

**AN ASSESSMENT OF DISASTER PREPAREDNESS IN TERTIARY
COLLEGES.**

THE CASE OF THIKA TOWN IN KENYA

BY

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
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DECLARATION

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

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DEDICATION

This research project is dedicated to my beloved wife, Mirriam Mwikali without whose support and constant encouragement this work would not have been successfully accomplished. She constantly encouraged and supported me all through. She at times had to run my errands around just to create time for me to pursue my studies.

Secondly to my son Victor who had to cope with an absentee dad for most weekends just because I had to be in class, something he couldn't quite understand. This significantly denied him the regular rides to his favourite destination (the local supermarket). I owe it all to them.

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LIST OF ABBREVIATIONS

DM	–	Disaster Management
EIA	–	Environmental Impact Assessment
GoK	–	Government of Kenya
KNDPDM	–	Kenya National Draft Policy on Disaster Management
KRCS	–	Kenya Red Cross Society
SPSS	–	Statistical Package for Social Sciences
TMC	–	Thika Municipal Council
UNDP	–	United Nations Development Programme
UNEP	–	United Nations Environmental Programme

ABSTRACT

The background to the study captures the disaster situation globally, regionally and locally. Over the world, disasters have wrecked havoc to developmental gains spanning for many years in the history of many countries. Disaster preparedness involves the education and training of officials and the population at risk, the training of intervention teams, and the establishment of policies, standards, organizational arrangements and operational plans to be applied following a disaster. Kenya's disaster profile is dominated by droughts, fire, floods, terrorism, technological accidents, diseases and epidemics that disrupt people's livelihoods, destroy the infrastructure, divert planned use of resources, interrupt economic activities and retard development. Kenya has continued to face a rising degree of vulnerability to disaster risk. The statement of the problem tries to paint a picture of the high disaster vulnerability levels of tertiary colleges in Kenya and specifically in Thika Town. It would be expected that a community that has lived through disaster would learn from the experience and thus be better prepared if faced with a similar situation. In Kenya, there have been numerous risks and losses resulting from lack of disaster preparedness among the victims. The researcher aimed to fill the existing gap by carrying out a study on the level of disaster preparedness among tertiary colleges in Kenya with a focus on Thika Town in Kiambu County. The purpose of the study was to establish the level of disaster preparedness among tertiary colleges in Kenya where the focus was on the Colleges in Thika Town in Kiambu County. The research objectives were to assess the availability of disaster management equipments, to determine the level of disaster management training, to determine the level of compliance to disaster management policies and to find out the nature of disaster response mechanisms put in place in tertiary colleges in Thika. The research design was a cross sectional descriptive study. The target population was 800 staff, the college students' representatives and the staff working with government authorities such as Thika Municipal Council, Ministry of Education and Ministry of Special Programs. A sample of 20% (160 sample respondents) from within each group in proportions was taken using stratified random sampling. The researcher collected both primary and secondary data. Pre-tested questionnaires were physically dropped at the respondents' place of work. Data collected was mainly quantitative and it was analyzed by descriptive analysis techniques. The descriptive statistical tools such as SPSS were used. The study concludes that there are disastrous occurrences that happen in the tertiary colleges. These disasters include fires disasters, collapse of buildings, diseases and epidemics and terrorism attacks where floods are rarely experienced. The study deduces that disaster management equipments influence the disaster preparedness in the institutions. There is high level of disaster management training for effective disaster preparedness among the tertiary colleges. Disaster management policies determine the extent to which the institutions are able to respond to various disasters. The study thus recommends that preparedness efforts must address all potential disaster events. It is important to engage multiple stakeholder groups in formulating metrics that they consider most appropriate. For effective disaster preparedness disaster the relevant stakeholders should be equipped with the relevant training to enhance their effectiveness in disaster preparedness. There is need to enhance the disaster management policies in order to create awareness of disaster preparedness and long term mitigation and strengthen disaster management institutions.

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background of the Study

Over the world, disasters have wrecked havoc to developmental gains spanning for many years in the history of many countries. For many ordinary people who live and work in many countries, Kenya included, disasters have made life to be very difficult for them. Social, economic and political posterity has been compromised with each emergency or disaster bedeviling the society. Even those fortunate persons who have modest means of livelihood find it hard to feed, clothe and shelter their families in the event of a disaster (Halimu, 2007). As the world advances technologically and otherwise, it is disturbing to note that the number of people at risk of disasters has been growing by 70 to 80 million per year (UN, 2002).

Disasters are severe disruptions, psychological and psychosocial, which greatly exceed the coping capacity of the affected communities. A disaster could be an event or series of events, which give rise to casualties and/or damage or loss of property, infrastructure, essential services or means of livelihoods on a scale which is beyond the normal capacity of the affected community to cope with unaided. This disruption may create more difficulties than the physical consequences (Quarantelli 1980). Disaster preparedness involves forecasting and taking precautionary measures prior to an imminent threat when advance warnings are possible. Effective plans also consider securing resources, possibly including stockpiling supplies and earmarking funds. The magnitude of a disaster depends on the characteristics, the probability and intensity of the hazard and the susceptibility of exposed elements based on the prevailing physical, social and environmental conditions (Paul, 2002). Preparedness for the first and immediate response is called emergency preparedness.

In Europe, storms, floods and heat waves are major disastrous threats. In the past 20 years, 953 disasters killed nearly 88,671 people in Europe, affected more than 29 million others and caused a total of 269 US\$ billion economic losses. Italy and Germany have recorded major economic damages mainly due to floods and storms. The number and

impacts of disasters increased in Europe in the period 1998-2009. The increase in losses can be explained to a large extent by higher levels of human activity and accumulation of economic assets in hazard-prone areas, but also, to a smaller extent, by better reporting. In the last two decades, Spain had the highest number of victims among all European countries and Russia, the highest numbers of disasters.

Africa suffers 60% of all disaster-related deaths in the world. This is probably due to the type of hazards that affect this continent, to under-reporting, and to the fact that under the circumstances prevailing in Africa, it is easy for any disaster to escalate and multiply its impact. Africa's natural hazards are mainly epidemics, endemic diseases, drought, floods, agricultural pests and bush fires, but some areas are also susceptible to earthquakes, cyclones and volcanic eruptions. The natural hazards interact with manmade ones, such as armed conflicts, air, road and railway accidents, other industrial hazards such as mining accidents, chemical spills, etc., and with widespread vulnerability. The Nigerian Institute of Policy and Strategic Studies Library experienced electrical failure resulting in a fire which destroyed many books, artefacts, and other monuments in 1987. Floods in Mozambique in 2000 sparked major emergency relief as hundreds of people lost their lives and thousands were displaced from their homes (Brickett et al., 2007).

Kenya's disaster profile is dominated by droughts, fire, floods, terrorism, technological accidents, diseases and epidemics that disrupt people's livelihoods, destroy the infrastructure, divert planned use of resources, and interrupt economic activities and retard development (Ministry of State for Special Programmes, 2009). In the recent past fires, floods and collapsing of buildings have been the most rampant in urban centers in Kenya. Majority of these disasters could have been prevented or losses mitigated if proper disaster preparedness measures were in place. Fire broke out at the Nakumatt Supermarket Downtown branch in Nairobi's Central Business District, on 28 January 2009 where some 56 people were confirmed dead. According to the Kenya Red Cross Society report, these lives could have been saved if there were adequate escape routes, and if all the staff were trained on fire disaster management (Kenya Red Cross Annual Report, 2009).

On 1st February 2009 along Nakuru- Eldoret highway a long haul trailer ferrying petroleum products towards Eldoret overturned at Sachangwan in Molo district. Residents from the nearby villages trooped to the scene to siphon oil. A mass fire broke out in the process. At least 144 people lost their lives (Government of Kenya, 2009). Most of these deaths occurred due to the slow and uncoordinated response by those who turned out to respond to the disaster. The cause of the fire was largely said to have been ignorance of the members of the public concerning the effects of smoking near highly inflammable substances such as petro. The most recent cases of disaster include the Sinai fire tragedy of 12th September 2011 which claimed over 100 lives and left hundreds homeless and scores injured. Others are; Kimathi house fire which razed down property as the fire fighters helplessly watched on and the Kibera fire tragedy which engulfed property without salvage because roads were impassable due to encroachment of buildings on the road reserves. When Kimathi house caught fire on the night of 1st April 2012, the following day was too painful for some students to bear. They had lost virtually all their academic records. It is this revelation that most tertiary colleges are at great risk when it comes to disaster preparedness and management that formed the basis of this study.

Nairobi city has the highest number of colleges in the country. Previously, only few colleges operated from outside Nairobi. Due to its proximity to the capital city, Thika town has become a favourite for many colleges and is now one of the urban centres with a high number of tertiary colleges. Thika is the largest urban centre in Kiambu County, located on the western side of Thika River, 46 km North East of Nairobi City. Access to Thika town has become much easier with the construction of the Northern bypass that links Nairobi at Embakasi to Ruiru and the main Nairobi – Nakuru highway. Thika district is also the prime pineapple-growing region in Kenya. Thika town is home to two private universities Mt. Kenya University and Greta University. There are many branches of other universities such as University of Nairobi and Moi University. In addition to these, there are many tertiary colleges within the town. According to the Ministry of higher education (2011) the registered colleges as by the year 2011 in Thika town were fourteen (14). These are: Amboseli Institute, Excel Institute of Professionals, Gakeo College, International Centre of Technology, Jordan Computer college, Kenya

Institute of Management, Reward Institute of Professional Studies, Success Institute, Thika Institute of Science and Technology, Thika College of Banking, Thika Dressmaking School, Thika Institute of Business Studies (TIBS), Thika Medical Training Centre and Uzuri Institute. As such, the study focused on Thika Town in investigating the level of disaster preparedness among tertiary colleges in Kenya.

1.2 Statement of the Problem

As commonly understood, disaster implies a sudden misfortune causing extensive damage. Regardless of their origin and classification, all disasters have an importance due to their potential to cause loss of lives and livelihoods. What differs however is the preparedness of the community which determines its ability to cope and prevent loss of lives and livelihoods during the event and immediately after. It is even more important however, that the ability to predict a disaster before it happens allows mechanisms such as evacuations which drastically reduce loss of lives. While in developed countries governments, individuals and communities have greater capacities to deal with disasters, the economic losses are to some extent absorbed by a diversified economy and most assets are insured. Developing countries with limited economic diversity and poor infrastructure must not only rely on economic relief if a disaster occurs but their economies need more time to recover (UNDP, 2001) It is for this reason that the UN established UNOCHA in order for the latter to come up with clear statements, general principles and basic guidelines at international level, for eventual localization in the field of disaster prevention and mitigation through an integrated planning approach in developing countries (UNDP, 2003).

In the last two decades, Kenya has continued to face a rising degree of vulnerability to disaster risk. This risk is the probability of a hazard turning into a disaster, with households or communities being affected in such a manner that their lives and livelihoods are seriously disrupted beyond their capacity to cope or withstand using their own resources, with the result that affected populations suffer serious widespread human, material, economic or environmental losses. Communities are predisposed to disasters by a combination of factors such as poverty, aridity, settlement in areas prone to perennial flooding or areas with poor infrastructure and services such as the informal urban

settlements or even living in poorly constructed buildings. The Kenya Government has in the face of increasing disasters taken several steps towards disaster mitigation and reduction. The government also formulated a National Disaster management policy in which disaster preparedness, mitigation, prevention measures and response mechanisms have been identified as important elements in effective disaster management (Republic of Kenya, 2004). It would be expected that a community that has lived through disaster would learn from the experience and thus be better prepared if faced with a similar situation. Central to this preparedness is the community's perception relating to the disaster that may be influenced by its socio-cultural-religion-economic status.

Most colleges in Thika operate from rented premises which are shared by other occupants many of which are not controlled by the ministry for higher Education. Most of the buildings were not constructed with college setups in mind hence disconnect between what is ideal for a learning institution and what is being used as a learning facility. Despite the various disastrous occurrences experienced in Kenya, there have been continuous risks and losses resulting from the lack of disaster preparedness among the victims. However, to the best of the researcher's knowledge no study has ever concentrated on investigating the level of disaster preparedness in the local setting and especially in the tertiary colleges which are usually congested and therefore any case of a disaster would claim many lives. It was in this light that the researcher aims to fill the existing gap by carrying out a study on the level of disaster preparedness among tertiary colleges in Kenya with a focus on Thika Town in Kiambu County. The study focused on Thika because it is one of the urban centers with a high number of colleges due to its proximity to the City of Nairobi. This makes it more prone to disasters like fires and road carnage. This study therefore sought to assess the level of disaster preparedness among the tertiary colleges to mitigate losses due to disaster.

1.3 Purpose of the Study

The purpose of the study was to establish the level of disaster preparedness among tertiary colleges in Thika Town in Kiambu County and thereby come up with recommendations that would help to reduce losses attributed to occurrence of disasters.

1.4 Objectives of the Study

The study sought to achieve the following objectives

1. To assess the availability of disaster management equipments among tertiary colleges in Kiambu County.
2. To determine the level of disaster management training being offered by tertiary colleges in Kiambu County.
3. To establish the level of compliance to disaster management policies among tertiary colleges in Kiambu county.
4. To examine the nature of disaster response mechanisms put in place among tertiary colleges in Kiambu County.

1.5 Research Questions

This study sought to answer the following research questions:

1. Which disaster management equipments are available among tertiary colleges in Kiambu County?
2. What is the level of disaster management training being offered by tertiary colleges in Kiambu County?
3. What is the level of compliance to disaster management policies among tertiary colleges in Kiambu County?
4. What disaster response mechanisms have been put in place among tertiary colleges in Kiambu County?

1.6 Significance of the study

It was hoped that the findings of the study would benefit the various groups who are directly involved when losses occur due to disaster. The study was hoped to benefit the following groups: It was hoped that the recommendations of the findings will enable the management(s) to put in place mechanisms to mitigate losses in case of disaster occurrences. This has the advantages of realizing more profits, attracting more students and growing at rapid rates. The safety measures put in place can also reduce the amount of premiums charged by insurance companies in the long run if their claims reduce significantly over the years.

The findings of the study and recommendations are hoped to arouse their security and safety consciousness. This would help them to avoid panic in the event disaster strikes and this drastically reduces injuries and losses. It is hoped that the insurance companies would benefit from reduced cases of claims. This would then enable them to invest the money collected in form of premiums. The insurance companies would also reduce their premiums and attract more clients hence higher Turn-Over.

The policy makers within the municipalities may rely on the recommendations to come up with relevant policies for curbing and mitigating losses caused by disasters in the country. The government through the local government would get the actual picture and situation about the necessary equipments to check incidences of disaster.

It was hoped that future researchers would use the findings of the study as a basis for further research. This would reduce unnecessary duplications and improve the quality of research being carried out in the country. It would also provide ready data for reference to various scholars.

1.7 Basic Assumptions of the Study

The researcher assumed that the respondents would be honest, cooperative, factual (objectivity) and trustworthy in their response to the research instruments and would be available to respond to the research instruments in time. It was also the assumption of the researcher that the authorities in the colleges would grant the required permission to collect data from employees. The study further made the assumptions that there would be no serious changes in the composition of the target population that would affect the effectiveness of the study sample.

1.8 Limitations of the Study

Some of the respondents were not willing to divulge much information for fear of the researcher being a government officer because of the nature of questions that were asked. This was expected from the staff of the various colleges. This was overcome through constant assurances to the respondents that all information gathered would be purely for research and academic purposes only.

The researcher encountered some difficulties gaining entry into some institutions to carry out research because of stringent security measures. Some colleges do not allow researchers into their premises for security reasons. This was overcome through convincing the management(s) that they stand a chance to benefit if this research was carried out as the findings would be shared with them.

Due to time constraints, the researcher would not be able to cover all the targeted groups within the stipulated time frame. Sometimes some respondents were not available on the material day that the researcher was going round.

1.9 Delimitations of the Study

The study covered four aspects of disaster preparedness, these are; equipments, training, disaster management policies and response mechanism. Geographically, the study covered Thika town which is in Kiambu County 45 kilometers north east of Nairobi city. The study covered all tertiary colleges and institutions (registered by the ministry of higher education) within the municipality. The universities were excluded from the study because their levels of compliance are considered different from those exhibited by tertiary colleges. A total of 14 colleges and institutions were covered. The study involved all levels of management, all cadres of the staff and students. The reason for this was that disaster cuts across all the occupants of a given premise.

The researcher used the transmittal letter to gain entry into the colleges and assured the respondents that the information they provide would strictly be used for academic purpose only. The researcher also used a pilot test to weed out questions that may pose a challenge to the various respondents. To increase the response rate the researcher went back several times until a sufficient response was achieved.

1.10 Definitions of Significant Terms Used in the Study

Disaster A serious disruption of the functioning of the society causing widespread human, material or environmental damage and losses which exceed the ability of the affected community to cope using their own resources.

Disaster Plan A Plan that guides an organization through the proper responses to various types of disaster, these include: Create a written disaster preparedness plan or policy, which includes disaster recovery, damage assessment, and post disaster evaluation procedures; Identify and prioritize the most important records; This includes records needed to resume business, historical records, and collections; Determine which record media and collections are more vulnerable or valuable than others; Analyze building, site, and collection storage areas. Include building and site maps in the disaster plan.

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

Disaster Prevention Steps that can be taken within an organization to protect property and lives before a disaster occurs. These may include; Establishment of security routines; Follow local and state fire codes such as the presence of fire alarms, smoke detectors, fire extinguishers, and sprinkler systems.

Risk Assessment: A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Disaster Recovery Responses and actions organizations take after a disaster occurs. These include: Always place human safety first: In the event of an emergency, prevent staff and volunteers from entering the building until disaster officials (fire or police department), or a building inspector

certifies the building is safe to enter; Allow only authorized staff and volunteers into the damaged area, use check-in/out sheets to monitor access; Contact insurance carriers

Disaster Mitigation: Substantial reduction of the impacts of a disaster in case it goes beyond preventive measures

Early warning system: Organized structure for prediction and dissemination of timely and effective information to allow individuals who may be at risk to take action to avoid or reduce their risk and prepare for effective response.

Risk The probability of harmful consequences or loss resulting from the interaction between natural hazards and vulnerable conditions of property and people.

Hazard A potentially damaging physical event, human activity or phenomenon with a potential to cause loss of life or injury, property damage, social and economic disruption of life, environmental degradation among other effects

Mitigation Measures taken to reduce both the effect of the hazard and the vulnerable conditions to it in order to reduce the scale of a future disaster. Therefore mitigation activities can be focused on the hazard itself or the elements exposed to the threat. Examples of mitigation measures which are hazard specific include water management in drought prone areas, relocating people away from the hazard prone areas and by strengthening structures to reduce damage when a hazard occurs.

1.11 Organization of the Study

The study is organized in five chapters. Chapter one covers background of the problem, problem statement, purpose of the study, objectives and research questions. It also covers significance of the study, basic assumptions, limitations and delimitations of the study and finally organization of the study. Chapter two covers literature reviewed from works that have been done in the same area of study. Chapter three spells out the research

methodology. This includes introduction, research design, target population, sample size and sample selection, research instruments, data collection procedures and data analysis procedures. Chapter four covers data presentation, processing and interpretation, while chapter five covers summary, conclusions and recommendations.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature on disasters and their management has recently become extensive. This has resulted from recent disastrous events of global magnitude such as Hurricane Katrina which submerged New Orleans in September 2005, the Tsunami of South East Asia on 26 December 2004 that killed over 150,000 people and the September 11th (2001) bombing of the World Trade Centre in New York. Other significant disasters include the 7th August (1998) US embassy bombing in Nairobi and other similar terrorist activities, the volcanic activities such as the one that almost buried the Congolese town of Goma, the extensive floods that devastated Southern Africa at the turn of the new century, the El-Nino phenomenon that swept across Eastern Africa about the same time amongst others (Gordon, 2004). This chapter discusses the past studies on disaster preparedness. The specific areas covered are theoretical framework, empirical review and conceptual framework.

2.2 Empirical Review

Disaster preparedness provides specific emergency management and awareness programs within organization and individuals. In addition to research, the availability of emergency management related information is also crucial for ongoing staff development. As such the empirical review on disaster preparedness in this study will involve an overview on disaster preparedness, disaster management equipments, disaster management training, disaster management policies and disaster response mechanism.

2.2.1 Overview of Disaster Preparedness

Disasters and violent conflicts are among the two greatest threats to progress in human development in the 21st century (UNDP, 2011). In 1994, the UN member states congregated at Yokohama in Japan and held the first world conference on Disaster Reduction and came up with the “Yokohama plan of Action for a safer world “. Prior to this was the 1990-1999 International Decade for Natural Disaster Reduction (IDNDR) whose focus was mainly on reduction of risks posed by natural Disasters. In January

2005, the world conference on disaster reduction was held in Kobe, Japan to review the gains of the Yokohama Plan of Action. It was during this conference that the Hyogo Framework of Action on disaster reduction was adopted. This framework was to cover the next 10 years (2005-2015).

According to Kreps, preparedness has been identified as a key foundation in emergency/disaster management (Kreps, 1991). Kanwar (2008) observes that civil hazards, characterized by limited or lack of warning may result in catastrophic outcomes, hence viable mitigation actions that can be taken (at the local level) are those of preparedness, i.e. instituting plans and programs to cope with potential disruption or destruction of physical and social systems (McEntire, 2006). Preparedness increases the ability to improvise during a disaster (Kreps, 1991).

Worldwide disasters increased dramatically during the 1990s. The losses were reflected in widespread property and environmental destruction, as well as human impacts. While 'acts of God' and human economic activity have been pointed out as the leading causes of disasters, there is increasing consensus that disasters occur as an outcome of natural and human induced processes (UNDP, 2001) It is actually human action or inaction that is responsible for transforming 'natural' hazard into 'unnatural disasters'. As earlier stated, the poor are the most vulnerable to disasters because they have fewer resources and capacity to prevent or cope with the impacts. Several examples qualify this point.

According to ADPC (2000) in October 1998, Hurricane Mitch hit the Caribbean. The damage caused by the tropical storm was for the Central American state of Honduras a human catastrophe. One year later, a super cyclone hit the Indian state of Orissa leaving over 10,000 people dead, whole villages washed away and local infrastructure destroyed. These poor communities were not just victims of 'natural' events par se. The human suffering from these climate-related disasters was exacerbated by man's meddling with already fragile environments. When Orissa's mangroves were cleared to make way for shrimp farms, the coast lost its natural shield leaving an unfettered path inland for the cyclones that regularly batter its shoreline. In Honduras, years of extensive logging had left mountain soils unprotected and eroded, which the ensuing deluge swept down hillsides, burying whole villages in rivers of mud (Waugh, 2000)

On the 17th August 1999, the North Anatolian fault slipped three meters towards Greece in the west, bringing most of Turkey with it. Immediately, building after building crumbled into piles of rubble, leaving over 17,000 dead. In the wake of the disaster, Turkey's Prime Minister was forced to acknowledge that construction on shaky ground and the government's failure to enforce safe building standards was responsible for the death toll (NRC, 2006). Disaster preparedness was highly questioned on the part of the US government both after the world trade Centre Bombing on September 11 2001 and the Hurricane Katrina on Aug 29 2005. The Hurricane Katrina has been classified as the country's costliest tragedy after leaving 1,836 people dead and general damages estimated at around \$ 125 billion (NRC, 2006).

The most recent disasters, the deluge by Hurricane Katrina on New Orleans in September 2005 and the Tsunami of South East Asia cannot yet be costed since the effects are not yet precisely grasped. Costs are however available for the three major world disasters which took place in the early 1970s. The greatest loss of life occurred in the Bangladesh Cyclone-300,000 people died, 100,000 more than during the Bangladesh civil strife, but dollar damage was low, 86.4 million, because of the underdeveloped agrarian nature of the economy. The Phillipines flood, however only killed 653 people, but did US \$ 220 million worth of damage, while the Peru earthquakes resulted in 66,794 deaths and destruction costing \$530 million. Even if exact costs are not available, the enormity of a disaster strike can be appreciated (NRC, 2006).

In Europe just like else where there has been occurrences of natural and human –induced disasters. Europe generally suffers less from disasters than many developing countries. This is largely due to a higher 'coping capacity, in terms of government ability to prepare and respond to disasters. It is crucial to note that in Europe, Human-induced/caused disasters cause more human fatalities and economic losses than natural disasters (Action Aid, 2006). It is also point worthy to note that despite overall higher technological and safety levels, the number of industrial accidents in the European Union continues to rise. In terms of policy responses, holistic approaches are becoming more prevalent in Europe, with increasing attention to reducing the risk of long-term environmental impacts as well as reducing acute health and property damage from accidents. One of the most significant

agreements in this respect is the 1992 Helsinki convention on the prevention and use of Trans-boundary watercourses and International Lakes. It entered into force in 1996. The convention includes requirements to conduct Environmental Impact Assessments (EIAs), to notify downstream states of accidents and it also enforces the 'polluter pays' principle (McEntire, 2006).

As a principle of disaster preparedness, the convention on Environmental Impact Assessment (in the trans-boundary context) which came into force in 1997 requires parties to notify and consult each other on all major potentially dangerous ongoing projects. Most European countries are parties to these multilateral treaties and international cooperation under their provisions help governments improve national policies in respect of human-induced/caused disaster prevention and mitigation (UNEP, 2002). While globally Africa suffers the least damage from disasters in purely financial terms, the significance of such losses may actually be greater in terms of impact on economic development. This is especially so given that African economies are among the weakest in the world. Disasters resulting from natural hazards killed on average more than 60,000 people each year between 1992 and 2001. Over the same period, they directly affected 200m people each year (through damage to homes, property, crops and livestock and local infrastructure. The number affected directly (for example by rising prices or job losses caused by adverse economic consequences) is incalculable. The average annual economic loss worldwide from natural disasters between 1992 and 2001 amounted to \$69bn. All of these are conservative estimates (Twigg, 2003).

A study by Toya and Skidmore (2007) using annual data for 151 countries over the 1960-2003 period tested several measures of social/economic variables that includes income, education, openness, financial development, and the size of the government as determinants of disaster. They found out that economic development and economic losses from disasters are inversely related. Nations with higher levels of educational attainment, stronger financial sector and a smaller size of government are less vulnerable to disaster and are associated with a lower disaster death toll (Padli et al, 2010).

In Southern Africa, there is little consolidated information on localized disasters, despite the frequency of house fires in peri-urban areas and property losses due to repeated

flooding of informal settlements. Lewis (1999) vindicates the MANDISA (monitoring mapping and Analysis of Disaster Incidents in South Africa) spirit stating that at times, those disasters making the news are not necessarily the most significant. He adds that if we are going to be able to do anything at all about abnormal hazardousness, we should be attending to normal hazardousness and our vulnerability to it, which is a part of everyday normality. MANDISA is a strategy to consolidate disaster incident information to facilitate strategic development planning. The strategy is supported by a computerized database that is lined to a Geographic Information System (GIS) for tracking disaster incidents including the loss incurred, especially about 'small' highly localized disasters in the Cape Metropolitan Area (CMA) (Lewis, 1999) reasons that if small and localized disasters can be reduced, by the same action so can vulnerability to the large ones as well (Nomdo, 2002)

2.2.2 Disaster Management Equipments

Disaster preparedness practices involve the development of plans and procedures and the acquisition of facilities, equipment, and materials needed to provide active protection during emergency response (NRC, 2006). For organizations, multi-organizational response networks, and communities, preparedness activities center on the development and adoption of formal disaster plans, memoranda of understanding, mutual aid agreements, and other agreements that facilitate coordinated response activities. The concept of mutual aid or the sharing of personnel, equipment, and facilities which occurs when local resources are inadequate to meet the needs of the disaster (McEntire, 2006) is applicable across a wide spectrum of groups, organizations, and jurisdictional levels.

Addressing the need for appropriate and sufficient resources is a generic preparedness task, even though specific resources needed to deal with different types of disasters vary. In cases in which hazard agents require distinctly different responses, hazard-specific planning, training, and resources are required (Weldon, 2005). For example, while hurricane preparedness stresses evacuation over all other self-protective measures, preparedness for some types of hazardous materials releases may emphasize sheltering in place. Similarly, exotic disaster agents such as dirty bombs and blister agents, which are

addressed in some DHS planning scenarios, present challenges that are common to other extreme events but also require special training and equipment.

The requirements to meet disaster needs will depend upon the types of disasters the plan anticipates. Such needs should be made explicit, and should cover all aspects of disaster relief and recovery implementation. Specific arrangements should be established whereby each party to written agreements can secure goods and services as required (World Health Organization, 1990). Critical issues include special internal arrangements for the acquisition and disbursement of funds; policies and agreements for the use of other's equipment and services; and emergency funding strategies. Management tends to insure only the equipment which is easy to value in terms of cash rather than the collection.

Disaster preparedness requires that the funds, materials, equipments, personnel, inputs and methods of delivery of assistance for responding to disasters, especially those required on an emergency or short-term basis, are available or can be acquired quickly enough to be effective. In this case, national, regional and international agencies need to act immediately to ensure that resources can be found and made available to meet the needs in an emergency (Perry and Lindell, 2006). Importantly, the actions of these agencies should be closely coordinated for effective disaster management. However, for this to be attained the results of impact and needs identification and assessments should be quickly disseminated to enable the mobilization of national and international resources, including the release of pre-positioned funds, food and non-food items. Appeals for assistance should be rationalized and harmonized and a coordinated appeal is in fact a requirement of donors.

Across guidance for all hazard-types, life safety and property protection for businesses emphasize three activities: assembling a disaster supplies kit; performing structural mitigation activities such as retrofitting buildings, ensuring good roof condition, and clearing buildings of any flammable or combustible materials; and non-structural mitigation activities such as bolting heavy objects to walls, moving stored items to lower shelves, and establishing preventive maintenance schedules for all systems and equipment (ECOSOC, 2005). In Kenya, the NDMP (National Disaster Management Policy) draft encourages and empowers a culture of well structured disaster management

systems and tools, supported and delivered by carefully selected and trained human resources provided with appropriate, well sourced material and equipment (Republic of Kenya, 2004). Institutional capacity building has to go hand in hand with investments in human capital. Institutional capacities may be strengthened by creating new structures, streamlining old ones and providing financial resources for essential facilities, equipment, supplies and personnel, among others.

2.2.3 Disaster Management Training

Disasters provide an opportunity for governments to use their emergency powers to acquire sites, assemble land and rationalize land use patterns. Such programmes can also be used to improve the housing conditions of the poor by training them in disaster resistant housing construction methods. In this way, the effects of the calamity can be changed to an advantage and the disaster can become an agent for change, leading eventually, to improved human settlements. Disaster management training through public education and other information is informative and helpful in disaster preparedness (Waugh, 2000). This includes not simply help to get a job but training for a job, special service for the disabled and the young, special schemes for the unemployed, working conditions of the employed, income levels, distribution and maintenance, training and retraining for specific employment and industrial relations. It also involves the education and training of officials and the population at risk, the training of intervention teams, and the establishment of policies, standards, organizational arrangements and operational plans to be applied following a disaster.

Training of the stakeholders or partners in disaster management is very crucial. The importance of personnel training in disaster response cannot be overemphasized. In this area, assessment of applicable available courses is essential. The courses should be tailored to the needs of various disaster types and situations (Kanwar, 2008). The rationale behind this is that different disasters will need different types of health sector response and so is the personnel requirement. Thus, specialized courses in first aid, surgery, health education, etc should be mounted to the health care personnel involved in disaster work. In addition, the training of trainers should be revitalized to meet the needs and emerging challenges of disasters. This should be done to all the various cadres and

specialties of the personnel indulged in disaster operations. The trainers should be well versed with knowledge of current treatment and medical disaster response mechanisms to impart it to the trainees. In fact, it is only through this that we will have personnel who are effective and efficient in service delivery in emergency situations.

Effective plans consider securing resources, possibly including stockpiling supplies and earmarking funds (Randolph, 1998). Development of disaster management strategies and disaster mitigation projects training of staff in specialized fields of disaster management, capacity strengthening of the committees and sectoral departments in disaster management and responding to disasters. The focus for training human service workers is on learning skills rather than knowledge, but knowledge is not ignored. According to Randolph, one emphasis of a disaster preparedness plan should be to anticipate the requirements for a disaster relief operation and the most effective ways of meeting those requirements.

Training of those who will implement portions of the disaster preparedness plan is essential. Those responsible for issuing warnings must be trained as well as those who will have direct relief functions (Haddow and Jane, 2006). Training cannot be a one-time event. Refresher courses are essential and training should be active in every way possible. Actual exercises should be performed such as evacuation drills. He specifically emphasizes on the need for training for those responding to a disaster situation, arguing that such training should be able to differentiate between speed and timeliness. According to Nicholson (2005), timeliness, not speed should be the preparedness criterion. In their article "Integrating Disaster Preparedness and Mitigation in Your Work" peace corps explain that "although many communities once had excellent knowledge about natural disasters, new conditions and situations can rapidly make that information obsolete.

Recognizing the great importance of training in disaster preparedness, the Kenya Disaster management Draft Policy 2009 articulates that "there is clear evidence from all parts of the globe that advocacy is necessary to raise stakeholders' awareness on the need to participate in disaster management and promote and embed a culture of disaster prevention. Such training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels. It also sensitizes the population and increases the

general understanding of disasters they are likely to face and the precautions to be taken. The draft also opines that enhanced training on disaster management is crucial and should be undertaken continuously through the media, private sector and among other stakeholders (Kenya DM, 2009).

Appropriate baselines and monitoring information is a vital component of Disaster management. The information must be well linked to decision-making and the response system to ensure timely action. A population may be affected by disasters whose impacts may have been avoided or minimized with early risk information dissemination. Disaster management requires capacity building for undertaking relevant research using appropriate technology. The policy recognizes the need for research on disasters and their management in collaboration with local, regional and international and learning institutions (Kenya DM, 2009).

While the draft policy itself is categorical that for effective disaster management and sustainability of development programmes capacity building and training in disaster management is essential, it notes that “Currently no comprehensive disaster management training programme exists”. It only cites that KRCS and other organizations do have varying levels of disaster management training programmes in place that can be drawn upon (Kenya DM, 2009. p29). Referring to the 1997-1998 el-Nino rains, UNDP observes that the floods affected populations that had just began the long process of recovery from the severe drought of 1995-1996. This was a disaster whose severity was intensified by the existence of a fragile and vulnerable society. The same report observes that inhabitants especially in the ASAL areas lost 80 % of goats, sheep and camels, and that the area suffered significant damage to roads, bridges, human settlements and other infrastructure (UNDP, 2003).

2.2.4 Disaster Management Policies

Disaster management is often used in a general sense, covering the implementation of disaster preparedness, mitigation, emergency response and relief and recovery measures. A more general term ‘disaster reduction or disaster risk reduction’ is often used to mean the broad development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout society, through prevention, mitigation, and

preparedness (Twigg, 2004). Public policy makers generally organize both research and guidance around four phases of disaster loss reduction: mitigation, preparedness, response, and recovery.

Awareness of the need for integration between disaster preparedness and long term mitigation and acceptance of the need to address the wider social-economic dimensions of vulnerability, did not become widespread until the 1990s, and even to date such views are far from being fully accepted (Twigg, 2004). Nonetheless, progress towards the goal of a 'culture of prevention' has been made in many countries as shown in the development of laws and policies, improved institutional frameworks and planning, and a growing number of risk reduction initiatives in developed and developing countries alike (Twigg, 2001).

On policy responses with regard to disaster preparedness in Africa, there have been no concerted regional efforts to manage disasters. Most of disaster responses initiatives in Africa have tended to focus on national and to a small extent sub-regional levels. Most of the efforts in Africa have actually concentrated on responses rather than mitigation through improved environmental management, Agricultural practices and physical planning (UNEP, 2002). Policies to strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal, establishing mechanisms for improved delivery of Federal preparedness assistance to State and local governments, and outlining actions to strengthen preparedness capabilities of Federal, State, and local entities.

Workplace rules are elements such as policies, work processes, work behaviors, and employee attitudes that result in the actual outputs of the government work unit. Disaster management plans should include policies for personnel notification, staffing, and recall (Waugh, 2000). A determination of who'll be responsible for continually assessing resources and capabilities should be made. A plan for how information will be communicated to staff and the public should also be included. A central command or operating center should be identified. It's essential that staff review all plans and participate in drills periodically. If indicators are to play an important role in the creation

of better policies and societies, these problems must be avoided. Previous developmental policies and disaster planning, when applied to similar natural hazards in countries at various levels of development, produce a variety of results when disasters occur. In Kenya, The National Policy on Disaster Management emphasizes preparedness on the part of the government, communities and other stakeholders in disaster risk reduction activities. It aims to establish and strengthen disaster management institutions, partnerships, networking and mainstreaming of disaster risk reduction in the development process so as to improve the resilience of vulnerable groups to cope with potential disasters (Republic of Kenya, 2004).

Kenya's failure to put in place a comprehensive disaster preparedness policy means its response to high-risk events such as droughts, floods, epidemics and major accidents tends to be slow, poorly coordinated and unnecessarily expensive (Republic of Kenya, 2004). As a result of the policy gap, most disaster response initiatives tended to be ad-hoc and short term, mainly comprising emergency relief. A disaster management policy would also help vulnerable communities by developing coping mechanisms and diversifying their livelihoods.

2.2.5 Disaster Response Mechanism

Coordination in humanitarian responses to disasters is not simply a specific set of actions rather an approach to emergency response that attempts to maximize its benefits and minimize inefficiencies. It involves various stakeholders such as the government, international organizations, civil society and affected communities coming together to provide an appropriate, efficient and inclusive response to disasters (Gordon, 2004). This involves coordination and collaboration through different phases of the response including planning, operations, data collection, information management and resource mobilization. It is common knowledge that the immediate aftermath of a disaster is characterized by a highly complex (albeit chaotic) situation. The complexity is the result of sheer enormity of urgent as well as important tasks involved in disaster response - rescue and relief provision, issues of access to the affected populations, threat of secondary disasters, influx of stakeholders interested to assist the disaster affected

families, sectoral concerns, policy directives, long term sustainability issues and political dynamics.

All these factors have to be managed in a manner that is locally appropriate as well as timely. Coordination is a critical success factor for organizing adequate disaster response and recovery as well as successful disaster risk reduction. It can help ensure that resources are allocated properly; avoiding duplication, plugging gaps, response efforts as well as building collective focus on sustainable recovery and long-term risk reduction. Coordination can be used to ensure a response that is appropriate to the socio-cultural, economic and geographic context of the disaster situation. Emergency response facilities, communication systems and early warning networks are invaluable assets in preparing for and responding to disasters. Disaster management should include administrative decisions and operational activities that involve prevention, preparedness, response, recovery and rehabilitation at all levels. Disaster management does not only involve official bodies; businesses, people, non-governmental organizations and community based organizations also play a vital role. Awareness of disasters and of one's vulnerability to such events can, however, reduce the impacts of such events. Godshalk (1991) equates preparedness to actions taken in advance of an emergency, to develop operational capabilities and to facilitate an effective response in the event an emergency of that nature occurs.

Through proper response, emergency assistance to victims of disaster is provided. The fire brigades and the police are the usual primary responders. This is because response entails all the interventions taken immediately prior to and following a disaster impact (Office of the President 2001, Government of Kenya, 2001). Importantly, such actions are directed towards saving lives, providing basic necessities, protecting property and dealing with the immediate damage caused by disaster. The activities of the government, community and other partners in terms of directing resources during disasters to save lives, property and the environment constitute a response. Despite the existence of different approaches to disaster management, disasters are often managed haphazardly.

People are unprepared, and when the event occurs (even slow-onset disasters) it usually triggers haphazard reactions, which often result in crisis management. Effective

preparedness and response activities help save lives, reduce injuries, limit property damage, and minimize all sorts of disruptions that disasters cause (Mileti, 1991). Preparedness measures such as the maintenance of inventories of resources and the training of personnel to manage disasters are other essential components of managing a disaster. Furthermore, this should be an ongoing, regular function of local government departments. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems.

If a disaster does occur then response and relief have to take place immediately; there can be no delays. Delays will occur if government departments and municipalities have no clear plans to manage such events. It is therefore important to have contingency plans in place. Search and rescue plans need to be clear and all role players need to know their role and function in such activities. Basic needs such as shelter, water, food and medical care also have to be provided and a plan needs to be in place outlining who is responsible for such activities. Each of the disasters has their own peculiarities in terms of occurrence, speed and type of response, logistics and the amount and type of resources needed to address them (Maingi, 2009). In terms of speed of occurrence, for instance, the El-Nino phenomenon was a slow onset natural disaster that provided for opportunities to plan for its consequences, but this was missed partly due to lack of a definite system of disaster mitigation, preparedness, response and recovery in the country. On the other hand, the Nairobi US Embassy Bombing and the Sachang'wan trailer tragedy were sudden types of disasters that could have been handled more effectively by a higher state of preparedness and response mechanisms. These and other disasters have made it very clear that there are serious flaws in disaster management system.

Emergency preparedness and disaster recovery preparedness are two situations that need to be well in place although response and recovery involve distinct sets of activities. For organizations, multi-organizational response networks, and communities, preparedness activities center on the development and adoption of formal disaster plans, memoranda of understanding, mutual aid agreements, and other agreements that facilitate coordinated

response activities. Technologies to assist with important crisis-relevant tasks such as public warning are also critical for effective response. Communications and warning systems are essential to any business operation or community emergency response. They are needed to report emergencies, warn personnel of the danger, keep families and off-duty employees informed about what is happening at a facility or within a department, coordinate response actions, and keep in contact with customers and suppliers (Gordon, 2004). Preparedness for communications and warning include the development of a communications plan, the establishment of a warning system including developing protocols and procedures, regular testing and support, and addressing the interoperability of multiple responding organizations and personnel.

From the foregoing, to empower the disaster practitioner appropriately in the society is needed for various emergency situations. This will go a long way in improving the disaster response and social service mitigation activities for efficient and effective disaster management within societies in the world. Paradoxically, the existing international tools and structures for disaster response and management are oriented toward large-scale disasters.

2.3 Theoretical Framework

For several communities, including the academic, government, and insurance industries, recent catastrophic events have necessitated devising methods that will allow for the measurement of different disaster preparedness dimensions. The purpose being that these communities can develop a greater understanding of their strengths and weaknesses with respect to preparedness, and determine more efficient allocation of resources to improve preparedness. Ultimately, the goal is to develop more resilient communities, ones that can withstand crisis events and disaster while minimizing the impacts. Much of the existing thinking about disaster preparedness plans has evolved and been developed from the “on-the-ground” policies and procedures of emergency management.

Emergency management theory struggles to develop in much the same way as disaster preparedness, and thus has similar deficiencies. The result is that there is not a solid foundation of emergency management theory to guide the development of disaster preparedness. McEntire (2006) has addressed key issues pertaining to emergency

management and disaster preparedness in his research. As the best practices in emergency management gravitate towards more discipline specific goals, so too do the best practices of disaster preparedness.

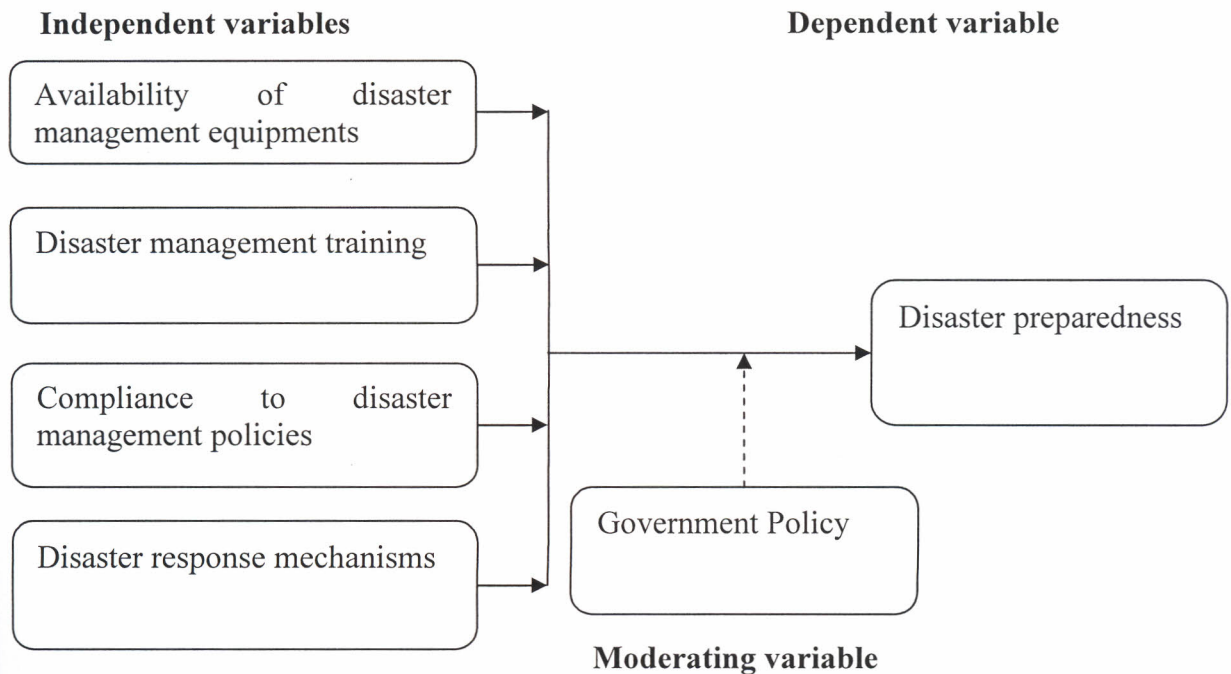
According to the theory, the uniqueness of communities and individuals means that the measures of disaster preparedness are in flux, and can be as unpredictable as the people and organizations that create them. In many ways, the desire to have a disaster preparedness plan has become the default driving force behind the creation. Thus the quality of the plan itself is often subordinated to the legislative or normative requirement for it. Most of the contributions do not have the specific aim of creating a comprehensive approach to disaster preparedness, but through the individualistic research, make small contributions when combined as a comprehensive review. For example, much can be learned from Kirschenbaum's (2006) article on disaster preparedness. While Kirschenbaum's research is specific to Israel, the location of his research, and the indicators and conclusions drawn from it, have general applicability. Perry and Lindell (2003) approach disaster preparedness from the planning perspective, identifying ten guiding principles to be adhered to during the planning process. Perry and Lindell focus on the planning process, while Kirschenbaum focuses on localized principles and applications.

In emergency management theory and practice, the goal of creating and applying disaster management is to aid in developing disaster resilient communities. In order to increase resilience, there needs to be extensive collaboration between the community and policy-makers. Thoughtfully done, communities can enhance their disaster preparedness based on empirical evidence and ongoing research (McEntire, 2006). While best practices and theoretical underpinnings are sometimes difficult to distinguish, measuring is still possible, with some metrics and "checklists" more readily available. Few "disaster preparedness specific" metrics exist, but there are a small set of indicators, indices, and similar measures that can be used to compare, and in some cases measure, the dimensions of disaster preparedness.

2.4 Conceptual Framework

This conceptual framework shows the relationship between the four independent variables and how they affect or influence the dependent variable. The independent variables in this study are disaster management equipments, disaster management training, compliance to disaster management policies and disaster response mechanisms, while the dependent variable is disaster preparedness.

Figure 1.1: Conceptual Framework



The availability of disaster management equipments and facilities in an institution greatly reflect its disaster preparedness levels. Such may include; fire extinguishers, hydrants, alarm bells, floaters, fire assembly points, emergency exits etc. How well an institution is equipped in terms of disaster management is a very strong indicator of that institution's disaster preparedness.

The level and nature of skills and knowledge in disaster management in any institution serves to complement the existence of disaster management equipments and facilities. It can rightly be said that an institution with a high level of skills and knowledge in disaster management is more likely to cope better in case of a disaster as compared to one with low levels of skills and knowledge in disaster management.

Governments occasionally issue disaster management policies. The level of compliance with such policies can closely be studied to determine the levels of disaster preparedness. This conceptual framework is of the view that the more an institution complies with disaster management policies, the higher the level of its disaster preparedness. It therefore follows that institutions with lower levels of compliance to disaster management policies are more likely to exhibit lower levels of disaster preparedness.

Disaster response mechanism is about co-ordination and an orderly approach to a disaster situation. It serves to avoid instinctive and panicky reactions to a disaster situation. It also seeks to cushion a disaster situation from a chaotic and tumultuous response which can itself lead to more casualties than initially registered. This conceptual framework therefore articulates the view that institutions with clear disaster response mechanisms are better prepared to deal with disasters than those with little or no known disaster response mechanisms.

2.5 Summary of Literature Review

Disasters are no longer viewed as extreme events created entirely by natural forces but as unresolved problems of development. It is now recognized that risks (physical, social and economic), unmanaged (or mismanaged) for a long time, lead to the occurrence of disasters. Through preparedness, organizations can provide rescue, relief, rehabilitation, and other services in the aftermath of the disaster, and has the capability and resources to continue to sustain its essential functions without being overwhelmed by the demand placed on them. Clearly, preparedness should seek to monitor the vulnerability of the disasters to determine the risk and magnitude of their occurrence.

The foregoing literature involved an overview of the disaster preparedness across the world. The literature reveals that there are several issues to consider when devising disaster preparedness metrics. The preceding also brings to light some of the pressing problems with the theoretical development of disaster preparedness. The aforementioned issues highlight recurring themes in the literature with regard to disaster management equipments, disaster management training, compliance to disaster management policies and disaster response mechanisms and finally the conceptual framework is presented.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in carrying out the study. Specifically the following subsections were included; research design, target population, sample design, data collection instruments, data collection procedures and finally data analysis techniques.

3.2 Research Design

Research design is the scheme, outline or plan that is used to generate answers to research problems. The research was designed as a cross sectional descriptive study. Cross-sectional studies, also known as surveys, are a useful way to gather information on important health-related aspects of people's knowledge, attitudes, and practices. Data was collected using both quantitative and qualitative methods including documents review, questionnaire administration to the various stakeholders, key informant interview and Focused Group Discussions. Since it is a study on human behavior, research study to be used will be qualitative.

This study utilized quantitative research methodology often within the same study which involves gathering data that describes events and then organizes, tabulates, depicts, and describes the data collection procedures. This research design was considered appropriate because variables involved do not involve any manipulation but to establish the current status of the phenomena (Borg and Gaul, 1983). The design enabled the researcher to investigate the level of disaster preparedness among tertiary colleges in Kenya where the focus was the Colleges in Thika Town in Kiambu County, Kenya.

3.3 Target Population

Target population in statistics is the specific population about which information is desired. According to Ngechu (2004) a population is a well-defined or set of people, services, elements and events, group of things or households that are being investigated. The target population was the stakeholders in the tertiary Colleges in Thika Town. The study focused more on the section and particularly on the management staff, the college

students and the staff of Thika Municipal Council since they were the ones conversant with the level of disaster preparedness among tertiary colleges in Kenya in Thika Town. According to the Ministry of Higher Education (2011) there are 14 colleges in Thika Town. So the researcher intended to examine a sample of respondents drawn from the possible population of 800 drawn from the staff, the college students' representatives and officers working with the government authorities such as Thika Municipal Council, Ministry of Education and Ministry of Special Programs. Mugenda and Mugenda (2003) explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. This definition assumes that the population is not homogeneous.

Table 3.1: Target Population

Sections	Population (Frequency)	Percentage %
College Staff	192	24
College students representatives	434	54
Government authorities	174	22
Total	800	100

3.4 Sampling Procedure

Sampling procedure presents the methods and techniques used for sampling, the procedure of sampling and eventually how the final study sample was reached from the target population. Sample size is finite part of a statistical population whose properties are studied to gain information about the whole. Sampling is selecting a given number of subjects from a defined population as representative of that population. Any statements made about the sample should also be true of the population. It is however agreed that the larger the sample the smaller the sampling error. Where external validity is important, one needs to carry out purposive sampling from properly defined population. From the target population of eight hundred, the researcher will purposively interview specific respondents in all the institutions. These respondents being the class and student representatives as well as management staff in the college and government authorities

dealing with disaster management and are also in departments which are aligned to the study research objectives.

The sampling procedure describes the list of all population units from which the sample were selected (Cooper & Schindler, 2003). The technique is applied so as to obtain a representative sample when the population does not constitute a homogeneous group. The population was made up of strata of different stakeholder categories. Sample of responding staff was drawn from all the stakeholders in the colleges and government authorities in Thika Town.

Kothari (2000) argues that if well chosen, samples of about 10% of a population can often give good reliability. Other literatures have shown that sample size selection to a great extent is judgmentally decided. Stratified random sampling technique was used since population of interest is not homogeneous and could be subdivided into groups or strata to obtain a representative sample. From the above population of eight hundred, a sample of 20% from within each group in proportions that each group bear to the population as a whole was taken using stratified random sampling which gives each item in the population an equal probability chance of being selected. This generated a sample of 160 respondents which the study sought information from. The selection was as follows.

Table 3.2: Sample Size

Sections	Population (Frequency)	Ratio	Sample Size
College Staff	192	0.2	38
College students representatives	434	0.2	87
Government authorities	174	0.2	35
Total	800	0.2	160

Source: Author, 2012

3.5 Research Instruments

The study used a survey questionnaire administered to each member of the sample population. The questionnaire had both open and close-ended questions. The close-ended

questions provided more structured responses to facilitate tangible recommendations. The closed ended questions were used to test the rating of various attributes and this helps in reducing the number of related responses in order to obtain more varied responses. The open-ended questions provided additional information that might not have been captured in the close-ended questions. The questionnaire was carefully designed and tested with a few members of the population for further improvements. This was done in order to enhance its validity and accuracy of data to be collected for the study.

Secondary data was also collected for this study. This data was useful for generating additional information for the study from already documented data or available reports. Cooper and Schindler (2003) further explain that secondary data is a useful quantitative technique for evaluating historical or contemporary confidential or public records, reports, government documents and opinions. Mugenda and Mugenda (2003) add that, numerical records can also be considered a sub category of documents and that such record include figures, reports and budgets. This basically implies the incorporation of valuable statistical data in the study.

3.5.1 Piloting Study

The researcher carried out a pilot study to pretest the validity and reliability of data collected using the questionnaire. The researcher selected a pilot group of 5 individuals from the target sample of the responding staff to test the validity and reliability of the research instrument. The pilot study allowed for pre-testing of the research instrument. The clarity of the instrument items to the respondents is necessary so as to enhance the instrument's validity and reliability. The aim was to correct inconsistencies arising from the instruments, which ensures that they measure what was intended.

3.5.2 Validity of the Instruments

Validity indicates the degree to which an instrument measures what it is supposed to measure. This gave the accuracy and meaningfulness of inferences. It is the extent to which differences found with a measuring instrument reflect true differences among those being tested. It also refers to the data that is not only reliable, but also true and accurate. The instruments were subjected to appraisal and amendment by use of simple

language, peers review and experts (supervisors) whose recommendations were taken to improve the face and content validity.

3.5.3 Reliability of the Instruments

According to Shanghverzy (2003) reliability refers to the consistency of measurement and is frequently assessed using the test–retest reliability method. Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. The research utilized the Cronbach’s alpha of 0.70 to check internal reliability; the higher the alpha, the more reliable the research instrument (Mugenda and Mugenda, 2003).

The alpha is denoted as:

$$\text{Alpha} = \frac{Nr}{1+r(N-1)}$$

Where r= the means inter – item correlation

N= number of items in the scale

3.6 Data Collection Procedures

The study collected both primary and secondary data for the purpose of investigating the level of disaster preparedness among tertiary colleges in Thika Town. Primary data was collected using a questionnaire while secondary data was obtained from annual reports of the institutions and government authorities. The questionnaire designed in this study comprised two sections. The first part was designed to determine fundamental issues including the demographic characteristics of the respondent, while the second part consisted of questions where the variables were focused.

The questionnaire was designed in line with the objectives of the study. To enhance quality of data to be obtained, Likert type questions were included whereby respondents indicated the extent to which the variables are practiced on a five point Likerts scale. The structured questions were used in an effort to conserve time and money as well as to facilitate in easier analysis as they were in immediate usable form; while the unstructured

questions were used so as to encourage the respondents to give an in-depth and felt response without feeling held back in revealing of any information.

Finally, the researcher dropped the pre-tested questionnaires physically at the respondents' place of work. The researcher left the questionnaires with the respondents and picked them up later. Each questionnaire was coded and only the researcher was in a position to know which person has responded. The coding technique was only used for the purpose of matching returned, completed questionnaires with those delivered to the respondents.

3.7 Data Analysis Techniques

Before processing the responses, the completed questionnaires were edited for completeness and consistency. The data was then coded to enable the responses to be grouped into various categories. Data collected was mainly quantitative and it was analyzed by descriptive analysis techniques. The descriptive statistical tools such as SPSS helped the researcher to describe the data and determine the extent that it was used. The findings were presented using tables and charts, percentages, tabulations, means and other measures of central tendency. Tables were used to summarize responses for further analysis and facilitate comparison. For this study, the researcher was interested in investigating the level of disaster preparedness among tertiary colleges in Kenya where the focus was the Colleges in Thika Town in Kiambu County, Kenya. This generated quantitative reports through tabulations, percentages, and measures of central tendency.

3.8 Operational Definitions of Variables

Operational definition of variables is operationally defining a concept to render it measurable. It is done by looking at the behavior of the dimensions, indicators, properties denoted by concepts translated into observable and measurable elements to develop an index of the concepts. Measures can be objective or subjective.

Table 3.3: Operational Definition of Variables

Research Objective	Variable	Indicators of the Variables	Data Collection Methods	Type of Analysis	Level of Analysis
To establish the level of disaster preparedness among tertiary colleges in Thika Town in Kiambu County	Dependent Variable Disaster preparedness	Emergency management Awareness programs Efficiency in disaster management Consistency in reduction of risks	Questionnaire	Quantitative	Descriptive
To assess the availability of disaster management equipments among tertiary colleges	Independent Variable Disaster management equipments	Hazard-specific facilities Disaster preparedness planning Use of equipment Life saving facilities	Questionnaire	Quantitative	Descriptive
To determine the level of disaster management training being offered by tertiary colleges	Independent Variable Disaster management training	Informative forums Involvement of all stakeholders Courses in disaster management	Questionnaire	Quantitative	Descriptive
To establish the level of compliance to disaster management policies among tertiary colleges	Independent Variable Disaster management policies	Institutional frameworks Workplace rules Personnel notification disaster risk reduction Awareness of disaster preparedness Long term mitigation	Questionnaire	Quantitative	Descriptive
To examine the nature of disaster response mechanisms put in place among tertiary colleges	Independent Variable Disaster response mechanisms	Basic necessities Coordination Relief provision Contingency planning	Questionnaire	Quantitative	Descriptive

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

The purpose of this research was to establish the level of disaster preparedness among tertiary colleges in Thika Town in Kiambu County. This chapter focused on data analysis, interpretation and presentation. As such the study sought to assess the availability of disaster management equipments among tertiary colleges in Kiambu County; to determine the level of disaster management training being offered by tertiary colleges in Kiambu County; to establish the level of compliance to disaster management policies among tertiary colleges in Kiambu county and to examine the nature of disaster response mechanisms put in place among tertiary colleges in Kiambu County. The data was gathered from questionnaires as the research instrument. . The questionnaire was designed in line with the objectives of the study. The study employs various statistical tools for extracting information on the level of disaster preparedness among tertiary colleges in Thika Town in Kiambu County.

4.2 Questionnaire Return Rate

The study sampled 160 respondents from the target population in collecting data with regard to the level of disaster preparedness among tertiary colleges in Thika Town in Kiambu County, Kenya. The questionnaire return rate results are shown in Table 4.1.

Table 4.4: Response Rate

Response	Frequency	Percentage
Responded	138	86
Not responded	22	14
Total	160	100

From the study, 138 out of 160 target respondents filled in and returned the questionnaire contributing to 86%. This commendable response rate was made a reality after the researcher made personal calls and visits to remind the respondent to fill-in and return the questionnaires as well as explaining the importance of their participation in this study.

This commendable response rate can be attributed to the data collection procedure, where the researcher personally administered questionnaires and waited for respondents to fill in, kept reminding the respondents to fill in the questionnaires through frequent phone calls and picked the questionnaires once fully filled. This response rate was good and representative and conforms to Mugenda and Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. The questionnaires that were not returned were due to reasons like, the respondents were not available to fill them in at that time and with persistence follow-ups there were no positive responses from them. The response rate demonstrates a willingness of the respondents to participate in the study.

4.3 Demographic Characteristics of the Respondents

The study targeted management staff, the college students and the staff of Thika Municipal Council, Kenya Police, Provincial Administration, Ministry of Education, Ministry of Special Programs. As such the results on demographic characteristics of these respondents were investigated in the first section of the questionnaire. They are presented in this section under gender distribution of the respondents, age of the respondents, working experience, highest academic qualifications.

4.3.1 Distribution of the Respondents by Gender

The research sought to find out the gender of the respondents. In this study the respondents sampled were expected to comprise both male and female stakeholders. As such, the study required the respondents to indicate their gender by ticking on the spaces provided in the questionnaire. Table 4.2 shows the distribution of the respondents by gender.

Table 4.5: Gender of the Respondents

Gender	Frequency	Percent
Male	71	51.3
Female	67	48.7
Total	138	100.0

Accordingly, 51.3% of the respondents were males while 48.7% of them were females. It can be concluded that the majority of the stakeholders in disaster preparedness in the

tertiary Colleges in Thika Town are males. The findings show that the institutions studied had both male and female members. The findings imply that the views expressed in this findings are gender sensitive and can be taken as representative of the opinions of both genders as regards to level of disaster preparedness among tertiary colleges.

4.3.2 Categories of the Respondents

The study involved stakeholders in various categories. As such the study sought to establish the distribution of the respondents in these categories. The results of this question are depicted in table 4.3.

Table 4.6: Distribution of Respondents by Categories

Sections	Frequency	Percentage
College Staff	33	24
College students' representatives	72	52
Kenya Police	11	8
Provincial Administration	6	4
Thika Municipal Council	7	5
Ministry of Education	6	4
Ministry of Special Programs	4	3
Total	138	100

According to the study results, 52% of the respondents comprised of college students representatives, 24% of them were college staffs, 8% of the respondents indicated that they were staffs in the Kenya Police departments, 5% were servants in Thika Municipal Council, 4% of them were staffs in the Provincial Administration and in the Ministry of Education in each case, while 3% of the respondents were serving in the Ministry of Special Programs. The study acknowledges that the disaster preparedness within a given context must involve various stakeholders involved in the issue under investigation. As such these results show that the various stakeholders involved in the disaster preparedness among the tertiary colleges in Thika town were involved in this study. The results further imply that the various stakeholders had significant information sought by the study which is essential in coming up with recommendations on level of disaster preparedness in the institutional level and country level since the results depict the opinions of the involved stakeholders from the college staffs, students, Kenya Police

personnel, provincial administration, local authority (Thika Municipal Council), Ministry of Education and Ministry of Special Programs.

4.3.3 Length of Studying/Working in Thika Town

The length of service/working in an organization determines the extent to which one is aware of the issues sought by the study. The study therefore sought to establish the length of time that the respondents had been studying or working in Thika Town. The results on this question are presented in Table 4.4.

Table 4.7: Years of Studying or Working in Thika Town

Length in years	Frequency	Percent
0-5 Years	86	62.1
5-10 Years	34	24.5
10-15 Years	12	8.6
Over 15 Years	7	4.8
Total	138	100

From the study, 62.1% of the respondents indicated that they had been studying or working in Thika Town for 5 years and below, 24.5% of them had been studying or working in Thika Town for a period of 5-10 years, 8.6% of the respondents indicated that they had studied or worked in Thika Town for a period of 10-15 years, while 4.8% of them had been studying or working in Thika Town for over 15 years. This shows that majority respondents had enough experience in the level of disaster preparedness among the tertiary colleges in Thika Town to respond effectively. Owing to the dynamic nature of operating environment of the academic institutions in Kenya, the experience of the most current and up-to-date information on the state of disaster preparedness is essential. As depicted in this section, majority of the respondents comprising of mainly the students have an experience of less than 5 years in Thika Town. This is attributed to their learning programs which are mainly diplomas taken for a period of less than 5 years. It is, however, worth noting that their opinions are essential in explaining the most current state of the institutions' level of disaster preparedness. These opinions complement the other stakeholders' views on the past and present state of the same.

4.3.4 Highest Academic Qualifications

The study sought to investigate the education level achieved by the respondents. The difference in the level of education might contribute to differences in the responses given by the respondents. The responses on this question are depicted in table 4.5.

Table 4.8: Level of Education

Level of Education	Frequency	Percent
Diploma/Certificate	80	58
Bachelor's degree	41	30
Post graduate level	17	12
Total	138	100.0

The study results reveal that, 58% of the respondents had acquired college diplomas/certificates level of education, 30% of the respondents indicated that they had acquired Bachelor's or undergraduate degrees as their highest level of education, while 12% had acquired Post graduate level of education. This results imply that majority of the respondents had acquired or were pursuing college diplomas/certificates level of education and hence understood the information sought by this study. This composition of the respondents is mostly occupied by the student respondents whose were pursuing certificated and diplomas in various academic fields. The population sampled also consisted of well educated respondents with academic heights such as Bachelor's degrees and other post graduate degrees. This composition is occupied by the respondents from college teaching and administration staffs, the government and local authority personnel. These findings further imply that all the respondents were academically qualified and also familiar with the issues sought by the study.

4.4 Level of Disaster Preparedness among Tertiary Colleges

The study explained a disaster as an event or series of events, which give rise to casualties and/or damage or loss of property, infrastructure, essential services or means of livelihoods on a scale which is beyond the normal capacity of the affected community to cope with unaided. On that the study required the respondents to indicate whether they knew of any disastrous occurrence that has ever happened in the colleges located in Thika town.

Table 4.9: Knowledge of Disastrous Occurrences in the Colleges in Thika Town

Response	Frequency	Percent
Yes	84	61.0
No	54	39.0
Total	138	100.0

From the study results depicted in Table 4.6, 61% of the respondents indicated that they knew of any disastrous occurrence that has ever happened in the colleges located in Thika town, while 39% of them indicated that they didn't know of any disastrous occurrence that has ever happened in the colleges located in Thika town. It is clear from these results that the area under study was worth studying since it has had various disastrous occurrences happening. As expected these occurrences informed the relevant stakeholders to stay put and ready for such an occurrence in future. This study therefore was relevant undertaking to ascertain the level of preparedness after such occurrences.

The study further required the respondents to rate the extent to which various types of disasters have been experienced in the colleges in Thika Town. A scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent was provided.

Table 4.10: Extent to which Various Disasters are Experienced in the Colleges

Types of Disasters Experienced in the Colleges	Mean	Std. Dev.
Fire	4.225	1.11683
Floods	2.164	1.06256
Terrorism attacks	2.681	1.35916
Collapse of buildings	3.032	1.28933
Diseases and epidemics	3.003	1.28431

The results shown in table 4.7 reveal that fire disasters were indicated by majority of the respondents to have occurred in the colleges in Thika town to a great extent as shown by a mean score of 4.225. The respondents also reiterated that collapse of buildings have occurred in the colleges in Thika town to a moderate extent as shown by a mean score of 3.032 as well as diseases and epidemics shown by a mean score of 3.003 and terrorism attacks shown by a mean score of 2.681, while they indicated that floods have been

experienced in the colleges in Thika Town to a little extent as shown by a mean score of 2.164. The findings imply that the institutions studied are mainly prone to various disastrous events ranging from floods as the least occurring through, terrorism attacks, collapse of buildings, diseases and epidemics and fires as the most current. It is clear that one of the most important areas of disaster preparedness to focus on in these institutions is the fire disasters which are found to severally and whose losses are usually high including loss of lives.

As such the study sought the respondents' opinion on how they would rate the level of disaster preparedness in the colleges in Thika Town. The results are shown in table 4.8.

Table 4.11: Level of Disaster Preparedness in the Colleges in Thika Town

Level	Frequency	Percent
Very high	7	4.9
High	41	29.4
Moderate	79	56.9
Low	12	8.8
Not at all	0	0
Total	138	100

From the study, majority (56.9%) of the respondents rated the level of disaster preparedness in the Colleges to be moderate, 29.4% of them indicated that the level of disaster preparedness in the colleges in Thika Town was high, 8.8% of the respondents opined that the level of disaster preparedness in the colleges in Thika Town was low, while 4.9% of them rated the level of disaster preparedness in the colleges in Thika Town to be very high. The results imply that in general there is a moderate level of disaster preparedness among the colleges in Thika Town. As shown in the results, some of the of the institutions have taken a lead in the disaster preparedness hence likely to fight the losses that could results from the disaster while a few of them are quite worse demanding a complete shape up in their disaster preparedness.

4.5 Disaster Management Equipments

In its first specific objective the study sought to assess the availability of disaster management equipments among tertiary colleges in Kiambu County. As such the

respondents were required to indicate how they would rate the level of disaster management equipments available in colleges and government authorities in Thika Town for effective disaster management.

Table 4.12: Disaster Management Equipments in Colleges and other Authorities

Level	Frequency	Percent
Very high	65	47.0
High	58	42.2
Moderate	15	10.8
Low	12	8.8
Not at all	7	4.9
Total	138	100

According to the results in table 4.9, 47.0% of the respondents rated the level of disaster management equipments available in colleges and government authorities in Thika Town to be very high, 42.2% of them rated it to be high, 10.8% of the respondents rated the level of disaster management equipments available in colleges and government authorities in Thika Town to be low, while 8.8% of them rated level of disaster management equipments available to be low.

The study collected views from various colleges in Thika Town and sought to establish the number of disaster management equipments available in each through observation.

Table 4. 10: Disaster Management Equipments Found in the Colleges

Disaster Management Equipments	Frequency	Percent
Fire Extinguishers	11	79
Floater	5	36
fire assembly points	10	71
first aid kits	11	79

From the study, 11 colleges visited (that comprise of 79%) were found to have fire extinguishers in place, they also had first aid kits, 10 (71%) of them had fire assembly points, while only 5 (36%) of them had floaters and live saves in case of drowning disasters. This is an implication that majority of them have not implemented all the

disaster management equipments. According to NRC (2006) disaster preparedness practices involve the development of plans and procedures and the acquisition of facilities, equipment, and materials needed to provide active protection during emergency response.

The study further sought to establish the extent to which various factors affect the level of disaster management equipments in the colleges in Thika Town. As such a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent was provided.

Table 4.13: Rating the Factors affecting Level of Disaster Management Equipments

Factors affecting the level of disaster management equipments	Mean	Std. Dev.
Special internal arrangements for the acquisition and disbursement of funds	3.8252	0.707
Policies and agreements for the use of other's equipment and services	3.3212	1.045
Emergency funding strategies	3.4543	1.087
Availability of disaster management equipments	2.6934	1.079
Occurrence of various disasters in the colleges and the country in general	2.6631	1.169

Majority of the respondents reiterated that special internal arrangements for the acquisition and disbursement of funds affect the level of disaster management equipments in the colleges in Thika Town to a great extent as shown by a mean score of 3.8252, emergency funding strategies affect the level of disaster management equipments in the colleges in Thika Town to a moderate extent as shown by a mean score of 3.4543, as well as policies and agreements for the use of other's equipment and services shown by a mean score of 3.3212, availability of disaster management equipments shown by a mean score of 2.6934 and occurrence of various disasters in the colleges and the country in general shown by a mean score of 2.6631. The findings show that there are various factors affecting the level of disaster management equipments which should be relooked to ensure that all the required disaster management equipments are acquired. These findings concur with McEntire, (2006) findings that the concept of mutual aid or the sharing of personnel, equipment, and facilities which occurs when local resources are

inadequate to meet the needs of the disaster (is applicable across a wide spectrum of groups, organizations, and jurisdictional levels).

The respondents were further requested to indicate the extent to which various aspects of disaster management equipments determine the level of disaster preparedness in the colleges in Thika Town.

Table 4.14: Disaster Management Equipments Determining Disaster Preparedness

Aspects of disaster management equipments	Mean	Std. Dev.
Equipment of alarm systems (fire alarms, fire extinguishers,)	3.9643	.53815
Life saving facilities (first aid kits)	3.8929	.77878
Evacuation routes (Exit stairs, emergency doors)	3.4643	.91382
Assembly points (fire assembly points)	3.7679	.80884

Majority of the respondents indicated that equipment of alarm systems (fire alarms and fire extinguishers) determine the level of disaster preparedness in the colleges in Thika Town to a great extent as shown by a mean score of 3.9643; life saving facilities (first aid kits) and assembly points (fire assembly points) also determine the level of disaster preparedness in the colleges in Thika Town to a great extent as shown by mean scores of 3.8929 and 3.7679 respectively, while evacuation routes (such as exit stairs, emergency doors) determine the level of disaster preparedness in the colleges in Thika Town to a moderate extent as shown by a mean score of 3.4643. As shown in the results, there is need to equip the colleges and other such institutions with the relevant disaster management equipments such as equipment of alarm systems (fire alarms, fire extinguishers), life saving facilities (first aid kits), evacuation routes (exit stairs, emergency doors) and assembly points (fire assembly points). According to World Health Organization (1990) specific arrangements should be established whereby each party to written agreements can secure goods and services as required

4.6 Disaster Management Training

The objective of the study was to determine the level of disaster management training being offered by tertiary colleges in Kiambu County. In this light, the respondents were

requested to indicate the level of disaster management training for effective disaster preparedness among the colleges in Thika Town.

Table 4.15: Level of Disaster Management Training for Disaster Preparedness

Level of Training	Frequency	Percentage
Very high level of training	1	1
Highly trained	84	61
Moderately trained	24	18
Low level of training	28	21
Not trained at all	0	0
Total	138	100

From the study, 61% of the respondents indicated that there is high level of disaster management training for effective disaster preparedness among the colleges in Thika Town, 21% of them rated that the level of disaster management training for effective disaster preparedness among the colleges in Thika Town is low, 18% of them rated it to be moderate, while only 1% of the respondents indicated that there is a very high level of disaster management training for effective disaster preparedness among the colleges in Thika Town. This is a clear indication that despite the availability of resources, the various stakeholders are not well equipped with the relevant skills which are essential to reduce losses in case of disasters. Disaster management training through public education and other information is informative and helpful in disaster preparedness.

Disaster management training through education and other information is informative and helpful in disaster preparedness. In the light of this statement, the study sought to establish the extent to which various areas of disaster management training are emphasized in disaster preparedness among the colleges in Thika Town.

Table 4.16: Areas of Disaster Management Training in Disaster Preparedness

Disaster management training	Mean	Std. Dev.
Courses in first aids	3.3036	1.11060
Evacuation drills	3.1429	1.10254
Informative forums on disaster management	3.3036	1.18965
Establishment of First aid brigades and Red- Cross associations	3.9643	.76192
Involvement of all stakeholders in disaster management training	3.4643	.91382

From the study, establishment of first aid brigades and Red- Cross associations is emphasized in disaster preparedness among the colleges to a great extent as shown by a mean score of 3.9643, involvement of all stakeholders in disaster management training is emphasized in disaster preparedness among the colleges to a moderate extent as shown by a mean score of 3.4643, courses in first aids is emphasized to a moderate extent as shown by a mean score of 3.3036, informative forums on disaster management are also emphasized to a moderate extent as shown by a mean score of 3.3036 and evacuation drills are emphasized to a moderate extent as shown by a mean score of 3.1429. It is also evident that the major areas of disaster management training emphasized in disaster preparedness include courses in first aids, evacuation drills, informative forums on disaster management, establishment of first aid brigades and red- cross associations and involvement of all stakeholders in disaster management training. However, there is still need to equip all the stakeholders involved with the same and not just part of the population. Kanwar (2008) also supports that training of the stakeholders or partners in disaster management is very crucial. The importance of personnel training in disaster response cannot be overemphasized. In this area, assessment of applicable available courses is essential. The courses should be tailored to the needs of various disaster types and situations.

The respondents were further requested to indicate their level of agreement with various statements about disaster management training and the level of disaster preparedness among the colleges in Thika Town where a scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= strongly agree was provided.

Table 4.17: Disaster management training and the level of disaster preparedness

Statements about disaster management training	Mean	Std. Dev.
Disaster responders should be conscious and sensitive to changes	3.9643	.53815
Disaster responders should seek to work towards addressing the realities of an often changing environment	3.8929	.77878
Advocacy is necessary to raise stakeholders' awareness on the need to participate in disaster management	4.0000	.80904
Disaster management training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels	3.9643	.76192
Disaster management training increases the general understanding of disasters they are likely to face and the precautions to be taken	3.7143	1.02184
Disaster management training should be undertaken continuously through the media, private sector and among other stakeholders	3.6875	1.35247

Majority of the respondents agreed that advocacy is necessary to raise stakeholders' awareness on the need to participate in disaster management as shown by a mean score of 4.0000, disaster responders should be conscious and sensitive to changes as shown by a mean score of 3.9643, disaster management training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels as shown by a mean score of 3.9643, disaster responders should seek to work towards addressing the realities of an often changing environment as shown by a mean score of 3.8929, disaster management training increases the general understanding of disasters they are likely to face and the precautions to be taken as shown by a mean score of 3.7143 and that disaster management training should be undertaken continuously through the media, private sector and among other stakeholders as shown by a mean score of 3.6875. These findings

imply that there are various areas that need attention in disaster management through training.

4.7 Compliance to Disaster Management Policies

On establishing the level of compliance to disaster management policies among tertiary colleges in Kiambu County, the study sought respondents view on the extent to which the colleges in Thika Town comply with the disaster management policies.

Table 4.18: Extent to which Colleges Comply with the Disaster Management Policies

Extent	Frequency	Percent
Very great extent	61	44
Great extent	41	30
Moderate extent	19	14
Little extent	14	10
Not at all	3	2
Total	138	100

From the study, 44% of the respondents indicated that the colleges in Thika Town comply with the disaster management policies to a very great extent, 30% of them indicated to a great extent, 14% of the respondents indicated that the colleges in Thika Town comply with the disaster management policies to a moderate extent, 10% of the respondents indicated to a little extent, while 2% of the respondents indicated that the colleges in Thika Town comply with the disaster management policies to no extent. The results shown in this section are a clear indication that the institutions studied have not fully complied with the regulator requirement in terms of disaster management policies. These could be a major cause of huge losses in case of disaster occurrence.

The respondents were required to indicate the extent to which the colleges in Thika Town consider various aspects of disaster management policies in their disaster preparedness approaches.

Table 4.19: Aspects of Disaster Management Policies in Disaster Preparedness

Aspects of disaster management policies in disaster preparedness	Mean	Std. Dev.
Development of rules and regulations to reduce disaster occurrences	3.6875	1.2500
Institutional frameworks and planning to	3.5489	1.17722
Disaster risk reduction initiatives	3.2500	.67566
Workplace rules are elements such as policies, processes, behaviors, and employee attitudes	3.7744	1.13228
Policies for personnel notification	3.1203	1.10122

The results shown in Table 4.16 indicate that the colleges in Thika Town consider workplace rules are elements such as policies, processes, behaviors and employee attitudes to a great extent as shown by a mean score of 3.7744, development of rules and regulations to reduce disaster occurrences to a great extent as shown by a mean score of 3.6875 and institutional frameworks and planning to a great extent as shown by a mean score of 3.5489. They further reiterated that the colleges in Thika Town consider disaster risk reduction initiatives to a moderate extent as shown by a mean score of 3.2500 and policies for personnel notification to a moderate extent as shown by a mean score of 3.1203. Workplace rules are elements such as policies, work processes, work behaviors, and employee attitudes that result in the actual outputs of the government work unit. As Twigg (2001) supports that strategies and practices are needed to minimize vulnerabilities and disaster risks throughout society, through prevention, mitigation, and preparedness.

Table 4.17 shows the extent to which various disaster management policies serve various functions in disaster preparedness in the colleges located in Thika Town.

Table 4.20: Various Disaster Management Policies in Disaster Preparedness

Functions of disaster management policies in disaster preparedness	Mean	Std. Dev.
Strengthen disaster management institutions	3.5000	.58977
Mainstreaming of disaster risk reduction	3.2500	.67566
Improve the resilience of vulnerable groups to cope with potential disasters	3.1250	.67967
Help vulnerable communities by developing coping mechanisms	3.2083	.93153

Create awareness of disaster preparedness and long term mitigation	3.6875	1.2500
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About extent to which the disaster management policies serve the various functions in disaster preparedness in the colleges located in Thika Town, majority of the respondents indicated that disaster management policies create awareness of disaster preparedness and long term mitigation to a great extent as shown by a mean score of 3.6875 and strengthen disaster management institutions to a great extent as shown by a mean score of 3.5000, while they indicated that disaster management policies mainstreaming of disaster risk reduction to a moderate extent as shown by a mean score of 3.2500, help vulnerable communities by developing coping mechanisms to a moderate extent as shown by a mean score of 3.2083 and improve the resilience of vulnerable groups to cope with potential disasters to a moderate extent as shown by a mean score of 3.1250. Disaster management plans should include policies for personnel notification, staffing, and recall. A determination of who'll be responsible for continually assessing resources and capabilities should be made.

4.8 Disaster Response Mechanisms

The study further sought to examine the nature of disaster response mechanisms put in place among tertiary colleges in Kiambu County. As such the respondents were required to indicate their view on how they would rate the nature of disaster response mechanisms in colleges located in Thika Town.

Table 4.21: Rating Nature of Disaster Response Mechanisms in Tertially Colleges

Extent	Frequency	Percentage
Very much sufficient	39	28
Much Sufficient	92	67
Moderately sufficient	7	5
Less sufficient	0	0
Not sufficient at all	0	0
Total	138	100

Most of the respondents rated the nature of disaster response mechanisms in colleges located in Thika Town to be much sufficient as shown by 67%; further 28% of them rated it to be very much sufficient, while only a small proportion of the respondents as shown by 5% of the respondents rated the nature of disaster response mechanisms in colleges

located in Thika Town to be moderately sufficient. Through proper response, emergency assistance to victims of disaster is provided.

The study was also interested in finding out the extent to which disaster response mechanisms in colleges located in Thika Town involve the various stakeholders.

Table 4.22: Extent of Stakeholders Involvement in Disaster Response Mechanisms

Stakeholders involved in disaster response mechanisms	Mean	Std. Dev.
Private sector organizations (such as G4S)	3.3750	1.20416
Civil society authorities (like the Municipal Council)	3.6875	1.35247
Government agencies (Police force, Fire departments, Ministries)	3.7917	.58823
College communities (students and staff)	3.5833	.77553

Accordingly, majority of the respondents reiterated that government agencies (police force, fire departments, ministries) are involved in disaster response mechanisms to a great extent as shown by a mean score of 3.7917, civil society authorities (like the municipal council) are involved in disaster response mechanisms to a great extent as shown by a mean score of 3.6875 and college communities (students and staff) are involved in disaster response mechanisms to a great extent as shown by a mean score of 3.5833, while the private sector organizations (such as G4S) are involved in disaster response mechanisms to a moderate extent as shown by a mean score of 3.3750. Coordination in humanitarian responses to disasters is not simply a specific set of actions rather an approach to emergency response that attempts to maximize its benefits and minimize inefficiencies.

The respondents were required to indicate the extent to which various aspects of disaster response mechanisms determine the level of disaster preparedness among the colleges in Thika Town.

Table 4.23: Disaster Response Mechanisms in Disaster Preparedness

Aspects of disaster response mechanisms	Mean	Std. Dev.
Provision of basic necessities	3.6875	1.2500
Coordination and collaboration through different phases of the response	3.5489	1.17722
Rescue and relief provision	3.2500	.67566
Mainstreaming of disaster risk reduction	3.7744	1.13228
Contingency planning	3.1203	1.10122
Community preparedness	3.4583	.88363

Most of the respondents recapped that mainstreaming of disaster risk reduction determines the level of disaster preparedness among the colleges to a great extent as shown by a mean score of 3.7744, provision of basic necessities to a great extent as shown by a mean score of 3.6875 and coordination and collaboration through different phases of the response to a great extent as shown by a mean score of 3.5489, while community preparedness determines the level of disaster preparedness among the colleges to a moderate extent as shown by a mean score of 3.4583, as well as rescue and relief provision shown by a mean score of 3.2500 and contingency planning shown by a mean score of 3.1203. The findings are in support of that for effective level of disaster preparedness there is need to have well coordinated disaster response mechanisms.

CHAPTER FIVE

SUMMARY OF KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives the summary of the findings, the conclusions and recommendations of the study based on the objective of the study. It comes after identifying the background, problem at hand and the objectives in chapter one, literature review was done in chapter two, chapter three set out the methodology that the study used to collect data and chapter four analyzed the data obtained from the study. The chapter finally presents the suggestions for further studies. The study sought to assess the availability of disaster management equipments among tertiary colleges in Kiambu County; to determine the level of disaster management training being offered by tertiary colleges in Kiambu County; to establish the level of compliance to disaster management policies among tertiary colleges in Kiambu county and to examine the nature of disaster response mechanisms put in place among tertiary colleges in Kiambu County.

5.2 Summary of Key findings

This study found that 61% of the respondents knew of disastrous occurrence that has ever happened in the colleges located in Thika town. It was also clear that fires disasters are indicated by majority of the respondents to have occurred in the colleges in Thika town to a great extent; collapse of buildings, diseases and epidemics and terrorism attacks are experienced to a moderate extent while they indicated that floods have been experienced in the colleges in Thika Town to a little extent. The level of disaster preparedness in the Colleges was rated to be moderate.

On disaster management equipments, the study established that the level of disaster management equipments available in colleges and government authorities in Thika Town is very high. Further, special internal arrangements for the acquisition and disbursement of funds affect the level of disaster management equipments in the colleges in Thika Town to a great extent. It was also clear those emergency funding strategies, policies and agreements for the use of other's equipment and services, availability of disaster management equipments and occurrence of various disasters in the colleges and the country in general affect the level of disaster management equipments in the colleges in

Thika Town to moderate extents. On the same issue, the study found that equipment of alarm systems (fire alarms and fire extinguishers), life saving facilities (first aid kits) and assembly points (fire assembly points) determine the level of disaster preparedness in the colleges in Thika Town to great extent, while evacuation routes (such as exit stairs, emergency doors) determine the level of disaster preparedness in the colleges in Thika Town to a moderate extent.

With regard to disaster management training, the study ascertained that there is high level of disaster management training for effective disaster preparedness among the colleges in Thika Town. Disaster management training through education and other information is informative and helpful in disaster preparedness. Establishment of first aid brigades and Red- Cross associations is emphasized in disaster preparedness among the colleges to a great extent, while involvement of all stakeholders in disaster management training, courses in first aids, informative forums on disaster management and evacuation drills are emphasized to moderate extents. Advocacy is necessary to raise stakeholders' awareness on the need to participate in disaster management, disaster responders should be conscious and sensitive to changes, disaster management training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels, disaster responders should seek to work towards addressing the realities of an often changing environment, disaster management training increases the general understanding of disasters they are likely to face and the precautions to be taken and that disaster management training should be undertaken continuously through the media, private sector and among other stakeholders.

On disaster management policies, the study established the colleges in Thika Town comply with the disaster management policies to a very great extent. The colleges in Thika Town consider workplace rules are elements such as policies, processes, behaviors and employee attitudes, development of rules and regulations to reduce disaster occurrences and institutional frameworks and planning to great extents, while disaster risk reduction initiatives and policies for personnel notification are considered to moderate extents. The disaster management policies create awareness of disaster preparedness and long term mitigation and strengthen disaster management institutions to great extents,

while disaster management policies assist in mainstreaming of disaster risk reduction, help vulnerable communities by developing coping mechanisms and improve the resilience of vulnerable groups to cope with potential disasters to moderate extents.

The study further examined the nature of disaster response mechanisms put in place among tertiary colleges in Kiambu County and established that the nature of disaster response mechanisms in colleges located in Thika Town is much sufficient. The government agencies (police force, fire departments, ministries), civil society authorities (like the municipal council) and college communities (students and staff) are involved in disaster response mechanisms to great extents, while the private sector organizations (such as G4S) are involved in disaster response mechanisms to a moderate extent. Mainstreaming of disaster risk reduction, provision of basic necessities and coordination and collaboration through different phases of the response determines the level of disaster preparedness among the colleges to a great extent, while community preparedness, as well as rescue and relief provision and contingency planning determine the level of disaster preparedness among the colleges to a moderate extent.

5.3 Conclusions

The study concludes that there are disastrous occurrences that happen in the tertiary colleges. These disasters include fires disasters, collapse of buildings, diseases and epidemics and terrorism attacks while floods are rarely experienced.

The study deduces that disaster management equipments influence the disaster preparedness in the institutions. The various aspects of disaster management include special internal arrangements for the acquisition and disbursement of funds, emergency funding strategies, policies and agreements for the use of other's equipment and services, availability of disaster management equipments and occurrence of various disasters in the colleges and the country in general. The equipment of alarm systems (fire alarms and fire extinguishers), life saving facilities (first aid kits), assembly points (fire assembly points) and evacuation routes (such as exit stairs, emergency doors) are key determinants of the level of disaster preparedness in the colleges.

The study further concludes that there is high level of disaster management training for effective disaster preparedness among the tertiary colleges. Disaster management training through education and other information is informative and helpful in disaster preparedness through establishment of first aid brigades and Red- Cross associations, involvement of all stakeholders in disaster management training, courses in first aids, informative forums on disaster management and evacuation drills. Other areas of focus of disaster management training include advocacy to raise stakeholders' awareness on the need to participate in disaster management.

The study further concludes that disaster management policies determine the extent to which the institutions are able to respond to various disasters. The compliance with the disaster management policies is a necessary step towards achieving better results in this area. This involves considering workplace rules are elements such as policies, processes, behaviors and employee attitudes, development of rules and regulations to reduce disaster occurrences and institutional frameworks and planning as well as disaster risk reduction initiatives and policies for personnel notification.

5.4 Recommendations

Looking forward toward the realization of the social pillar of Kenya's Vision 2030 demands that the institutions enhance safety measures aimed at reducing risks and the losses that happen once disastrous events happen. The study established that the college institutions just like other public places are faced with various risks of disastrous occurrences. The study thus recommends that preparedness efforts must address all potential disaster events.

Based on the findings and conclusions, it appears that the development of broadly applicable preparedness metrics is quite feasible. At the same time, it is important to engage multiple stakeholder groups in formulating metrics that they consider most appropriate.

From the findings, disaster management training increases the general understanding of disasters they are likely to face and the precautions to be taken. The study therefore recommends that for effective disaster preparedness disaster the relevant stakeholders

should be equipped with the relevant training to enhance their effectiveness in disaster preparedness. As such the responders should be conscious and sensitive to changes, disaster management training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels, disaster responders should seek to work towards addressing the realities of an often changing environment and disaster management training should be undertaken continuously through the media, private sector and among other stakeholders.

The study further recommends that there is need to enhance the disaster management policies in order to create awareness of disaster preparedness and long term mitigation and strengthen disaster management institutions to great extents. As a consequence disaster management policies will assist in mainstreaming of disaster risk reduction, help vulnerable communities by developing coping mechanisms and improve the resilience of vulnerable groups to cope with potential disasters.

5.5 Suggestions for Further Studies

The study has assessed the level of disaster preparedness among tertiary colleges in Kenya with a specific reference to tertiary colleges in Thika Town in Kiambu County and established that disaster management equipments, disaster management training, compliance to disaster management policies and disaster response mechanisms are the main aspects of disaster preparedness that influence level of disaster preparedness among tertiary colleges. The tertiary colleges and the education sector in Kenya however is comprised of various other institutions which differ in their way of management and have different settings all together. This warrants the need for another study which would ensure generalization of the study findings for all the tertiary institutions in Kenya and hence pave way for new policies. The study therefore recommends another study be done with an aim to investigate the level of disaster preparedness among tertiary colleges in Kenya.

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APPENDICES

Appendix I: Letter of Transmittal

Dear Respondent,

RE: REQUEST TO COLLECT DATA FOR M.A. PROJECT

I am post graduate student at the University of Nairobi and in my final year of study. As part of the requirement for the award of the degree of Master of Arts in Project Planning and Management, I'm undertaking a research on **LEVEL OF DISASTER PREPAREDNESS AMONG TERTIARY COLLEGES IN KENYA: THE CASE OF THIKA TOWN, KIAMBU COUNTY, KENYA.**

In this regard, I'm kindly requesting for your support in terms of time, and by responding to the attached questionnaire. Your accuracy and candid response will be critical in ensuring objective research.

It will not be necessary to write your name on this questionnaire and for your comfort, all information received will be treated in strict confidence. In addition, the findings of the study will surely be used for academic research purposes and to enhance knowledge in the field of Disaster preparedness.

Thank you for your valuable time on this.

Yours faithfully,

Christopher Ithiah Munguti.

University of Nairobi

Appendix II: Questionnaire for Government Officials in Thika

Please read each question carefully and follow the instructions. Kindly answer all the questions to the best of your ability. Indicate with a tick or filling in the space(s) provided. All answers will be kept confidential.

PART A: GENERAL INFORMATION

1. Please indicate your gender

Male Female

2. Your category:

Kenya Police Provincial Administration
Thika Municipal Council Ministry of Education
Ministry of Special Programs Other (Specify.....)[]

3. What is your length of working in Thika Town?

0-5 yrs 5-10 yrs
11-15 Over 15 yrs

4. To date, what has been your highest formal qualification?

Certificate/ Diploma Undergraduate
Post graduate level Other (Specify.....)

PART B: LEVEL OF DISASTER PREPAREDNESS AMONG TERTIARY COLLEGES

A disaster is an event or series of events, which give rise to casualties and/or damage or loss of property, infrastructure, essential services or means of livelihoods on a scale which is beyond the normal capacity of the affected community to cope with unaided.

5. Are you aware of any disastrous occurrence that has ever happened in any of the colleges located in Thika town?

Yes No

6. Rate the extent to which the following types of disasters have been experienced in the colleges in Thika Town? Rate on a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Types of disasters experienced in the colleges					
Fire					
Floods					
Terrorism attacks					
Collapse of buildings					
Diseases and epidemics					

7. How would you rate the level of disaster preparedness among tertiary colleges in Thika Town?

- Very high [] High []
 Moderate [] Low []
 Not at all []

DISASTER MANAGEMENT EQUIPMENTS

8. How would you rate the level of disaster management equipments available in colleges and government authorities in Thika Town for effective disaster management?

- Very high level [] High level []
 Moderate level [] Low level []
 Not at all []

9. To what extent do the following factors affect the level of disaster management equipments in the colleges in this town? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Factors affecting the level of disaster management equipments	1	2	3	4	5
Special internal arrangements for the acquisition and disbursement of funds					
Policies and agreements for the use of other's equipment and services					
Emergency funding strategies					
Availability of disaster management equipments					
Occurrence of various disasters in the colleges and the country in general					

10. To what extent do the following aspects of disaster management equipments determine the level of disaster preparedness in the colleges in Thika town? Use a scale of 1 to 5

where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Aspects of disaster management equipments	1	2	3	4	5
Equipment of alarm systems (fire alarms, fire extinguishers,)					
Life saving facilities (first aid kits)					
Evacuation routes (Exit stairs, emergency doors)					
Assembly points (fire assembly points)					

DISASTER MANAGEMENT TRAINING

1. What is the level disaster management training for effective disaster preparedness among the colleges in Thika Town?

- Very high level of training [] Highly trained []
- Moderately trained [] Low level of training []
- Not trained at all []

2. Disaster management training through education and other information is informative and helpful in disaster preparedness. In the light of this statement, to what extent are the following areas of disaster management training emphasized in disaster preparedness among the colleges in Thika Town? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Disaster management training	1	2	3	4	5
Courses in first aids					
Evacuation drills					
Informative forums on disaster management					
Establishment of First aid brigades and Red- Cross associations					
Involvement of all stakeholders in disaster management training					
Others (Specify.....)					

3. What is your level of agreement with the following statements about disaster management training and the level of disaster preparedness among the colleges in Thika Town? Use a scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Statements about disaster management training	1	2	3	4	5
Disaster responders should be conscious and sensitive to changes					
Disaster responders should seek to work towards addressing the realities of an often changing environment					
Advocacy is necessary to raise stakeholders' awareness on the need to participate in disaster management					
Disaster management training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels					
Disaster management training increases the general understanding of disasters they are likely to face and the precautions to be taken					
Disaster management training should be undertaken continuously through the media, private sector and among other stakeholders					

COMPLIANCE TO DISASTER MANAGEMENT POLICIES

14. To what extent do the colleges in Thika Town comply with the disaster management policies?

- To a very great extent [] To a great extent []
- To a moderate extent [] To a little extent []
- To no extent []

15. To what extent do the colleges in Thika Town consider the following aspects of disaster management policies in their disaster preparedness approaches? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Aspects of disaster management policies in disaster preparedness	1	2	3	4	5
Development of rules and regulations to reduce disaster occurrences					
Institutional frameworks and planning to					
Disaster risk reduction initiatives					
Workplace rules are elements such as policies, processes, behaviors, and employee attitudes					
Policies for personnel notification					

16. To what extent do the disaster management policies serve the following functions in disaster preparedness in the colleges located in Thika Town? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Functions of disaster management policies in disaster preparedness	1	2	3	4	5
Strengthen disaster management institutions					
Mainstreaming of disaster risk reduction					
Improve the resilience of vulnerable groups to cope with potential disasters					
Help vulnerable communities by developing coping mechanisms					
Create awareness of disaster preparedness and long term mitigation					

DISASTER RESPONSE MECHANISMS

17. How would you rate the nature of disaster response mechanisms in colleges located in Thika Town?

- Very much sufficient [] Moderately sufficient []
 Sufficient [] Less sufficient []
 Not sufficient at all []

18. To what extent does disaster response mechanisms in colleges located in Thika Town involve the following stakeholders? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Stakeholders involved in disaster response mechanisms	1	2	3	4	5
Private sector organizations (such as G4S)					
Civil society authorities (like the Municipal Council)					
Government agencies (Police force, Fire departments, Ministries)					
College communities (students and staff)					

19. To what extent do the following aspects of disaster response mechanisms determine the level of disaster preparedness among the colleges in Thika Town? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Aspects of disaster response mechanisms and disaster preparedness	1	2	3	4	5
Provision of basic necessities					
Coordination and collaboration through different phases of the response					
Rescue and relief provision					
Mainstreaming of disaster risk reduction					
Contingency planning					
Community preparedness					

20. Give any other information on the level of disaster preparedness among the colleges in Thika Town?

.....

.....

THANK YOU

Appendix III: Questionnaire for College Staff and College Students

Please read each question carefully and follow the instructions. Kindly answer all the questions to the best of your ability. Indicate with a tick or filling in the space(s) provided. All answers will be kept confidential.

PART A: GENERAL INFORMATION

1. Please indicate your gender
Male Female
2. Your category:
College Staff College students representative
Other (Specify.....)
3. What is your length of studying in Thika Town?
0-5 yrs 5-10 yrs
10-15 Over 15 yrs
4. To date, what has been your highest formal qualification?
Certificate/ Diploma Undergraduate
Post graduate level Other (Specify.....)

PART B: LEVEL OF DISASTER PREPAREDNESS AMONG TERTIARY COLLEGES

A disaster is an event or series of events, which give rise to casualties and/or damage or loss of property, infrastructure, essential services or means of livelihoods on a scale which is beyond the normal capacity of the affected community to cope with unaided.

5. Do you know of any disastrous occurrence that has ever happened in your college?
Yes No
6. Rate the extent to which the following types of disasters have been experienced in your college. Rate on a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Types of disasters experienced in the colleges					
Fire					
Floods					
Terrorism attacks					
Collapse of buildings					
Diseases and epidemics					

7. How would you rate the level of disaster preparedness in this college?

- Very high High
 Moderate Low
 Not at all

DISASTER MANAGEMENT EQUIPMENTS

8. How would you rate the level of disaster management equipments available in this college for effective disaster management?

- Very high level High level

 Moderate level Low level

 Not at all

9. To what extent do the following factors affect the level of disaster management equipments in this college? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Factors affecting the level of disaster management equipments	1	2	3	4	5
Special internal arrangements for the acquisition and disbursement of funds					
Policies and agreements for the use of other's equipment and services					
Emergency funding strategies					
Availability of disaster management equipments					
Occurrence of various disasters in the colleges and the country in general					

10. To what extent do the following aspects of disaster management equipments determine the level of disaster preparedness in your college? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Aspects of disaster management equipments	1	2	3	4	5
Equipment of alarm systems (fire alarms, fire extinguishers,)					
Life saving facilities (first aid kits)					
Evacuation routes (Exit stairs, emergency doors)					
Assembly points (fire assembly points)					

DISASTER MANAGEMENT TRAINING

11. What is the level disaster management training for effective disaster preparedness in your college?

- Very high level of training [] Highly trained
 []
 Moderately trained [] Low level of training
 []
 Not trained at all []

12. Disaster management training through education and other information is informative and helpful in disaster preparedness. In the light of this statement, to what extent are the following areas of disaster management training emphasized in disaster preparedness in your college? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Disaster management training	1	2	3	4	5
Courses in first aids					
Evacuation drills					
Informative forums on disaster management					
Establishment of First aid brigades and Red- Cross associations					
Involvement of all stakeholders in disaster management training					
Others (Specify.....)					

13. What is your level of agreement with the following statements about disaster management training and the level of disaster preparedness in your college? Use a scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Statements about disaster management training	1	2	3	4	5
Disaster responders should be conscious and sensitive to changes					
Disaster responders should seek to work towards addressing the realities of an often changing environment					
Advocacy is necessary to raise stakeholders' awareness on the need to participate in disaster management					
Disaster management training it posits is crucial as it will provide a feedback to communities, governments and partners at all levels					
Disaster management training increases the general understanding of disasters they are likely to face and the precautions to be taken					
Disaster management training should be undertaken continuously through the media, private sector and among other stakeholders					

COMPLIANCE TO DISASTER MANAGEMENT POLICIES

14. To what extent does your college comply with the disaster management policies?

- To a very great extent [] To a great extent []
- To a moderate extent [] To a little extent []
- To no extent []

15. To what extent does this college consider the following aspects of disaster management policies in their disaster preparedness approaches? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Aspects of disaster management policies in disaster preparedness	1	2	3	4	5
Development of laws and regulations to reduce disaster occurrences					
Institutional frameworks and planning to					
Disaster risk reduction initiatives					
Workplace rules are elements such as policies, processes, behaviors, and employee attitudes					
Policies for personnel notification					

16. To what extent do the disaster management policies serve the following functions in disaster preparedness in your college? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Functions of disaster management policies in disaster preparedness	1	2	3	4	5
Strengthen disaster management institutions					
Mainstreaming of disaster risk reduction					
Improve the resilience of vulnerable groups to cope with potential disasters					
Help vulnerable communities by developing coping mechanisms					
Create awareness of disaster preparedness and long term mitigation					

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DISASTER RESPONSE MECHANISMS

17. How would you rate the nature of disaster response mechanisms in your college?

- Very much sufficient [] Moderately sufficient []
 Sufficient [] Less sufficient []
 Not sufficient at all []

18. To what extent do disaster response mechanisms in your college involve the following stakeholders? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Stakeholders involved in disaster response mechanisms	1	2	3	4	5
Private sector organizations (such as G4S)					
Civil society authorities (like the Municipal Council)					
Government agencies (Police force, Fire departments, Ministries)					
College communities (students and staff)					

19. To what extent do the following aspects of disaster response mechanisms determine the level of disaster preparedness in your college? Use a scale of 1 to 5 where 1= no extent, 2= little extent, 3= moderate extent, 4= great extent and 5 is to a very great extent.

Aspects of disaster response mechanisms and disaster preparedness	1	2	3	4	5
Provision of basic necessities					
Coordination and collaboration through different phases of the response					
Rescue and relief provision					
Mainstreaming of disaster risk reduction					
Contingency planning					
Community preparedness					

20. Give any other information on the level of disaster preparedness in your college?

.....

.....

THANK YOU