management system development based on web GIS that can provide the user quick and efficiently with various damage information and data. A recent example includes the aftermath of the Haitian earthquake that was the first network to come alive to establish communication with trapped people. The evolving landscape of wireless and mobile technology, voice and data convergence, computing and modelling capability of services, the growth trend potential for integrated technological solutions. The world especially New York city, will never be the same after 11th september 2011. We need to anticipate all possible scenarios because the unthinkable is now a reality. Cities need to have disaster plan that are tailored to specific scenarios and locations, not preconceived generalized plans.

## **2.6 Challenges faced by staff in relation to disaster preparedness**

### **2.6.1 Lack of disasters management policies**

Most organizations lack policies and guidelines that can be followed and used in disaster management. According to Government of Kenya disaster management policy (2008:18) most organizations lacked disaster management policies leading to lack of adequate information on the part of members of staff.

### **2.6.2 Lack of top management support**

According to Government of Kenya disaster management policy (2008:18) top management does not support or recognize the importance of having disaster management programmes in the organization. They lack the will to support and implement policies.

### **2.6.3 Lack of adequate finances**

A report by Africa Regional Strategy Disaster Risk Reduction (ARS/DRR), (2004:6) points out that inadequate financing for disaster risk reduction is the result of many factors including the low priority accorded to disaster reduction in national budgeting. Disaster management does not have provision made in the annual estimates of capital for running costs that are sufficient to enable departmental units to plan for disasters management.

### **2.6.4 Lack of adequate knowledge in information communication technology (ICT)**

Lack of trained staff in ICT contributes to challenges in handling and managing electronic records. Staffs have challenges in capture, storage, access and dissemination of digital information. Organizations have yet to develop strategies for its long term preservation, of electronic records.

### **2.6.5 Bureaucracy**

According to Government of Kenya disaster management policy (2008:18) points out that there are long procedures to be followed when acquiring modern disaster management equipments. These long procedures cause delays and incase of an emergency it can lead to more harm and damage.

### **2.6.6 Lack of expertise**

According to Hajjr and Beydoun (2009:1) expertise in disaster management is scarce and often unavailable in a timely manner. Agencies tasked with activities relating to preventing and managing disaster responses fail due to expertise not being available in a timely manner. Disasters cannot be well managed if there are no experts to give directions on how they should go about in responding to a particular disaster.

### **2.6.7 Timing and lack of accurate information**

Janseen et al. (2009:40) observe that when disaster strikes, multiple organizations are involved in decision making. In order to ensure coherent coordination among the responding organizations, relevant information needs to be collected from multiple sources, verified and accuracy, and shared with appropriate responding organizations all within a short time frame. During such situations, effective information sharing can prevent things from getting worse. The quality and timelines of information shapes the effectiveness of emergency response efforts (Horan & Schooley, 2007:10). Accurate and relevant information can be used to reduce potential losses in many threatening situation National Research Council, (2007). A disaster is a continuously unfolding situation marked by changes and the responder's need information for communication. If information is delivered too late it may fail to prevent damages or losses, while if too early to present damages or losses, while if too early, it may be neglected. In addition too much information results in a huge information overload.

### **2.6.8 Inadequate staff**

Accordong to Coppolla (2007:30) disasters have affected socities, attempts to decrease their exposure to the consequences is by developing measures to address the impact. However, the capacity to carry out this mission is by no means uniform, the unfortunate reality is that some countries, regions are more capable than others at addressing the problem. MacFarne et. al (2006:453) explain that concerns have been expressed by nearly all international agencies involved in disasters that there is scarcity of managerial skills to deal with disaster management.

### **2.6.9 Solutions to the challenges and problems raised in the study**

Disasters are affecting organizations and staffs are facing challenges in disaster management. These are proposed solutions to the challenges facing staff in disaster management.

#### **2.6.9.1 Disaster management policy**

According to Government of Kenya disaster policy (2008:11) is that organizations should formulate comprehensive disaster management policies. The policy should be implemented and regularly updated to encompass emerging trends of managing disaster. A written plan which has procedures to be followed when disaster strikes is important since it will have information needed to prevent and prepare disaster.

### **2.6.9.2 Enhanced security measures**

According to Government of Kenya disaster policy (2008:12) organizations should take precautionary and security measures like locking doors, burglar reinforce, monitor agents of destruction like light, temperature humidity to safeguard resources. Other security measures include having firewalls on servers to monitor access and passwords on personal computers to safeguard unauthorized access. Computers should also have antivirus to protect them against viruses.

### **2.6.9.3 Top management support**

Another solution is to have disaster team liaise with top management to seek support. The disaster team should create awareness and explain to top management the importance of disaster management hence management will allocate adequate funds for disaster management.

### **2.6.9.4 Train disaster management**

According to Government of Kenya disaster policy (2008:11) regular training needs to be carried out on equipment; handling fire extinguishers, fire drills and early detection of potential disasters by staff so that they report to management for prevention. Staffs need to study the organization disaster management policy and plan so that they are aware of its contents.

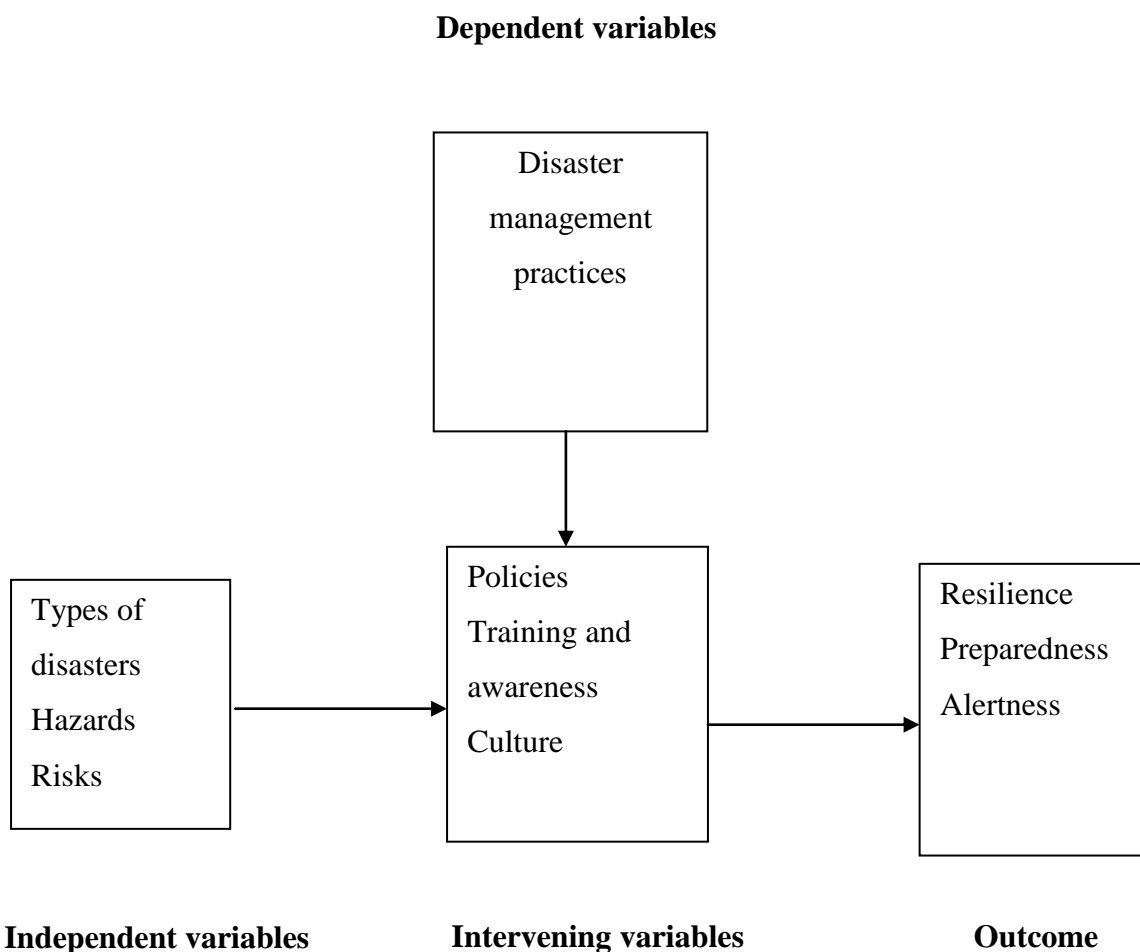
## **2.7 Current issues in disaster management**

The operation of emergency services is typically legislated at state, national and international levels. Unfortunately however, merely instructing organizations to cooperate using high-level generic direct view does not bring true collaboration and/or interoperability. The consequences are extended in response times, confusion on the situation on the ground, dispute/competition as to who, where and when is incharge, difficulty in coordination with other teams systems due to incompatibilities in infrastructure and difficulty in filtering/validating the flood of information generated during disaster events.

## 2.8 Conceptual Framework

A set of broad ideas taken from relevant fields of enquiry, intended to assist a researcher to develop awareness and understanding of the situation under scrutiny and to communicate. A conceptual framework should assist researcher organize their thinking; explain relationship among interlinked concepts (Smyth, 2004). Conceptual framework provides the structure/content for the whole study based on literature and personal experience

**Figure 2.2 Conceptual framework**



Source: Own conceptualization (2014)

We cannot control all disasters but we can make an effort in prevention/mitigation preparedness, we can reduce the damage and be able to cope and recover fast. Kishan (2010:6) on paper presented during Annual meeting Qatar of the institute of engineers at DOHA in 9/2006 argues that developing disaster management plan for any area, it



is essential to understand the basic conceptual framework for the same. Understanding the hazards of disaster is very essential, and to understand types of disasters and possible hazards and their impact. The vulnerability of the area after the hazards have been identified, this can be done through past occurrences, forecasting and models. Then prepare profile as it will be used in preparation of disaster management plan. Also understand the very essential terms, preparedness, mitigation, prevention, relief, recovery and rehabilitation.

## **2.9 Chapter summary**

The review of literature is critical since it justifies the need for the study and highlights the relationship between the past and the current studies and describes the importance of having disaster management. The collaboration of publications and resources by the government, disaster management agencies, international agencies, professional associations help demonstrate the importance of having disaster management and response to crisis events. A summary of recommendations for implementation of the disaster management core competencies were outlined. Conceptual framework was applied to guide researcher understand the area under study.

The next chapter presents the methodology to be employed in study. This constitutes the procedures in the data collection of information, the target population, sample size, pretesting of instruments and data analysis technique.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter deals with research design, population, sample, data collection methods, research producers, data analysis methods and data presentation. This chapter also describes procedures that were followed in conducting the study. Mugenda & Mugenda (2003) assert that steps involved in conducting the study should be described in detail. This helps other researchers in understanding one's study, particularly where replication may be desired. In most cases a comprehensive research employs different methods to avoid over-reliance on a single method, all methods have their weakness and strengths.

#### **3.2 Research design**

Researcher applied case study research design since it targeted a particular organization, Ministry of Energy and Petroleum. Kothari (2009:31) states that research design is a framework that shows how problems under investigation will be solved. Research design is a plan of action indicating the specific steps that are necessary to provide answers to the questions, test the hypotheses, and thereby achieve the research purpose.

The researcher chose to carry out a case study since it is appropriate when investigating a particular community or institution. Kothari (2009:3) explains that case study method is very popular form of qualitative analysis and involves a careful and complete observation of a social unit, an institution and an entire community. Thus case study is essentially an intensive investigation of the particular unit under consideration, under this method the approach happens to be qualitative. Being an exhaustive study case study enables researcher to fully understand the pattern of the concerned unit.

The researcher applied both qualitative and quantitative approaches. Qualitative research gathers information data that are in form of words, for example open-ended questionnaires, unstructured interviews and unstructured observations. Qualitative data is typically descriptive data and requires accurate description of participant's

responses into broad themes. Qualitative methods are often closely allied with interviews, survey design techniques and individual case studies ((McLeod, 2008:30).

Quantitative research gathers data in numerical form which can be put into categories, or in rank order, or measured in units of measurements. (McLeod, 2008:30). Quantitative approach was applied when analysing closed ended/structured questionnaires which had answers to choose from.

### **3.3 Area of study**

The study was confined to the Ministry of Energy and Petroleum headquarters Nairobi. The Ministry of Energy and Petroleum is located at Nyayo house, Kenyatta Avenue, Nairobi, Kenya.

### **3.4 Research population**

Mugenda & Mugenda (2003) explain that population refers to an entire group of individuals, events or objects having a common observable characteristic. In other words, population is the aggregate of all that conforms to a given specification.

The study population was 208 members of staff from the Ministry of Energy and Petroleum and a total of 64 people were selected. They comprised of top management, middle level managers, supervisors, clerks. Managers were chosen since they are decision makers, resource centres staffs were chosen since they are the custodians of information material, other staff were chosen since they are able to spot any danger.

### **3.5 Sampling technique**

Kothari (2009:15) defines sampling as the process of selecting a sample from a population, where the sample is a subset of the population. In sampling a section of the population is selected to represent the entire population. It involves the selection of a relatively small number of individuals in this case to say something about the entire population, such that the views of the sample group represent the views of the entire population. According Gray as quoted by Mugenda and Mugenda (2004) a sample size of between 10 and 30% is a good representation of the targeted population and hence the 30% is adequate. Sampling helps in cutting down the costs

and time of collecting the data because resources and time allocated to a small number of sampling elements. The researcher used 30% since the authors recommend a sample of between 10% and 30%.

**Table 3.1: Population and Sample Size, frame**

<b>Category</b>	<b>Population size</b>	<b>Sample size</b>
Top management	20	6
Middle level management/ supervisors	150	45
Resource centres staff	15	5
Clerks	25	8
<b>Total</b>	<b>208</b>	<b>64</b>

**Source: Human resource department Ministry of Energy and Petroleum**

### **3.5.1 Purposive sampling**

The researcher applied purposive sampling method. The study employed a sample of 64 members of staff; 6 top management staff, 45 middle level managers, from the 14 departments 3 managers were selected from each department, 5 resource centres staff and 8 clerks. In the purposive method, the researcher picked a sample of the targeted population from each category to be represented in the research study for effective data collection since they provide the required information for the research. Purposive sampling is a sampling technique that allows a researcher to use cases that have required information with respect to the objectives of study. This technique involves the selection of key sampling elements individuals from the population based on the relevance to the research project. This method is advantageous in that it avoids the risks of eliminating the key elements/individuals from being included in the sample, (Patton, 2001)

### **3.6 Data collection Instruments**

The research was carried out by use of data collecting tools and instruments used were questionnaires, documentary sources and observation.

### **3.6.1 Questionnaires**

The researcher designed a list of questions based on the objectives of the research study to be filled by respondent. The questionnaires were both open ended and closed ended. Open- ended questions refer to questions that give the respondent complete freedom to expound further their responses. Closed ended questions are those that have multiple choice varieties requiring precise answers. The respondents are given alternative options to choose from. A questionnaire is a printed self report form designed to elicit information that can be obtained through written responses of the subjects. The questionnaires are preferred because of anonymity (Kothari 2009:7). The mode of dispatch was easy as the researcher personally delivered the questionnaires. It is possible to gather sensitive data because of anonymity convenience for respondents as they can be answered at their own time and place and it can also cover a large geographical and it is a cheap method in terms of cost.

### **3.6.2 Documentary sources/content analysis**

The researcher used existing written documentary sources that are available and relevant to the case study. These documentary sources included books, manuals, newsletters, reports, journals, pamphlets on disaster. These sources assisted the researcher to compare the existing knowledge and facts, since recorded information has validity and reliability. Documentary sources are used to fill gaps that are left when using other data collection tools. The researcher used disaster preparedness policies and plans prepared by the government of Kenya and other organizations.

### **3.6.3 Observation method**

Observation method was used to observe the available physical facilities and also establish the authenticity of the information collected from questionnaires and the prevailing disaster environmental conditions in and around the offices. The main aim of this method was examine the situation on the ground by focusing on specific elements determined in advance in the observation schedule.

According to Kothari (2009:7) this method implies the collection of information by way of investigator's own observation. The information obtained relates to what is currently happening. It is a scientific tool and method of data which is systematically planned and recorded through checks and controls.

## **3.7 Research Instruments**

### **3.7.1 Pre - Testing**

A pretest refers to a trial administration of an instrument to identify flaws, for example when a questionnaire is as a data gathering instrument it is necessary to determine whether questions and directions are clear to subject (Kumar, 2011:10). This was done before the actual research was conducted to allow the research an opportunity to draw conclusive plans for the research. Pre-testing exposed some of the anticipated problems, ambiguity and poorly worded questions. This enabled the researcher to deal with such problems before going into the actual research. The pre-testing allowed the researcher an opportunity to solicit for opinions from other researchers and peers. Such opinions and knowledge enabled the researcher to control in advance all factors that might have affected the outcome of the experiment. The researcher pre-tested the questionnaires at the National Steering Committee (NSC) a department of the Ministry of Interior and Internal security.

### **3.7.2 Reliability**

Kothari (2004:3) asserts that reliability demonstrates that the data collection procedure can be repeated with the same outcome. A reliability test is a method of making reliable by pre-testing the instrument. Mugenda & Mugenda, (2008:34) emphasizes that pre-testing is essential since it identifies errors which can be corrected. Reliability will ensure that tools are able to capture all the information required so as to analyse data.

### **3.7.3 Validity**

Kothari (2004:3) states that validity contains what one wants to study and how data collection and analysis of research captures the reality being studied. Validity ensures that results are a true picture of what is actually on the ground. Kumar (2011:10) defines validity as quality of measurement procedure that provides respectability. The researcher gave questionnaires to only those who provided the needed information, and ensure that correct procedures were applied to find answers to a question

### **3.8 Data Analysis and Presentation**

Kothari (2004:7) argues that data interpretation implies the editing, coding, classification and tabulation of collected data so that it is amendable for analysis. Mugenda & Mugenda (2003) state that data obtained from field in raw form is difficult to interpret. It is from the results of such analysis that researchers are able to make sense of the data.

Data analysis and interpretation summarizes the collected data and organizes it in such a way that it answers the research questions. Conclusions and comparisons are made from the analysis. Coding refers to the creation of categories in relation to data; the grouping together of different instances of datum under an umbrella term that can enable them to be regarded as of the same type. Coding helps researcher reduce several replies to a small number of classes containing critical information.

Classification was used to reduce the large volume of raw data generated by the respondents. In classification data was arranged in groups or classes on the basis of common characteristics. The summarized data was tabulated, compact in logical order and presented qualitatively or descriptively. Conclusions and comparisons were drawn where necessary using and frequency tables to enhance interpretation and findings were presented in pie charts and graphs. The Microsoft Excel programme and Microsoft Word programme were utilized to analyse the data, the pie graph and were utilized to visualize the results

### **3.9 Ethical considerations**

The researcher ensured confidentiality on information supplied by participants is maintained and their privacy respected, and where possible information provided by them was anonymised.

The researcher was honest and fair and avoided plagiarism by acknowledging source of information.

While carrying out the research the researcher fully informed participants regarding aims, purpose and methods of the research and potential use and dissemination of its results. And also informed them about the risks and benefits of their involvement.

### **3.10 Chapter summary**

The main purpose of carrying out the investigations is to get a clear picture of disaster management in area under study. The researcher identified the targeted population and sample size to represent the entire population; applied purposive sampling method. The researcher used qualitative and quantitative research approach for the study and selected case study and descriptive research design. The data collection tools were questionnaire, observation and documentary source methods. Data analysis was carried out by use of various techniques which included coding and classification in order to summarize and group data collected from the respondents in order to avoid repetition on the same subject. Data was be presented by use of graphs, pie-charts, tables and descriptive narrative methods.

The next chapter contains data presentation, analysis and interpretation of findings as obtained through the use questionnaires and observation.



## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

This chapter presents the results of the study that examined disaster management practices in the Ministry of Energy and Petroleum. In achieving the objectives of the study, the researcher designed questionnaire and observation schedule that covered a number of issues as indicated in chapter three. This chapter focuses on the presentation, analysis and interpretation and of findings as obtained through use of questionnaires, observation, and experience of the researcher. This is done in a logical systematic manner by use of text, graphs, percentages, numbers, charts and tables. In summarizing the outcome the researcher was guided by the aims and objectives of research under study.

#### 4.2 Response rate of questionnaire

The questionnaires were distributed and respondents allowed to fill in 5 days, Questionnaires were used to obtain information from the top/middle level staff, resource centres staff and clerks. The questionnaires were given to 6 Top management, 45 middle level managers/Supervisors, 5 Resource centre staff, and 8 clerks. The questionnaires consisted of carefully selected questions captured on disaster management. The response rate was high since 55 questionnaires out 64 questionnaires were returned making it (86.6%) response rate.  $55 \times 100 / 64 = 85.6\%$ . The questionnaires were analysed by hand and responses were converted into percentage.

**Table 4.1: Response rate of questionnaires**

<b>Respondent</b>	<b>No. of questionnaires distributed</b>	<b>Questionnaires returned</b>	<b>Percentage of questionnaires returned (%)</b>
Top Management	6	4	7%
Middle level Managers/supervisors	45	39	71%
Resource Centres staff	5	5	9%
Clerks	8	7	12%
<b>Total</b>	<b>64</b>	<b>55</b>	<b>87.5%</b>

From the results of the above table, it is evident that most respondent were able to return their questionnaires which is useful to the researcher since analysis of data is made easier.

### 4.3 Disaster management policy

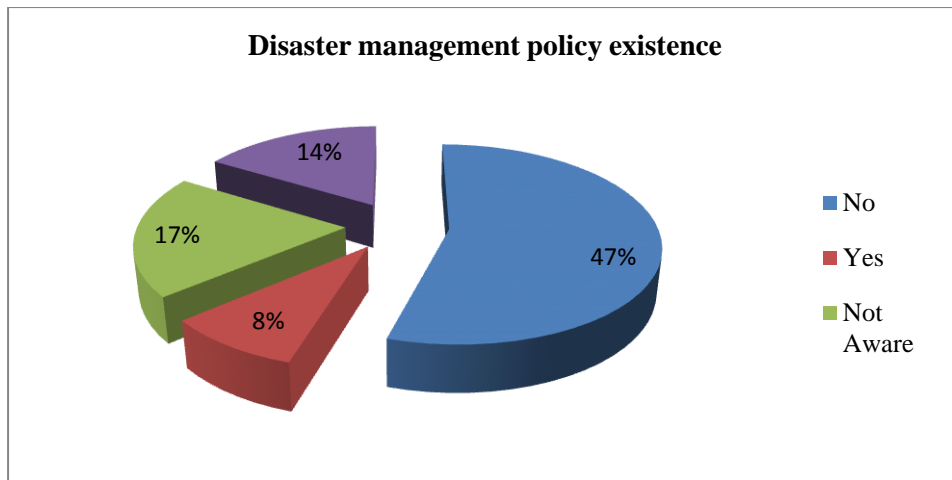
The first objective was to find out if there is disaster management policy in the Ministry of Energy and Petroleum. Respondents were asked to indicate if there was a disaster management policy in place in the Ministry of Energy and Petroleum, if there is when was it last updated. The purpose of the question was to find out if there is any documented framework in the organization that gives guidelines, and if staffs are aware of such a document. Disaster management policy is essential in every organization since it directs staff members what to do or not to do when disaster strikes among others. The researcher tried to find out if there existed a disaster management policy in the Ministry of Energy and Petroleum. Out of 55 respondents 35(54.68%) indicated no policy, 9(14%) there is a policy, 11(17%) are not aware of policy existence while 9(14%) questionnaires were not returned.

To when it was last updated there was response 72.72% majority did not respond 27.27% indicated they do not know.

**Table 4.2: Disaster management policy**

<b>Disaster policy existence</b>	<b>Frequency</b>	<b>Percentage (%)</b>
No	35	55%
Yes	9	14%
Not aware	11	17%
Missing	9	14%
<b>Total</b>	<b>64</b>	<b>100%</b>

Source: Field Study, 2014



Source: Field study 2014

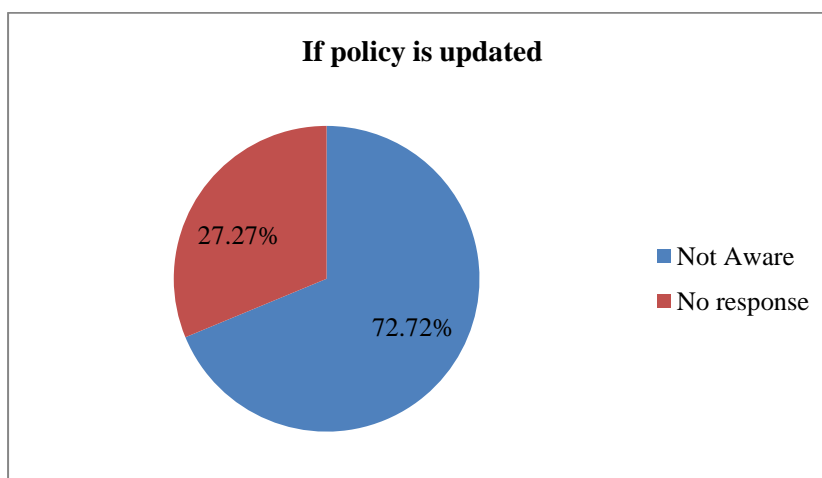
**Figure 4.1 Chart on disaster management policy**

The study revealed that there is no disaster management policy in the Ministry of Energy and Petroleum from 47% who responded that there was no policy compared to 8% who indicated there was. From observation researcher perused through library documents and there was no disaster policy for the Ministry of Energy and petroleum.

**Table 4.3: If policy is regularly updated**

Updated	No of respondents	Percentage (%)
Not Aware	40	72.72%
No response	15	27.27%
<b>Total</b>	<b>55</b>	<b>100%</b>

Source: Field study 2014



Source: Field study 2014

**Figure 4.2: If policy is regularly updated**

#### 4.4 Types of disasters

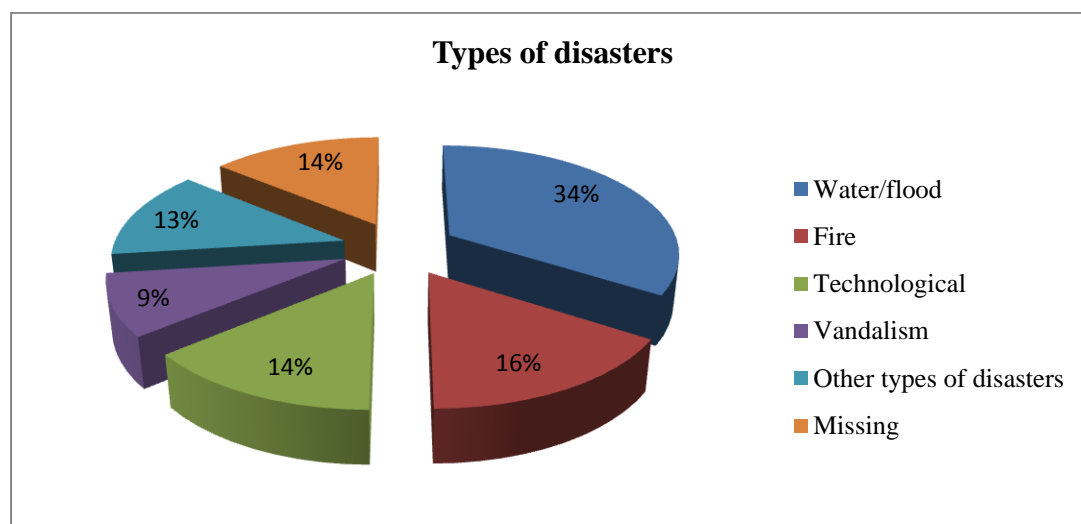
The objective number two sort to find out disasters that were likely to occur at the Ministry of Energy and Petroleum. The respondents were asked to indicate possible types of disasters that were likely to occur. The purpose of asking the question was to find out if members of staff were aware of disasters that were likely to occur in the organization, since fully understanding of the causes and consequences is essential.

Possible types of disasters that were likely to affect the Ministry of Energy and Petroleum as the researcher sort to find according to respondents was that 22(34%) responded water/floods, 10(16%) fire, 9(14%) technological, 6(14%) vandalism, other types of disasters 8(15%) while 9(14%) never responded.

**Table 4.4 Types of disasters**

Disasters likely to occur	No of respondents	Percentage (%)
Water/Floods	22	34%
Fire	10	16%
Technological	9	14%
Vandalism	6	9%
Other types of disasters- earthquakes	8	13%
Missing	9	14%
<b>TOTAL</b>	<b>64</b>	<b>100%</b>

Source: Field study 2014



Source: Field study 2014

**Figure 4.3: Chart representation on possible types of disasters**

Data collected at the Ministry of Energy and Petroleum revealed that the organization was more likely to have water disaster. Since Nyayo House has frequent water shortages due to unpaid bills with local council leading to flooding since members of staff forget to turn off taps at the time of closure of business. Fire was another likely cause of disaster due to the regular power fluctuation in the building. The building has common black out hence electrical faults can cause fire outbreaks and staff cook in the offices and kitchen. Technological disasters can also be power fluctuation hence data can be lost. Theft/vandalism can be another disaster since the building houses very many public offices like the immigration department and the provincial commissioners, administration police office which deal with very many people, who can come in the building pretending to be genuine clients who require services yet they are thieves.

#### **4.5 Disaster preparedness**

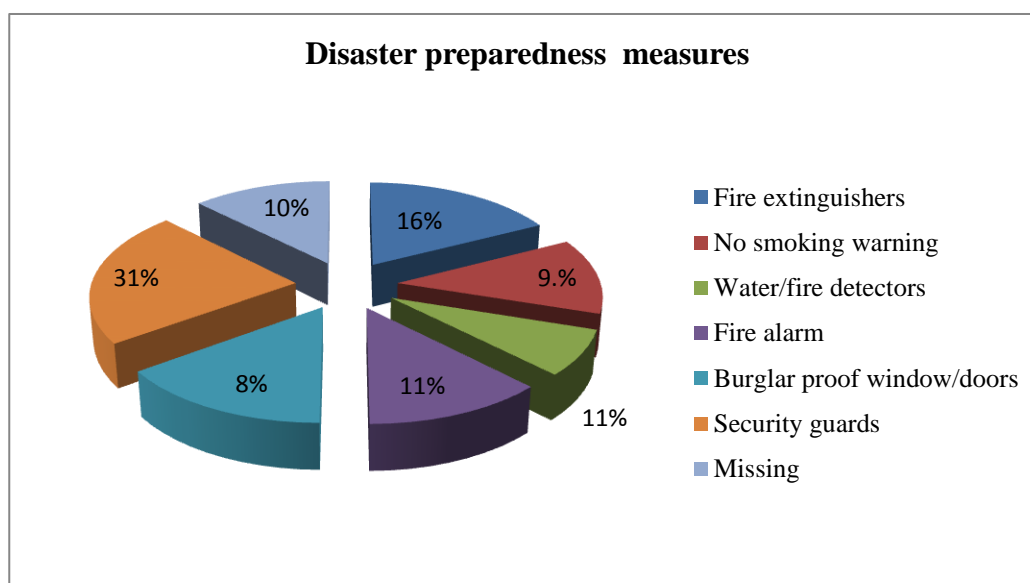
Objective number three sort to establish the state of disaster preparedness in the Ministry of Energy and Petroleum. The researcher asked the respondents the status of disaster preparedness in the Ministry of Energy and Petroleum. The purpose asking the was that being prepared enable an effective response when disaster occurs and this is typically achieved through a combination of documented plans, emergency supplies, staff training and external contacts arrangement. Preparedness to any situation is essential ensuring that the organization is able to respond adequately to disaster.

Disaster preparedness in the Ministry of Energy and Petroleum sort to by the researcher 9(15.62%) indicated fire extinguishers, 6(9.37%) No smoking warning, 7(10.93%) water/fire detectors, 7(10.93%) fire alarms, 5(7.81%) burglar proof windows/doors, 31.25(2%) security guards and 9(10%) were never returned.

**Table 4.5: Table on disaster preparedness**

Disaster preparedness measures	No of respondents	Percentage (%)
Fire extinguishers	10	16%
No smoking warning	6	9%
Water/fire detectors	7	11%
Fire alarm	7	11%
Burglar proof window/doors	5	1%
Security guards	20	31%
Missing	9	10%
<b>TOTAL</b>	<b>64</b>	<b>100%</b>

Source: Field study 2014



Source: Field study 2014

**Figure 4.4: Chart representing on disaster preparedness**

Data collected from the Ministry of Energy revealed that there were some measures taken in disaster preparedness. The research observed that the Ministry had made some effort in disaster preparedness by installing fire extinguishers, placing No smoking warning at strategic places, and outsourced security guards to man the reception desks.

The researcher observed the Ministry of Energy and Petroleum has put in place mitigation measures. The researcher used the observation schedule to verify some of the responses that were answered by staff on questionnaire. From researchers observation there were fire extinguishers, fire exits, security guards, staff badges and records were stored in fire resistant cabinets.

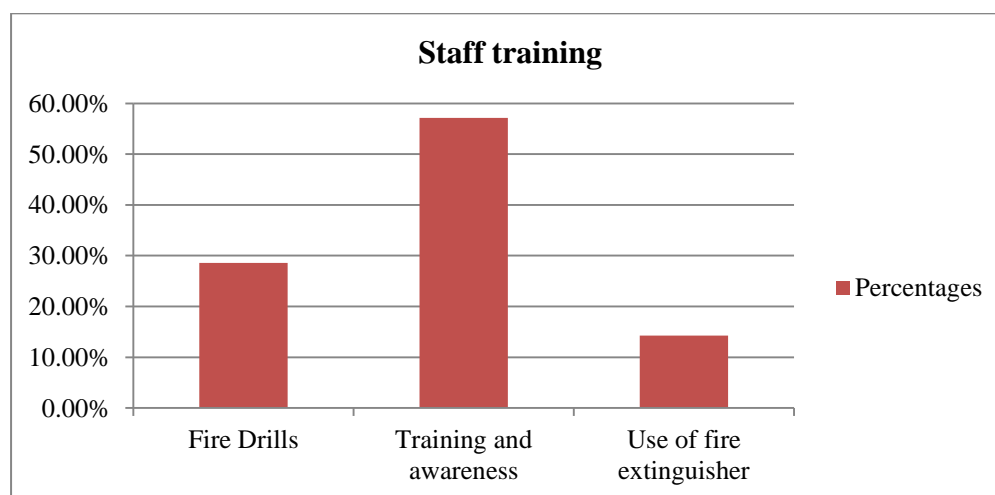
#### 4.5.1 Staff training and awareness on disaster management

The research question was that had staff been oriented on disaster management. The purpose of asking the question was that researcher sort to find out if staff in the Ministry of Energy and Petroleum had attended orientation or training in disaster management. According to data collected staff had been oriented on disaster management but is it not done regularly and also fire drills are normally done but not regularly. The findings as indicated by respondents 20(36%) of fire drills, 25(45%) training and awareness while 10(18%) on use of fire extinguishers.

**Table 4.6: Table on staff training and awareness**

Techniques	No of respondents	Percentages (%)
Fire Drills	20	25%
Training and awareness	25	57%
Use of fire extinguisher	10	14.%
<b>Total</b>	<b>55</b>	<b>100%</b>

Source: Field study 2014



Source: Field study 2014

**Figure 4.5: Staff training and awareness**

Although staff have attended training on disaster management it has not been done regularly so they still do not know how to react when disaster strikes. They also have never read any disaster management documents like the disaster plan to know how to respond to disaster.

#### **4.5.2 Equipment and facilities**

The researcher sort to find out the disaster preparedness equipments and facilities available at the Ministry of Energy and Petroleum. This question covered objective number three on the state of disaster preparedness in the Ministry of Energy and Petroleum. The researcher asked what security measures are in place. The purpose of the question was to find out if the Ministry of Energy and Petroleum have disaster preparedness equipment and facilities. The study revealed that there were equipments for disaster preparedness, this was observed by the researcher. The researcher physically visited the offices with the aid of checklist and was able to confirm the disaster management equipments available in the Ministry of Energy and Petroleum. The researcher observed that there were fire resistant cabinets, press taps, fire exits and staff badges.

#### **4.5.2 Funding for disaster management**

The researcher had sort to know if there is budget allocation for disaster management in the Ministry of Energy and Petroleum. According to responses it was noted that the disaster unit is not adequately funded. The researcher also observed that since the disaster training is not done regularly it is because of inadequate funding.

#### **4.6 Role of information communication technology (ICT)**

Objective number three sort to find out how ICT has contributed towards disaster management. The researcher asked the respondents how ICT has contributed in disaster management. The purpose of the question was to know how organization had embraced ICT in disaster management. From the research there were passwords on personal computers, firewalls on the server to monitor authorized access. Anti-viruses have been put on personal computers to protect the computers and records. Back-up of records in secondary and external storage: for example external hard disk, flashes, CDs and storing records in offsite storage. When installing computers staff were advised to read the manuals so that they follow instructions on how to handle the computers: covering the machine after use to protect the machine from environmental disasters and switching off power from sockets.



#### 4.7 Challenges and solutions regarding disaster management

The researcher sort to establish challenges faced by staff in relation to disaster management this was objective number five. The purpose of the question was to find out the challenges faced by staff propose possible solutions in regard to disaster management. The study revealed that Ministry of Energy and Petroleum staff had challenges in regard to disaster management. Challenges included lack of disaster management policies and plans, lack of support from top management, lack of regular training in disaster management, inadequate funds being allocated for managing disasters, inadequate information, no disaster management unit and lack of modern disaster management equipment. According Government of Kenya policy (2008:17) solution to the challenges: establish policy/legal and institutional frameworks for managing disasters, allocate adequate funds, share information, train staff on disaster management regularly and acquire modern disaster management equipment.

#### 4.8 Observation schedule findings

Observation was one of the data collecting instruments and researcher prepared an observation schedule as a guide to physically check if the Ministry of Energy and Petroleum had put in place any mitigation and prevention measures. Observation was also used to countercheck responses by respondents

**Table 4.7: Table on observation schedule**

<b>Observation schedule</b>	<b>Remarks</b>
Leaking roofs	Not leaking
Water detectors	Available
Plumbing /piping leaks	Appropriate
Press taps	Available
Fire extinguishers	Available
Fire/ Smoke detectors	Available
Warning signs	Available
Assembly point	Available
Security checks/guards	Available
Staff badges	Available
Blinders/florescent lighting	Available

Observations made by researcher revealed that, although the Ministry of Energy and Petroleum does not have a disaster management policy, it has taken steps to put in place disaster mitigation, prevention and preparedness measures.

## **CHAPTER FIVE**

### **SUMMARY OF KEY FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter highlights the summary and discussions of the study findings including conclusion and recommendations. The study further makes recommendations based on study findings and the objectives of the study. Suggested areas for further study are also portrayed in this chapter. The aim of study was investigate disaster management in the Ministry of Energy and Petroleum.

The study objectives were to find out if there is a disaster management policy in the Ministry of Energy and Petroleum, find out types of disasters likely to occur at the Ministry of Energy and Petroleum, establish the status of disaster management at the Ministry of Energy and Petroleum, determine the role of ICT in disaster management, establish challenges faced by staffs in relation to disaster management and possible solutions.

#### **5.2 Summary of findings**

The study's findings are summarized as follows:

##### **5.2.1 Disasters management policy**

The first objective of this study was to establish existence of disaster management policy in the Ministry of Energy and Petroleum. In establishing policy existence the study findings revealed the information as indicated in table 4.2 and Figure 4.1. Majority of the respondents indicated no policy 35(64.87%) 9(7.8%) there is a policy, 11(17%) are not aware of policy existence. That study revealed that the Ministry of Energy and Petroleum has no written policy governing disaster management. The only guidelines used were disaster plan by National disaster operation centre and the Republic of Kenya National policy. The purpose of disaster management policy is to give to direction on risks reduction, loss of life, economic disruption and damage to property.

##### **5.2.2 Types of disasters**

The second objective of this study was to find out types of disasters likely to occur at

the Ministry of Energy and Petroleum. The study findings revealed the information as indicated in table 4.4 and Figure 4.3. The possible types of disasters that were likely to occur at the Ministry of Energy and Petroleum were fire, floods and vandalism. Data collected at Ministry of Energy and Petroleum revealed that types of disasters that were likely to affect the Ministry of Energy and Petroleum as the researcher sort to find according to respondents was that 22(34%) responded water/floods, 10(16%) fire, 9(14%) technological, 6(9%) vandalism, other types of disasters 8(13%) while 9(14%) never responded.

Data collected at the Ministry of Energy and Petroleum revealed that the organization was more likely to have water disaster since Nyayo house as frequent water shortage and staffs forget to turn off taps at the time of closure of business. Fire was another likely cause of disaster due regular power fluctuation in the building which can cause electrical faults and staffs cook in the kitchen. Other types of disasters include terrorism which have become common and a likely cause of disaster that could affect Ministry of Energy and Petroleum.

### **5.2.3 Disaster management preparedness at the Ministry of Energy and Petroleum**

Preparedness is used commonly in reference to educating, training personnel and identifying resources in advance. The Ministry of Energy and Petroleum has put in measures to mitigate/prevent and prepare for disasters. Measures that have been put in place; outsourcing security officers to manage the front office, no smoking warnings, fire extinguishers, fire exits marked, buckets of sand, burglar reinforcement of windows and doors have been installed, fire resistant cabinets and staff have been trained though not frequently. One concludes that the Ministry of Energy and Petroleum has put in place mitigation measure to manage disasters.

### **5.2.4 Funding for management of disasters**

From findings it was discovered that disaster management functions are not adequately funded since the top management lacks the will to support disaster preparedness. Since there is no disaster management unit in the Ministry of Energy and Petroleum to coordinate disaster management issues it becomes difficult to allocate funds. Lack of regular training by staff was attributed to inadequate funding

in disaster management. Formulation of disaster policies requires funding because consultants will be called upon to make input. Organizations operate on wait and see attitude, whereby they react after disaster strikes.

### **5.2.5 Role of ICT in disaster management**

From findings the Ministry of Energy and Petroleum has embraced ICT in managing disaster they have taken measures by having firewalls, passwords, anti-viruses, external hard disks are being used store data. The Ministry of Energy and Petroleum is embracing social media to share information.

### **5.3 Conclusion**

The researcher set out to assess the state of disaster management practices in the Ministry of Energy and Petroleum. There is need for organizations to address the issue of disaster management as disasters are frequently happening and organizations affected are not able to cope with the effects of disasters.

Disasters have become common and the Ministry of Energy and Petroleum management need to pay more attention on disaster mitigation. Risk assessment as a step for successful disaster reduction measures will ensure that the organization is aware of the possible hazards.

The Ministry of Energy and Petroleum should incorporate the national and international policies and guidelines in their organizational policy. The Ministry should be keen on learning on previous disasters that have affected other organizations the country and other parts of the world by having disaster management.

Creating awareness among staff should be done regularly, training of staff should be a priority even if it means calling personnel from disaster department or fire department. Also identify the problems experienced by staff in relation to disaster management by ensuring the problems are addressed. Allocate adequate funds for managing disaster mitigation and management.

### **5.4 Recommendations**

The following recommendations were made based on the study findings to address the various challenges faced by Ministry of Energy and Petroleum in managing disasters.

#### **5.4.1 The Ministry needs to formulate disaster management policy**

The study recommends that the Ministry of Energy and Petroleum needs to formulate and implement a disaster management policy, develop a risk management programme, a vital records management programme, and have insurance cover. These documents will guide, give direction on how to react and respond when disaster strikes. This will promote awareness on disaster management in the ministry. The policy should be flexible, implementable and cost effective. It should be reviewed regularly to reflect the current trends in management of disasters.

#### **5.4.2 The Ministry of Energy and Petroleum needs to take disaster prevention measures**

**Fire** - The Ministry of Energy and Petroleum needs to install firefighting systems such as fire and smoke detectors, fire extinguishers at strategic places, fire blankets, sand buckets and first aid kits. They should train staff on how to use them and regularly perform fire drills. No smoking warning should also be placed in offices and corridors. They should ensure that all electrical appliances are order, and installation should be done by a trained electrician. They should also keep contact of telephone numbers of the fire fighting brigade who can be contacted in case of an emergency.

**Floods** - Floods can be curbed by avoiding the installation of water pipes near the storage areas. The water drainage from the building should be in good condition. The drainage system should be always open and clean. Staff should be trained to turn off the taps after use or when there is water shortage. Management can also install press taps, floods detectors.

**Vandalism:** visitors should be screened at the reception. Counters should be installed in records offices to restrict unauthorized persons from entering the offices. Burglars reinforce doors and windows and always locking doors after days working hours. Management should employ security guards to manage and guard the gates and receptions.

#### **5.4.4 Procure appropriate disaster management equipments**

The study recommends that the Ministry of Energy and Petroleum should acquire modern equipment to be used in disaster mitigation, preparedness, response and recovery.

#### **5.4.5 Funding for disasters management**

The study recommends that the Ministry of Energy and Petroleum top management should allocate adequate funds for disaster management in the annual budget. Allocating funds in the long term ensures the sustainability of disaster management efforts.

#### **5.4.6 Security measures**

The study recommends that top management needs to ensure that proper security measures are put in place. Such measures include burglar reinforcing the doors and windows of offices and controlled access to offices. Doors should be locked when there is nobody in the office and after days working hours. Install automatic alarm systems and surveillance cameras in the main entrance. Management should employ security guards on a 24 basis to guard the premises. Ensure backup of digital resources at offsite location so that organization can be able to move forward incase of disaster.

#### **5.4.7 Offsite storage**

The study recommends that the Ministry of Energy and Petroleum needs to have offsite storage where they can have backup of vital resources. These resources can be used when disaster strikes and normal functioning of the business will not be disrupted. Business continuity is crucial in any organization and the Ministry of Energy and Petroleum should be prepared for any eventualities. Being out of business because of disaster can cause losses in terms of finances and reputation, thus the organization should have alternative storage area where data can be stored to assist normal operations even after disaster strikes.

#### **5.5 Suggested areas for further study**

- i. The research focused on the Ministry of Energy and Petroleum which is public sector and future research will need to include two ministries or an organization from private sector to understand the similarities and differences on how to manage disasters.
- ii. To further conduct research study on the contribution and effectiveness of information communication technology (ICT) in disaster management.

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**APPENDICES**

**Appendix I: Questionnaire for members of staff**

Dear Respondent,

I am a postgraduate student at the University of Nairobi pursuing a Masters degree in Library and Information Science. I am conducting a study titled: Assessment of disaster management in the Ministry of Energy and Petroleum headquarters, Nairobi. Confidentiality on information provided will be maintained and privacy respected.

Name (optional) Department/Section \_\_\_\_\_

Designation (optional) \_\_\_\_\_

Q1. Is there a comprehensive policy governing disaster management in MOEP?

Yes [ ]

No [ ]

(b) How regularly is the disaster management policy updated?

.....

Q2. Have you been oriented on disaster management?

Yes [ ]

No [ ]

(b) If yes what did you learn?

i. Fire drills [ ]

ii. Training on disaster [ ]

iii. Use of fire extinguishers [ ]

Any other training.....

Q3. Is there a disaster plan in the Ministry of Energy and Petroleum?

Yes [ ]

No [ ]

Q4. What are the likely disasters to occur

(a) Fire [ ]

(b) Floods [ ]

(c) Burglary [ ]

(d) Earthquakes [ ]

(e) Environmental [ ]

(f) Technological [ ]

Q5. Are there other possible disasters that are likely to happen?

Yes [ ]

If any which ones .....

No [ ]

Q6. Are all the staff involved in disaster preparedness measures?

Yes [ ]

No [ ]

Q7. Is the Ministry of Energy and petroleum committed in combating disaster preparedness?

Yes [ ]

No [ ]

(b) What measures have been taken?

.....

Q8. Is there disaster management team leader in the organization?

Yes [ ]

No [ ]

(b) If yes, what are the responsibilities of the head?

.....

Q9. Has disaster preparedness been allocated funds in the organization budget?

Yes [ ]

No [ ]

(b) If yes, what is the annual budget allocation? .....

Q10. What security measures are there in place in the offices? Tick any or all

- a) Restricted access [ ]
- b) Burglar proof windows/ doors [ ]
- c) Fire resistant cabinets [ ]
- d) Fire extinguishers [ ]
- e) Fire/smoking detecting system [ ]
- f) Firewall for ICT servers [ ]

Q11. What specific disaster preparedness measures have been put in place in the Ministry of Energy and Petroleum?

**Fire and Floods strategies**

- (a) Lightning arresters [Available, Not Available]
- (b) Fire extinguishers [Available, Not Available]
- (a) Smoke detectors [Available, Not Available]
- (b) Fire alarms system [Available, Not Available]
- (c) Generators [Available, Not Available]
- (f) Water detectors [Available, Not Available]

**Physical strategies**

- (a) Burglar proof windows [Available, Not Available]
- (b) Burglar proof doors [Available, Not Available]
- (c) Fire exits [Available, Not Available]
- (d) Presence of security guards [Available, Not Available]
- (e) Exit signs [Available, Not Available]
- (f) First aid kits [Available, Not Available]

Q12. Does the organization have support services for disaster preparedness?

- (a) Fire brigade company             Yes     No
- (b) Back up off-site storage         Yes     No
- (c) Insurance                         Yes     No

Q13. How has Information Communication Technology (ICT) contributed towards disaster management?

.....  
.....

Q14. What are the challenges regarding disaster preparedness in the organization?

.....  
.....

(b) Suggest possible solutions.....

.....

*Thank you for your cooperation.*

## Appendix II: Observation Schedule

General information

Name of the University

1. Identification of specific measures taken to avert disasters in the organization

<b>Water damages</b>	<b>Remarks</b>
a) Leaking roofs	Leaking    not leaking [   ]    [   ]
b) Water detectors	Available    Not available [   ]    [   ]
c) Plumbing/piping leaks	Appropriate    Not Appropriate [   ]    [   ]
d) Type of taps	Press tap    Not press tap [   ]    [   ]
 <b>Fire damage</b>	
a) Fire extinguishers	Available    Not available [   ]    [   ]
b) Fire detectors	Available    Not available [   ]    [   ]
c) Smoke detectors	Available    Not available [   ]    [   ]
d) Fire exits	Available    Not available [   ]    [   ]
e) Are fire exits marked	Available    Not available [   ]    [   ]
f) Warnings signs	Available    Not available [   ]    [   ]
g) Fire resistant equipments	Available    Not available [   ]    [   ]
h) Designated fire assemble point	Available    Not available [   ]    [   ]



**Security measures**

- |                       |           |               |
|-----------------------|-----------|---------------|
| a) Burglar reinforced | Available | Not available |
|                       | [ ]       | [ ]           |
| b) Security checks    | Available | Not available |
|                       | [ ]       | [ ]           |
| c) Security guards    | Available | Not available |
|                       | [ ]       | [ ]           |
| d) Staff badges       | Available | Not available |
|                       | [ ]       | [ ]           |

**Environmental measures**

- |                        |           |               |
|------------------------|-----------|---------------|
| a) Blinders            | Available | Not available |
|                        | [ ]       | [ ]           |
| b) Florescent lighting | Available | Not available |
|                        | [ ]       | [ ]           |