UNIVERSITY OF NAIROBI

MASS ASSEMBLIES AND VULNERABILITY TO DISASTERS: THE CASE OF SELECTED CHURCHES IN NAIROBI

BY

JENNIFER WANJIKU KIMARU

C50/61536/2010

PROJECT PAPER SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF MASTERS OF ARTS DEGREE IN SOCIOLOGY (DISASTER MANAGEMENT)

10th October, 2015

DECLARATION

I declare that this is my original work and has not been presented for any degree in any other university.

_____ DATE: _____

JENNIFER WANJIKU KIMARU REG. NO: C50/61536/2010

APPROVAL

This project paper has been submitted for examination with my approval as the University of Nairobi Supervisor.

_____ _____

DR. ROBINSON MOSE OCHARO **DATE**

SUPERVISOR

ACKNOWLEDGEMENTS

This paper was a challenge to me and I am grateful to God for taking me through to its completion and for His divine provision. I am also grateful to my Supervisor Dr. Robinson Ocharo for his dedicated support and guidance all through this research. God bless you abundantly. I appreciate all the participants for their willingness to participate in the study and am grateful for their valuable and honest responses. Finally I am grateful to my dear mum for her support and encouragement especially during the tough times in course of the study. Thanks mum and may God bless and keep you.

DEDICATION

This study is dedicated to all victims of disasters in Mass Assemblies and particularly those who have been victims of terrorist attacks in places of worship.

ABSTRACT

This research was set to study mass assemblies and disaster preparedness in churches in Nairobi. In the study, the awareness, knowledge and abilities of the church leaders and members with regard to disaster management was studied. The study was conducted in six churches within Nairobi which were purposively selected and these represented all churches as they are a forum of mass assemblies.

The general objective of the study was to establish the extent to which disaster management had been incorporated in places of mass assemblies. Specifically, the study sought to find out if the church leaders and members were aware of the threats that provided a fertile ground for panic and hysteria which surrounded their mass assembly and how they were likely to behave should these hazards be triggered. The study also sought to establish the knowledge that the church leaders and members had of the likely hazards in a mass assembly and how they were likely to respond. An assessment of the contingency measures which the churches had put in place in response preparedness to the likely hazards was also done.

Non probability sampling was used to obtain the sample for the study. Purposive sampling method was used to select the 6 churches under study and the 6leaders interviewed were obtained from these churches. The Quota sampling method was used in selecting a sample of 145 church members from the 6 churches under study. These participants were interviewed using an interview schedule. Observation of the selected churches was also done.

The responses obtained were analyzed and discussed in line with the common themes of the study. The data collected is presented in frequency distribution tables. The data collected revealed that a large percentage of the church of the members were unaware of hazards that

surrounded their churches. Where there was awareness, the researcher established that some response actions had been taken to respond to some of the hazards.

The researcher further established that the leaders and members had some knowledge on likely hazards in a mass assembly. The likely hazards studied were Stampede, Fire, Fainting, Armed Intruder, Terrorist scare and Terrorist Attack. The need for awareness creation and education on the church community on likely hazards and the recommended response was established.

An assessment of the contingency measures in place in the churches revealed some gaps which are important in responding to disasters. The churches lacked some basic measures like conducting emergency drills, contracts with and contacts of service providers like the fire fighters, ambulance services and first aid services. However, all the churches under study had engaged security firms in order to ensure that security screening was conducted at the entry of the churches.

On observation, the churches were found to be lacking in providing adequate entry and exit avenues. The structural designs of the churches enhanced the vulnerability of the assemblies in these churches to likely hazards like congestion and stampedes. None of the churches under study had taken into consideration physically challenged people in their structural designs and this limited the number of people with disabilities who were able to access the churches.

The researcher recommends training of church leaders on disaster management, awareness creation and regular educative sessions for the church members on the subject of disaster management.

The findings of this study will be shared with the church leaders and members who participated in the study and will be extended to other churches.

TABLE OF CONTENTS

Declaration …….…..…….. i

Approval ….…..……. ii

Acknowledgements …….…. iii

Dedication ……. iv

Abstract ……. v

List of tables …….xii

List of Abbreviations …….……..xiii

Chapter One: Introduction ……..……...1

1.1 Background of the Study …… ……1

1.2 Problem Statement ……..…… 6

1.3 Research Questions ……..…… 9

1.4 Objectives ……..……..10

1.5 Scope and Limitation of the Study …….……10

Chapter Two: Literature Review ……..…….. 12

2.0Mass Assemblies as a common experience ……..…….. 12

2.1 Global Perspective …….……..... 12

2.2 African Continent Perspective ……..……. 13

2.3 Kenyan Experience …….…….…….. 14

2.4 Panic …….…… 15

2.5 Hysteria ……..…….…….. 18

2.6 Historical Lessons on Mass Gatherings …… 19

2.7 Vulnerability …… 21

2.8 Risk …….. 24

2.9 Fist Model ....……..…… 24

2.10 Theoretical Framework …….…….. 26

2.10.1 Informational Influence Theory …….……..…… 26

2.10.2 Contagion Theory …….…… 28

2.10.3 Social Identity Theory …… 29
2.11 Conclusion …… 30
2.12 Conceptual Framework …… 31
Chapter Three: Research Methodology …… 32
3.0 Research Design …… 32
3.1 Site Description …… 32
3.2 Sampling Procedure …… 34
3.3 Methods of Data Collection …… 36
3.3.1 .Interview Method …… 36
3.3.2 Observation …… 37
3.4 Tools of Data Collection …… 37
3.5 Sources of Data …… 37
3.6 Unit of Observation …… 37
3.7 Unit of Analysis …… 38
3.8 Data Collection Procedure …… 38
3.9 Data processing and Analysis …… 38
3.10 Ethical Considerations …… 38

Chapter Four: Data Analysis, Presentation and Interpretation
4.0 Introduction …… 39
4.1 Overview of the Churches …… 39
4.1.1 St. Peter Claver Catholic Church ...…… 39
4.1.2 Divine Mercy Catholic Church ….…… 40
4.1.3 Deliverance Church Umoja ...…… 40
4.1.4 St. John's ACK Church Pumwani ……40
4.1.5House of Grace Church Rongai ..…… 40
4.1.6 Pentichrist Church Kariobangi South ...…… 41

4.2 Demographic Data…… …….…….….. 41
4.2.1 Gender ……..…….…….…….…... 41
4.2.2 Age ……..…….…….…….…... 43
4.2.3 Levels of Education ……..…….……. 43
4.2.4 Physical Ability …….…….. 44
4.2.5 Duration of Membership in the Church …….……. ... 46
4.2.4 Duration in the Current Station …….…….. 46
4.3 Awareness of Hazards surrounding the Church ……. 47
4.3.1 List of Hazards that they are aware of ……..... 48
4.3.2 Effects of the Hazards on the Congregation ……... 49
4.3.3 Actions which the church had taken so far to respond to Hazards ……. 50
4.3.3.1 Terrorism …….. 51
4.3.3.2 Environmental Hazards …… 52
4.3.3.3 Fire ……... 53
4.3.3.4 Electrical Hazards …… 56
4.3.3.5 Congestion ……... 57
4.3.3.6 Noise …… 57
4.3.3.7 Proximity to a busy road without bumps and speeding vehicles ……. 58
4.3.4 Vulnerability and Perception …….. 58
4.3.5 Conclusion ……..…… 60
4.4 Knowledge of Responding to Likely Hazards in a Mass Assembly ……. 60
4.4.1 Knowledge of responding to a Stampede ……... 60
4.4.2 Fainting ……67
4.4.3 Fire …….. 70
4.4.4 Armed Intruder …… 72
4.4.5 Terrorist Scare …… 74
4.4.6 Terrorist Attack …….. 76

4.4.7 Conclusion ……..…… 81

4.5 Contingency Measures in the Churches: Response Preparedness …….…… 82

4.5.1 Emergency Drills …… 82

4.5.1.1 Fire Drills ……. 84

4.5.1.2 Armed Intruder ……. 85

4.5.1.3 Terrorist Scare …….. 85

4.5.1.4 Terrorist Attack ……85

4.5.1.5 Congested Exit ……. 86

4.5.1.6 Stampede …….. 86

4.5.2 Existing Services in Place ……... 86

4.5.2.1 First Aid Services ……. 86

4.5.2.2 Security Checks ……... 87

4.5.2.3 Emergency Exits …….. 88

4.5.2.4 Contract with Service Providers …….. 88

4.6 Churches with a Disaster Management Policy …….. 89

4.7 Role of the Church Members in Disaster Management ……. 90

4.8 Conclusion ……. 91

CHAPTER 5: SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction …… 92

5.1 Summary of Findings ……. 92

5.2 Conclusion ……. 94

5.3 Recommendations …….. 94

5.4 Suggested Areas for Further Study …… 96

References ……..……..……..…. 97

Appendix I: Informed Consent Form …….. a

Appendix II: Interview Schedule for Church leaders …….…….…… I

Appendix III: Interview Schedule for Church members ……..…….…..…….……..I-1

LIST OF TABLES

Table 1: Gender of the Respondents ……... 42

Table 2: Age distribution of Respondents ……... 43

Table 3: Education Levels of Respondents …… 44

Table 4: Physical Abilities of Respondents …… 44

Table 5: Duration of Membership in the Church …… 46

Table 6: Duration in the Current Church Station …… 47

Table 7: Number of Respondents who were aware of Hazards around their Church ……. 48

Table 8: List of Hazards and the Reasons why they were considered as Hazards …….. 49

Table 9: Actions taken by the Churches so far towards existing Hazards …….. 51

Table 10: Number of Respondents who had ever experienced a Stampede in the Church ……. 61

Table 11: Likelihood of a Stampede occurring ……... 62

Table 12: What Respondents said they would do incase of a Stampede …… 65

Table 13: Fainting in the Church …… 69

Table 14: Fire in the Church …… 71

Table 15: Armed Intruder in the Church ……. 73

Table 16: Actions in response to a Terrorist Attack as Prioritized by Church Members …… 78

LIST OF ABBREVIATIONS

APA	- American Psychiatric Association
DSM-IV	- Diagnostic and Statistical Manual of Mental Disorders, 4th Edition
FIST	- Force, Information, Space and Time
IFRC	- International Federation of Red Cross and Red Crescent Societies
NFPA	- National Fire Prevention Act
RIT	- Rochester Institute of Technology

CHAPTER ONE: INTRODUCTION

1.0 Background of the Study

Mass assemblies occur frequently in any part of the world and usually without serious problems. According to Lang & Lang (2009) Crowds, social movements, the public and the mass are all forms of mass assembly. The concept of mass goes back a long way to characterize a society that consists of people somehow connected by communication while, at the same time, also dispersed in space and essentially detached from one another (Lang & Lang, 2009).

According to Blumer (1935) mass is one form of collective behaviour among the other four forms which are the crowd, the public and the social movement. He describes the mass as having no social organization, no body of custom and tradition, no established set of rules or rituals, no organized sentiments, no structure of status roles and no established leadership.

In this description of the masses, Blumer (1935) referred not to the whole society but to a specific form of elementary collective behaviour within society that is limited in time and directed toward some object of attention. This object that can attract a temporary mass typically arises outside the domain of local group life and is made up of detached individuals who have their own local attachments, share in convivial association, belong to primary groups, live and act to a great extent in accordance with conventional patterns but, only in so far as they belong to a mass, is it as alienated individuals in a new area of life not adequately covered by local group tradition (Blumer, 1935).

Bergen (1786) defines collective behaviour as any form of human action involving a large number of people who do not necessarily know each other but who act in unison. According to Hirschfiled (1986), it is an unstructured human activity that is spontaneously generated in response to immediate demand for action. Collective behaviour usually is unplanned, spontaneous and incidental. The behaviour is temporary, depending on the triggering event or incident.

According to Gustave LeBon (1895) thousands of isolated individuals may acquire at certain moments and under the influence of certain violent emotions for example a great national event the characteristics of a psychological crowd. The mere agglomeration of people however is not sufficient to cause the disappearance of the conscious personality and turn the feelings and thoughts of the multitude in the same new direction (LeBon 1926) nor is their simultaneous presence on the same spot indispensable. Lebon uses psychological terms like contagion, loss of individuality and regression to a more primitive mental state to explain the behaviour of the masses.

Gustave LeBon further states that the action of contagion may be felt from a distance under the influence of events which give all minds an individual trend and the characteristics peculiar to crowds (LeBon 1926 p. 144). The individuals involved may never realize that they are gripped by some unforeseen force that resembles the whirlwind that starts from a focal point, builds itself and in so doing swallows whatever exists within its reach. From another perspective, Lebon describes contagion as a pebble ripple effect which affects everyone within the vicinity. It is infectious in that it causes all those within the particular location to act in unison and it is irresistible. The members act unconsciously uniformly.

Lebon divides contagion into two; mental contagion and behavioural contagion. According to him, under mental contagion, there is mental unity and temporary togetherness. People channel their mental energies towards a single source and this causes them to think and collectively act as one. Behavioural contagion seeps through a crowd in a centre-periphery style, that is, in a circular way. It occurs when, because of the nature of the circumstance, people's actions within a crowd appear solidly uniform because of the power of imitations that they have. Those who fail to conform and respond in a similar way with the rest cease to be members of that crowd.

Blumer (1935) gives a third type of contagion which is the emotional contagion. This type is based on empathy and collective defence of one another within a crowd and according to him, when the members are faced with the need to respond, they build emotional bridges across to one another and in the process they develop temporary affection for one another. The reasons for this being that; one, they perceive the crowd to be a dangerous place to be in and therefore they need one another. Secondly, the crowd action is spontaneously irritable and therefore the members need to rely on instinct observation of one another so as to ensure collective response.

Panic and hysteria are types of collective behaviour that increase the vulnerability of mass assemblies. According to Tishrer (1990), panic occurs when a group of people are compelled to engage in a frantic flight from a perceived danger. Lang & Lang (1973) gives five preconditions to the cause of panic which present panic as occurring out of the perception of the group rather than the reality. These preconditions are:

Threat to life: The people involved feel that their lives are threatened by the immediate circumstance and they perceive the threat to be beyond their ability and therefore resort to fleeing.

Shortage of escape routes: When the affected people are unable to access the escape routes or perceive the routes to be inadequate for their escape, they panic. In most cases, though adequate exit strategies may exist, panic blinds the crowd to their existence.

Lack of alternatives: When a crowd feels that the situation at hand leaves them no other alternative but to escape, then people panic and this limits them from realizing available alternatives due to the threat or danger at hand and disorganization of the crowd.

Breakdown in communication: As a result of the threat or danger at hand, there is usually no time for the crowd to engage in meaningful communication within the crowd. The immediacy of the danger allows people to revert to instinctive reactions as opposed to rational behaviour.

Immobility: The fear that comes with panic causes temporary paralysis and as a result of this, most people in the crowd get trampled on because of the inability to move. Fear numbs them.

As a consequence of panic, there is destruction, fatality, confusion, trauma and irrationality. These define the magnitude of the disaster that any panic event is likely to cause.

Hysteria on the other hand results when human beings are confronted with a source of fear, danger or frustration that is, in their view, overwhelming in nature. According to Zimbardo (1969), hysteria is the extended emotional outburst usually in response to a situation of difficulty. Bismark (1945) describes it as an infectious reaction shared by many people who, having found themselves together, suddenly realize that their situation is incomprehensible. Hysteria qualifies as a form of collective behaviour in the sense that it is easily imitated and it negatively affects those who are around the individual who was originally hysterical. Just like in the case of panic, the involved individuals' irrationality, confusion and destruction may result; and these determine the occurrence and impact of a disaster.

Mass assemblies involve large numbers of people with a common objective. The flow of people may be spontaneous and incidental as is seen in shopping malls, bus-stops, train-stations, stadiums and banking halls. On the other hand, they could be more structured and planned assemblies as is seen in church gatherings. Under these circumstances, they offer a breeding ground for both technological and terrorism hazards. Technological hazards are usually accidental - either through incompetence, poor planning, faulty equipment, bad weather, or some other mishap; usually with no intention of causing the hazard. Terrorism, on the other hand, infers an intentional act; some individual or group means to cause harm in order to further a political agenda, a social, economic or religious mission; or because they are delusional or misguided in some way. The acts used in terrorism attacks involve bombing, grenade attacks, chemical terrorism and kidnapping. Intentional hazards usually have humans as their ultimate targets. Unintentional or accidental hazards for example an electrical fault do not occur as a result of an organized activity that is designed to cause damage or injury. Whether a hazard is intentional or unintentional, the affected are likely to portray reactions of panic and hysteria which could aggravate the impact of the hazard.

For instance, when people gather for transport at a bus or train station in hundreds they form a crowd that is a potential target for an explosive attack by a terrorist. The mass makes them vulnerable to the hazard of terrorist attack. In the event that the attack actually happens, a sudden sensation of fear is likely to dominate them hence preventing them from logical thinking and instead replacing it with a fight or flee reaction resulting in mass panic. In such incidences, many injuries and even loss of life occur from the stampeding that may result as the people seek to flee the danger without much consideration of any other existing options.

Churches or religious gatherings attract masses of people from all walks of life. These gatherings are held in permanent structures, semi-permanent structures or open air venues. They are characterised by different modes of worship, which include music, prayer and preaching. The worshippers in some churches get carried away in the loud music and also pray with their eyes closed thus cutting off any connection with the 'world' around them. This in itself renders them vulnerable in the event of a disaster.

An understanding of the impact of the people's reaction to hazards in mass assemblies is crucial in disaster preparedness and mitigation.

1.1 Problem Statement

Vulnerability of church assemblies to disasters has been exposed by the grenade attacks that have been experienced in churches in Kenya since the entry of the Kenya Defence Forces into Somalia in October 2011, in pursuit of the Al Shabab militant group. The church like any other population in the world is not immune to disasters resulting from hazards like public violence, terrorism, chemical explosions, transportation accidents, hazardous waste spills, fires, floods, earthquakes, thunderstorms or hurricanes.

In December 2004, the South Asian Tsunami damaged Catholic and Pentecostal churches in Tamil Nadu in India. Cyclone Nargis of 2008 hit many Baptist churches in Myanmar. An earthquake that struck Port-au-Prince in Haiti in January 2010 badly damaged churches located on its way (Crooks& Mouradian 2011).

In December 2011, a Muslim sect in Nigeria, the Boko Haram claimed responsibility for a series of bombings which occurred on Christmas day church services in Northern Nigeria where bomb

blasts and shootings at churches in Madalla, Jos, Gadaka and Damaturu left a total of 41 people dead. In the city of Potiskum, Yobe in the north east of Nigeria armed men shot at least 6 church-goers. Afterwards the church was set on fire. On Easter day church services of 8th April 2012, a bombing occurred in Kaduna city, Nigeria killing at least 39 people (Liolio 2012)

According to Bosire (2012) attacks to religious gatherings in Kenya in 2012 and 2013 has been as follows:

On 5th November 2011, two grenades were hurled at the East African Pentecostal Church in Garissa town killing two people. Five others are injured.

On 31st March 2012 at least one person was killed and 18 wounded in two attacks targeting church gathering in Mtwapa and a restaurant in Mombasa.

On 29th April 2012 a grenade attack in God's House of Miracle Church in Nairobi killed one person and injured 15 others.

On 1st July 2012, masked gunmen hurled grenades and fired bullets at worshippers who had gathered for prayer at the African Inland Church and the Catholic Cathedral in Garissa. These attacks killed 17 people and injured more than 60 others.

On 30th September 2012, a suspected grenade attack killed one child and wounded nine others at the Anglican Saint Polycarp Church in Nairobi.

On November 4th 2012 a grenade attack at Utawala Interdenominational church inside a police camp in Garissa led to the death of one person and 13 others wounded.
On 5th December 2012 a roadside bomb near a mosque in Eastleigh, Nairobi Killed one person and injured 8 others.

On 7th December 2012, a grenade was hurled into a crowd of worshippers leaving the Hidaya Mosque in Eastleigh, Nairobi killing five people.

On 23rdMarch, 2014, six worshippers were killed by gunmen who burst in through the church's back door and opened fire on the congregation in a church in Mombasa.

According to the International Religious Freedom Report (2010), Kenya is a predominantly religious country. Approximately 80 percent of the population is Christian and 11 percent is Muslim. Groups that constitute less than 1 percent of the population include Hindus, Sikhs, and Bahais. The remainder follows various indigenous religions. Among Christians, 58 percent are Protestant and 42 percent are Catholic.

The church is considered by Christians as a safe haven. This is because it is in the church that they congregate to worship God who in the Christian faith is all powerful and therefore able to protect them from harm and as such they feel safe in places of worship. It is probably this belief that has seen the omission of teaching of disaster management in seminaries and Bible schoolsand yet those who graduate from these institutions serve in leadership and policy making positions in the different churches. The members of their churches look up to them as well as to the government for help and direction in the event of a disaster (Bulmer & Hansford 2009).

The history of recent disasters shows the need for churches to address the reasons why their congregants are vulnerable to disasters. It also shows the need to educate, train and prepare the church leaders and also the congregants on how to identify threats and hazards in order to develop specific plans for management of any resultant disasters.

People tend to panic and get hysterical when faced by a threat which they did not expect or were unaware of and which they lack knowledge of how respond to. This study therefore sought to find out if the religious leaders and the church goers were aware of the threats that surrounded their churches. It also sought to establish if they had knowledge about the likely hazards to their mass assembly and how to respond to such hazards. The study also assessed the contingency measures that the churches had put in place in response preparedness for the likely hazards with an aim of recommending practical strategies towards risk reduction and disaster mitigation in the churches.

1.2 Research Questions

The research was guided by the following questions:

1. Are the church leaders and members aware of the threats that surround their church assembly and of the consequences of these threats?

2. What knowledge do the church leaders and members have of the likely hazards in a church assembly and on the response to these hazards?

3. What contingency measures have the churches put in place in response preparedness for the likely hazards?

1.3 Objectives

1.3.1 General Objective

This research seeks to establish the extent to which disaster management has been incorporated in places of church assemblies.

1.3.2 Specific Objectives

1. To find out if the church leaders and members of the selected churches in Nairobi are aware of the threats which surround their church assembly and the consequences of these threats.
2. To establish the knowledge that church leaders and members of the selected churches in Nairobi, have of the likely hazards in a church assembly and the response to these hazards.
3. To assess the contingency measures which the selected churches in Nairobi have put in place in response preparedness for the likely hazards.

1.4 Scope and Limitations of Study

The researcher sought to find out if the church leaders and members were aware of the threats surrounding their churches which presented a possibility for panic and hysteria should a trigger event occur.

By interviewing the church leaders and members of the congregations, the researcher sought to establish how well informed they were of the threats surrounding their churches and their own vulnerability as a mass assembly which increased the probability of emergencies in their places of worship. The researcher sought to establish if the members of the congregation appreciated their role in mitigation and response alongside their belief in the role of the supernatural power in averting occurrence of disasters.

The researcher also sought to establish how well equipped the church community was with knowledge on likely hazards to a church assembly and how to respond to these hazards should they be triggered.

In this study, the researcher sought to examine the physical locations of the worship assemblies, the type of structures that is, nature of the buildings whether permanent, semi-permanent or open spaces where congregants gather, the sitting arrangements and ventilations provided. The researcher also looked into the typology of the congregants in terms of age, literacy levels and physical abilities.

The researcher sought to establish if there were contingency plans in place in the churches that would be helpful in mitigating and responding to the likely hazards in a mass assembly. The researcher sought to find out if there existed designated trained personnel and response teams in the churches that would offer help in the event of an emergency. The structures that exist such as first-aid units and their contents, counseling units and the established referral systems to medical facilities were also studied.

The study was limited to churches within the city of Nairobi which has been a focus of terrorist activities targeting populated places like churches and bus-stops. The choice of Nairobi was based on the fact that it is a densely populated city which hosts a large number of places of worship where worshippers gather every week. Specifically, the study was limited to the main church gatherings held on Sundays by the selected churches as these tended to have large numbers of congregants. The researcher limited the study to the main leaders of the selected churches and congregants of these churches.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Mass Assemblies as a Common Experience

In the modern society, mass assemblies are a frequent occurrence. Events like entertainment, sports and religious meetings bring together crowds and usually these crowds occur without any serious problems. Occasionally however, trigger factors may cause disasters to occur amongst these mass gatherings due to a combination of many factors like inadequate facilities, deficient crowd management and poor planning (Fruin 2002).

2.1 Global Perspective

Disasters related to Mass assemblies presents similar trends of common features associated with crowd safety. Failure in both design and management are not unique. According to Still (2013), crowd "mis-behaviour" is not always the primary cause of accidents and incidents but one of the common factors is the inappropriate utilization of space. Usually, deaths and injuries occurring in mass assemblies are due to compressive asphyxia. Compressive asphyxia has occurred from people being stacked up vertically, one on top of the other, or the horizontal pushing and leaning forces. The pushing that occur impact force and this has an effect on the people leaning against each other. Horizontal forces sufficient to cause compressive asphyxia would be more dynamic as people push off against each other to obtain breathing space. According to Still (2013) some of the worst incidences recorded globally include the following:

Lima, Peru: On 24th May 1964, three hundred and eighteen people were killed and another five hundred injured in riots at the National Stadium after Argentina beat Peru in an Olympic qualifying match. People in the stadium were angered by the referee's action of disallowing a goal and a handful of the people rushed onto the pitch. Police panicked and fired tear gas directly

into the stands and this triggered an automatic panic reaction by the people fleeing the effects of the tear gas. The gates were locked and police tried to force the people to go back and this resulted in a stampede.

Glasgow, Scotland: On 2nd January 1971, sixty six people were killed and one hundred and forty injured when barriers in Ibrox Stadium collapsed near the end of a match as fans crushed along a down stairway. There were moans and shouts for people to stop pushing as others tumbled over the top of others leading to the deaths and injuries reported.

Manila, Phillipines: On 4th February 2006, a stampede at a stadium in Manila killed seventy nine people who were scrambling for tickets for a popular Philippine television game show, most of whom were elderly women who were either crushed to death against a closed steel gate at the bottom of a slope or trampled underfoot.

Pakistan: In April 2001, at least thirty six Muslim pilgrims were crushed to death and approximately 150 obtained crowd crush injuries in a crowd of approximately 100,000 people. The worshipers were waiting to partake in an annual religious ceremony at a shrine in Pak Patten. There was a delay in opening the door and this kept the pilgrims waiting for three hours. Once the door opened worshippers surged forward and many were crushed or trampled on. A narrow street that funneled the worshipers into the shrine and poor crowd management led to the disaster.

2.2 African Continent Perspective

The African Continent too has had its own experiences of disasters occurring in mass assemblies. On 9th May,2001, a stampede occurred in Ghana, West Africa at a packed soccer match between Ghana's leading soccer teams killing at least 100 people. The stadium with a seat capacity of

40,000 was packed to capacity. The stampede occurred five minutes to the end of the game when supporters of one team began throwing bottles and chairs onto the field. Police fired tear gas creating panic in the stands. The police action was an attempt to disperse the crowd which had become unruly but instead had a counter-effect; a stampede occurred as people attempted to escape both the tear gas and the conflicting supporters and they ended up suffocating or getting crushed underfoot in the ensuing rush. The stadium gates were locked and this made it difficult for people to get out of the way of the stampede. The architecture of the stadium was an impediment to the exit efforts of the fans hence the disaster. The Stadium had too many metal barricades, wires and barriers for people to get out (Still 2013).

Cairo, Egypt: On 19th March 2012, at least three people suffocated as thousands of Coptic Christians packed an Egyptian Cathedral to mourn the death of their church leader; Pope Shenouda III. Tearful Christians crushed past the Cathedral's gate to get a glimpse of the deceased and within an hour of the announcement of his death, traffic was jammed for kilometers leading to the Cathedral (Still 2013).

2.3Kenyan Experience

In July 1991, one fan was killed and twenty four others injured in a stampede during an African Nations Cup qualifier between Kenya and Mozambique (football safety 1997)

On 24th October 2010, a stampede at a soccer game at the Nyayo National Stadium killed at least seven fans and injured several others after a group without tickets tried to storm through the stadium entrance. This group piled in one gate. It was raining heavily and they found a gate with a weak structure which they pushed through. Others waiting at the gate with tickets were caught up in the rush (Menya 2010).

In 2007, a grenade was hurled at a Christian open air prayer meeting at Uhuru Park which resulted in injuries and deaths.

In all these events, the theme of panic and hysterical reactions secondary to poor crowd management, inadequate facilities and poor planning run through. An understanding of panic and hysteria by the church leaders is crucial for consideration in their disaster management plans for their church congregations.

2.4 Panic

Bismarck (1945) defines panic as a spontaneous reaction by a collectivity of people confronted with a situation for which they lack a standard response and therefore create their own. Tishrer (1990) describes panic as what occurs when a group of people are compelled to engage in frantic flight from perceived danger.

According to the American Psychiatric Association DSM-IV (1994) criteria, panic is "a discrete period of intense fear or discomfort that is accompanied by at least 4 of 13 somatic or cognitive symptoms...often accompanied by a sense of imminent danger or impending doom and an urge to escape...or desire to flee from wherever the attack is occurring" (APA, 1994: 304 – 403). The symptoms listed are:

i. palpitations, pounding heart, or accelerated heart rate
ii. sweating
iii. trembling or shaking
iv. sensations of shortness of breath or smothering
v. feeling of choking
vi. chest pain or discomfort

vii. nausea or abdominal distress

viii. feeling dizzy, unsteady, lightheaded, or faint

ix. derealization (feelings of unreality) or depersonalization (being detached from oneself)

x. fear of losing control or going crazy

xi. fear of dying

xii. paresthesias (numbness or tingling sensations)

xiii. chills or hot flushes

The natural role of the anxiety leading to panic appears to be to guide us toward immediate evasive action, be it flight or fight. Panic ensues when we are unable to formulate an effective evasive action, we choose the wrong evasive action, the evasive action is ineffective, or the evasive action goes terribly wrong in ways we do not understand.

There exists a general assumption that people react so strongly that they will sacrifice others to save themselves; that they become overly frightened and then overreact in ways that hurt themselves or others However, this image of panic makes a necessary link between fear and reckless action with a measure of selfishness thrown in. Contrary to this assumption, such behavior does not happen as often as it is assumed to happen (Clarke 2002).

In the event that panic occurs, the consequences include:

Destruction: There is always disregard to the value of the things within the vicinity

Fatality: There will be injuries or deaths as a result of people fainting, and the stampede that may accompany the incident

Confusion: Panic degenerates into total confusion during and after the incident.

Trauma: Those involved suffer from either emotional or mental trauma as panic corrupts the brain into negativity and causes the individual to become jumpy and irritable

Irrationality: Panic reverses the ability of the brain to function optimumly hence the irrational behavior witnessed.

However, research on how people respond to extreme events done by the Disaster Research Centre, University of Delaware showed that people rarely lose control. When the ground shakes, sometimes homes crumble or fires rage, people do not run screaming in a wild attempt to escape the terror even though they are undoubtedly feeling terror. They instead bind together in the aftermath of disasters working together to save life. That people in great peril usually help others, even strangers seems to contradict common sense. It also contradicts the idea that people are naturally self-interested or self regarding since they act altruistically when their very lives are at stake; acting irrationally by going against what is in their best interests.

People are naturally social, and calamities often strengthen social bonds. This means that the stereotypic panic reactions never happen. Individuals do experience feelings of uncontrollable dread. According to the American Psychological Association, one out of every seventy five people might suffer a panic attack which is an overwhelming sense of fear that is out of proportion to a perceived threat or to no threat at all. Research on how people respond to life-threatening disasters and the stories from the world trade centre show that people handle even the most terrifying news civilly and cooperatively. It is important to engage the public as partners in recovery rather than as an item to be handled (Clarke 2002).

2.5 Hysteria

Hysteria is a controversial and outdated term, the meaning of which has been adapted and changed over time. It is a form of collective behavior that is easily imitated and negatively affects those who are around the person who was originally hysterical.

According to Zimbardo (1979), hysteria is the extended emotional outburst usually in response to a situation of difficulty.

Bismark (1945) defines it as an infectious reaction shared by many people who having found themselves together suddenly realize that their situation is incomprehensible.

The medical use of the term Hysteria has slowly been discontinued and it is no longer considered a diagnosable condition. There are however anumber of psychological ailments that have replaced the core ideas behind the original concept of Hysteria. While it has been established that the term Hysteria is out-dated and no longer used on a medical level, it is still commonly used in everyday conversation. We often hear about someone who was crying hysterically or has had a hysterical outburst.

In this sense of the word, hysteria is used to describe **extreme anxiety, outrage or anger and loss of self-control**. This is often seen after severe trauma, or during a moment of panic or extreme stress. Hysteria symptoms often resemble those of a panic attack as the individual is over-whelmed by a physical reaction that is triggered by an emotional event.

Mass hysteria is the term used to describe the occurrence of large scale outbreaks of strange or out of the ordinary behavior. This is a puzzling phenomenon that has perplexed physicians and psychologists alike. It is best described as emotional contagion, and masses of people have been

known to display the same physical and mental symptoms during or after an event. This is common in religious festivals, riots or sports matches where one individual often instigates a behavior and the rest of the group then mimics that person's behavior resulting in mass violence, excitement or outbreak of disease-like symptoms (without organic cause).

Mass hysteria is most common in small, close-knit communities, particularly if they are isolated. Enclosed areas such as schools, factories, and hospitals are typical settings. There are two main types of mass hysteria: Anxiety hysteria and Motor hysteria.

Anxiety hysteria is shorter in duration, typically lasting a day. Often, this type of mass hysteria begins with the complaint of a single member of the group of something like an odd smell in the room. Others pick up on a perceived threat and begin to exhibit psychosomatic symptoms. Motor hysteria on the other hand is slower to manifest than anxiety hysteria, building gradually over a few days or weeks, but can take weeks or months to subside.

With a mass event, hysteria treatment involves separating the individuals. Once the group is dispersed or the truth of the situation is revealed people quickly recover and in some cases people are left feeling totally bewildered that they acted so out of character.

2.6 Historical Lessons on Mass Gatherings

A review by Soomaro & Murray (2002) revealed that studies have been done on crowd variables that affect the level and types of medical need at mass gathering events but there is a gap in analyzing crowd disasters at mass gathering events that provide suggestions for event organizers, medical resource planners and emergency services including local hospital emergency

departments. They present the following five key themes for consideration in planning for mass gatherings so as to reduce morbidity and mortality and these apply to churches too:

2.6.1 Overcrowding and Crowd Control

Usually despite venue capacities being completely full, crowd members continue trying to gain access to the venue. This should be checked and regulated.

2.6.2 Event Access Points

Provision of adequate site access points for entry into or exit from the side both participants and the emergency response service providers like medical services, fire fighters services and other rescue or evacuation teams is a crucial structural component to an event venue. This promotes a unidirectional flow of the crowd members and also dramatically reduces the risk of crowd convergence that would hamper any mitigation efforts.

2.6.3 Fire Safety Measures

Fire disasters in mass gathering venues have similar attributes which need consideration. These include emergency exits made available at any planned event. These exits should be free from obstruction and functioning properly. Compliance to fire safety protocols including prevention of overcrowding of venues. Specific teams within a setup be allocated specific duties to perform in the event of a fire and regular fire drills conducted on the premises. Finally, a full site fire evacuation plan drawn.

2.6.4 Medical Preparedness

As a mitigation measure, provision of on site physician level medical care at mass gatherings according to Soomaro & Murray (2002) has been shown to significantly reduce the number of

patients requiring transport to hospital and therefore reducing the impact on the local medical facilities including ambulance services. Majority of non-disaster injuries and medical complaints at a mass gathering can be effectively treated on scene thus reducing the number of hospital referrals and patient presentation rates to the hospitals. When planning for a mass gathering event, local hospitals should be involved in healthcare provision not only on-site but also for their own planning of mass casualty events allowing for potential occurrence of disaster. For mass gatherings on larger scale such as Olympic Games, an assessment of terrorism risk might be necessary, with further medical provisions available during these planned events (Soomaro & Murray 2002).

2.6.5 Emergency Response

Emergency planning should take into consideration that emergency personnel on-site have adequate training and experience in utilizing appropriate triage methods and disaster medicine. According to Sanders et al the suggested response time frame should be as follows: Basic first aid within 4 minutes, Advanced Life Support within 8 minutes, Evacuation to a medical facility within 30 minutes.

2.7 Vulnerability

According to Davis & Wall (1992) a disaster happens when and only when a hazard impacts on vulnerability. This requires a trigger event on the hazards and because of the unsafe conditions in a given situation then a disaster occurs. A community may be vulnerable to a disaster for many years yet without the trigger event, no disaster is experienced. It is only when a hazard impacts on people who are vulnerable to that hazard that it becomes a disaster with an

accompanying loss of life and damage of property (Hai & Smyth 2012). Vulnerability therefore is key to a disaster occurrence.

Vulnerability can be defined as the degree to which a person, system or unit is likely to experience harm due to exposure to perturbations or stresses. It is a set of prevailing or consequential conditions which adversely affect a community's ability to prevent, mitigate, prepare for or respond to hazard events. These factors affect a community's ability (or inability) to absorb losses after disasters and to recover from the damage (Kasperson, et al. 2002).

According to Kasperson (2006) vulnerability refers to the long term factors which make victims susceptible to (hazards) or which affect their ability to respond to events. It precedes a disaster, impedes effective response to the disaster and contributes to the severity and impact of a disaster. This justifies an understanding of vulnerability of any subject in disaster management. It has two interacting forces: The external force which is exposure to shock, stress and risk and the internal force which is defenselessness or lack of means to cope.

Maskrey (1998) classifies vulnerability into different categories which include physical vulnerability, technical vulnerability, economic vulnerability, environmental vulnerability, political vulnerability and cultural vulnerability. Some of the causes of vulnerability are:

Negligence by the relevant authorities: Despite being charged with the responsibility, the authorities fail to act appropriately to mitigate the occurrence of likely disaster. It is also irresponsible for the authorities to fail to exchange technical information between departments especially in the use of early warning systems.

Centralization of decision making: When the organs within a given system are forced to wait for a central unit to give direction in case of a given trigger event, vulnerability is created and enhanced as it delays any interventions that could have averted a disaster altogether.

Bureaucratic incompetence and Corruption leads to inadequate and unqualified personnel being charged with the responsibility of managing disasters and this compromises policy and decision making.

The effect of vulnerability is the loss that comes in the event of a disaster. Usually the aftermath is loss of life, property, occupation/jobs and productivity and all this impacts negatively on a country's economy. Some of the predisposing factors to vulnerability are: lack of information, absence of choice, settlement patterns such as overcrowding, poor building materials, unstable earth.

The history of recent disasters has shown the importance of educating, training and preparing church congregations on how to respond to disasters in order to save lives. However, according to Bulmer & Hansford (2009) disaster management is not usually taught in seminaries or bible schools yet the members of these churches look up to their spiritual leaders as well as the local government for help and direction in times of disasters. This makes them vulnerable to disasters in the event of trigger events. There is need for the church leaders to have knowledge and skills to help them respond in times of disaster occurrences. The church usually have strong sub-groups which if well equipped with knowledge and skills could be used to raise awareness of risks and bring communities together in making mitigation plans and risk reduction (Bulmer & Hansford 2009).

2.8 Risk

Hazard and vulnerability interact together to create risk (Kasperson & Pijwaka 2002). Risk implies the potential of causing losses due to the presence of the threat and vulnerability. It is derived from the analysis of a threat and corresponding vulnerability along with the probability of the interaction. According to Kasperson & Pijwaka (2002), risk is different from hazard in that risk may be thought of as the probability that a particular activity or technology will lead to a specified consequence over time and activity unit. Risk is the result of hazard and vulnerability.

2.9 Fist Model

According to Fruin (2002) the FIST model clearly illustrates the characteristics of mass assemblies and is helpful in developing guidelines for the prevention of mass assembly disasters. FIST stands for Force, Information, Space and Time.

Force: This means understanding the force exerted by the crowd

Information: Having an updated information upon which the crowd in question acts

Space: Understanding the physical space occupied by the crowd in terms of individual density and on a wider scale the architectural features

Time: Understanding the duration of the incident.

Real time information and communication are key factors in preventing mass disasters and Fruin (2002) recommends formal certification of crowd managers for venues of over 500 persons.

Soomaro & Murray (2002) asserts that careful assessment of mass gathering events as a whole would make it possible to plan ahead for the potential number of attendees, consider health and safety aspects of planning for a mass gathering, plan for potential disasters, decrease the risk of

their happening and provide a more effective allocation of health resources. Key considerations that could impact on health and safety include:

Health Planning:

- Preplanning for the mass gathering events and should include health management and major incident planning.
- Adequate crowd security and emergency medical services be provided taking into account the crowd size, event type and external environmental conditions
- Emergency Medical Services with adequate training and experience. Pre-planning with local hospitals will aid the emergency response.

Communication planning:

- Training of stewards and security staff in crowd control
- An adequate space to limit overcrowding
- A functioning and adequate public address system
- Specified entrance and exit points to an event to help ensure a unidirectional flow of the crowd

Evacuation Plan:

- Evacuation plans including fire safety should be available. Exit routes should be clear and free from obstruction.
- Every mass gathering event should have a major incident and mass casualty plan which should be activated in the event of a disaster.

2.10 Theoretical Framework

A theory makes sense of a disturbing situation so as to bring about favourable change (Abraham 1992). The following theories explain the concept of mass assemblies; what causes them to be and their vulnerability to disasters. This is key in establishing contingency plans towards mitigating impacts of possible disasters resulting from panic and hysterical reactions in mass assemblies.

2.10.1 Informational Influence Theory

This is one of the group polarization theories which refers to the influence that results from accepting evidence about reality provided by other people. When placed in group situations, people will make decisions and form opinions to more of an extreme than when they are in individual situations. This is group polarization. The phenomenon holds that a group's attitude towards a situation may change in the sense that the individuals' initial attitudes have strengthened and intensified after group discussion. This phenomenon has shown that after participating in a discussion group, members tend to advocate more extreme positions and call for riskier courses of action than individuals who did not participate in any such discussion. Discussion among like-minded individuals tends to increase and intensify pre-existing attitudes, thereby demonstrating group polarization (Myers & Bishop 1970). Group polarization helps to explain group behavior in a variety of real-life situations for example terrorism, public policy and violence. According to McCauley & Segal (1987), the rise of terrorist organizations is partly dependent on group polarization. That is, when likeminded anti-government individuals converse together, and without other moderating voices, they come to extreme positions.

In a study conducted by Sia et al. (2002), group polarization was found to occur with online computer-mediated discussions. In particular, this study found that group discussions, conducted when discussants are in a distributed (cannot see one another) or anonymous (cannot identify one another) environment, can lead to even higher levels of group polarization compared to traditional meetings (Sia et al 2002).

Social media outlets such as the Facebook demonstrate that group polarization can occur even when a group is not physically together as long as the group of individuals begins with the same fundamental opinion on a topic and a consistent dialogue kept going; a strategy used by terrorists today. An analysis by Sarita & Boyd (2010) on twitter among pro-life and pro-choice advocates post a shooting incidence found that like-minded individuals strengthen group identity whereas replies between different-minded individuals reinforce a split in affiliation. This showed that people will group together based on opinions and polarize in one direction no matter what their location is.

According to Stoner (1961) risky-shift is one of the attitudes that become more extreme in groups. This refers to the concept that a group's decisions are riskier than the average of the individual decisions of members before the group met. A study by Luhan, Kocher & Sutter (2009) found that team decisions are more selfish and competitive, less trusting and less altruistic than individual decisions and that the actions of individuals when in a group are more extreme than when the individual acted individually (Luhan et al 2009).

Group polarization has been reported to occur during war time and other times of conflict. When there is a feud, individuals with the same viewpoint or on the same side, unite and share information; creating a heterogeneous group (Sunstein 2002). During a time of conflict, it is not

normal practice for an individual to mingle with the enemy. When individuals with the same views spend all of their time together, their viewpoints become stronger and more extreme (Sunstein 2002). Group polarization help in explaining violent behavior as it is evident in situations such as terrorist attacks and gang violence. While polarization can occur in any type of conflict, it has its most damaging effects in large-scale inter-group, public policy, and international conflicts.

According to Myers and Arenson (1972), group discussion does not always result in riskier decision making, however, the individuals original position becomes more extreme and confident after hearing the opinions of others and learning new arguments in favor of their opinion resulting in group polarization. Hinsz and Davis (1984) asserts that it is not simply the sharing of information that is important but the amount of information and persuasiveness of the arguments that mediate the level of polarization experienced.

2.10.2 Contagion Theory

According to Gustave Le Bon (1895), crowds are influenced by the process of contagion. Contagion refers to a process by which irrational and violent feelings can spread through the members of a crowd. Le Bon asserts that crowds are primitive and irrational. He states that because the individual members of the crowd become submerged within the mass present, they develop a sense of anonymity while they lose their sense of responsibility. He says that crowds are inherently susceptible to suggestion and thus it is easy for the crowd leader to unlock the ancestral savagery and have the crowd act in violent ways. He classifies crowds in to three stages; Submergence, Contagion and Suggestion.

Submergence: During this stage, the individuals in the crowd lose their sense of individual self and personal responsibility. This is heavily induced by the anonymity of the crowd. In his view, affect is capable of spreading between "submerged" individuals like a disease.

Contagion: This refers to the propensity for individuals in a crowd to follow the predominant ideas and emotions of the crowd unquestioningly.

Suggestion: This is the period in which the ideas and emotions of the crowd are primarily drawn from a shared racial unconscious. This behavior comes from an archaic shared unconscious and is therefore uncivilized in nature and is limited by the moral and cognitive abilities of the least capable members. In his view, crowds could be a powerful force only for destruction.

Le Bon outlines several characteristics of crowd psychology such as, impulsiveness, irritability, incapacity to reason, absence of judgment of the critical spirit and exaggeration of sentiments. He claims that an individual immersed for some length of time in a crowd finds himself either in consequence of magnetic influence given out by the crowd or from some other cause of which we are ignorant which much resembles the state of fascination in which the hypnotized individual finds himself in the hands of the hypnotizer.

2.10.3 Social Identity Theory

According to this theory, the self is a complex system that is made up of primarily the concept of membership or non-membership in various social groups. These groups have various moral and behavioral values and norms, and the individual's actions depend on which group membership or non-membership is most personally salient at the time of action. This influence is evidenced by findings that when the stated purpose and values of a group changes, the values and motives of its members are also shown to change. According to this theory, mass assemblies

are an amalgam of individuals, all of whom belong to various conflicting groups. If the assembly however is primarily related to some identifiable group like Christians, activists or even sports fans, then the values of that group will dictate the crowd action. In assemblies which are more ambiguous, individuals will assume a new social identity as a member of the crowd. The group membership is made more salient by confrontation with other groups for example a rival team's fans or police.

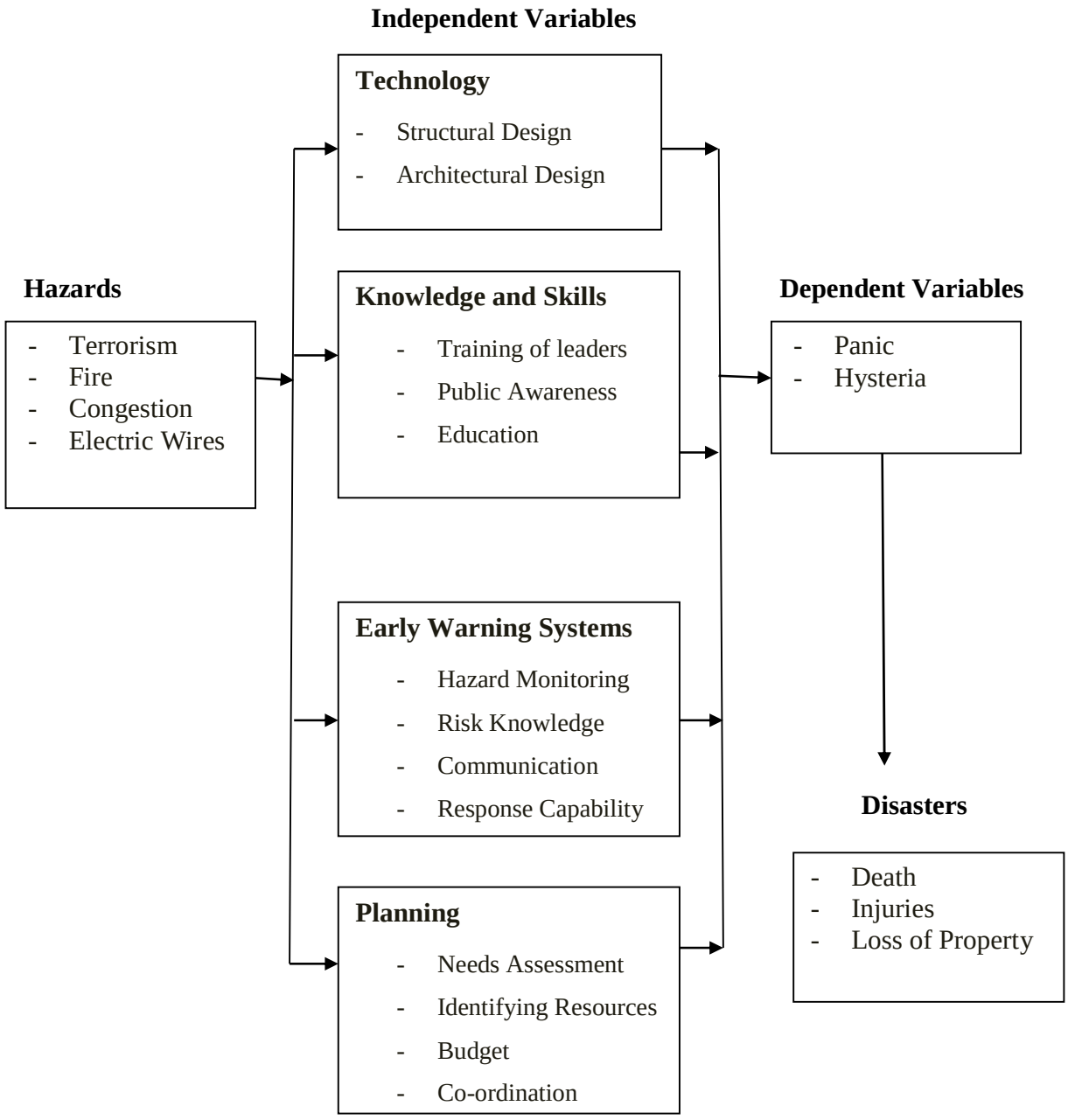
The group identity serves to create a set of standards for behavior. For some groups violence is legitimate while for others it is unacceptable. This standard is formed on the basis of stated values but also from the actions of others in the crowd. Sometimes it is formed from a few in leadership-type positions.

2.11 Conclusion

It only takes one or two people to trip in a high density, moving crowd and the consequences are disastrous. A combination of factors need to be countered by an appropriate design and management. The combination of a large crowd flow, a narrow enclosed space, limited entry and exit points is, without question, unsafe. Lack of planning, failing to anticipate the consequences of a trigger events and the effect this has on a crowd dynamic are the root causes of disasters and not the crowd behaviour **(**Still 2013).

2.12 CONCEPTUAL FRAMEWORK

The study examined the hazards likely to lead to a disaster in a mass assembly should they be triggered and the underlying factors that increase the vulnerability of the church assembly hence facilitating the occurrence of a disaster. The dependent variable being panic and hysteria while the independent variables being those influencing the dependent variables.



CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Research Design

Research design guides in collecting, analyzing and interpreting data. The research design for this study is descriptive study and it describes the characteristics of the mass assemblies with regard to disaster management in six churches within the city of Nairobi. In the study, the awareness, knowledge and abilities of the church leaders and members with regard to disaster management was studied. Their awareness of existing hazards in the churches and readiness to respond was also examined in this study.

3.1 Site Description

This study was carried out in Nairobi city which is in the county of Nairobi and also the capital city of Kenya. Nairobi has an estimated population of about 3,138,369 million and a growth rate of 6.9 percent according to the 2009 census. It is a commercial city whose trade includes Kenya's main manufacturing industries and tourism. It is also characterized by several institutions of higher learning which include universities and commercial colleges. Within the city of Nairobi there are four major open areas for mass assemblies. These are Uhuru Park, Nyayo National Stadium, City Stadium and the Kasarani Sports Complex. Uhuru Park is a 12.9 hectare recreational park near the central business district of the city of Nairobi. It was opened to the general public on 23rd Mary 1969. The assembly ground is used for occasional political and religious gatherings.

Nyayo Stadium has a sitting capacity of 30,000 and is conveniently located along the Uhuru Highway making it easily accessible from the central business district. It has played host to

major corporate, social and political events including various musical concerts and sporting events.

Nairobi City Stadium is a multi-purpose stadium located east of the Nairobi city centre. It was originally known as African Stadium and was later renamed to Donholm Road Stadium and after Kenya gained independence in 1963 it was renamed Jogoo Road Stadium and which was finally changed to Nairobi City Stadium. It is used mostly for football matches and has a capacity of 15,000 people.

Moi International Sports Centre in Kasarani is a multipurpose stadium built in 1987 for the All-Africa Games held in Nairobi. It has several components; Kasarani stadium which is the football stadium with a capacity of 60,000 people. Kasarani Indoor Arena and gymnasium with a capacity of 5,000, Kasarani Aquatic Complex and the Stadion Hotel with a 200 seater restaurant, 60 seater grillroom and a 400 seater multipurpose ballroom.

Religious gatherings and conventions are assembled in these stadiums from time to time for either a one-day service or a whole week's meeting. As a result of the high population, the number of churches too has grown in the city of Nairobi and this is evident in the multiple churches one sees around the city centre and the estates. Some of the churches hire entertainment joints like cinema halls and hotel meeting rooms for their church services.

Due to the high population, certain areas of the city centre are characterized by masses of people and these include the streets especially towards the eastern part of the city, the main bus-stops; Kencom, Ambassador, Fire station, the Railway station and the Bus station. During the peak hours both in the morning as people go to work and evening as people leave for home, these bus

stops are heavily crowded and occasionally a street preacher targeting the crowds at these bus-stops presents there.

This study was conducted in six churches within the city as follows: St. Peter Claver Catholic Churchnear Nairobi Bus Station, Divine Mercy Catholic Church Kariobangi South, Deliverance Church Umoja, St. John's ACK Church Pumwani, House of Grace Rongai and Pentichrist Church Kariobangi South.

The members of these churches include both male and female and are unlimited in age as children, young people and adults of all ages are found in these churches. The leaders form part of the administration team under which the policy making falls and in this case, they were better placed to give information on disaster management as a policy issue in their churches.

3.2 Sampling Procedure

Non probability sampling was used to obtain the sample for this study. There are numerous churches located within the city centre and the estates surrounding the city of Nairobi. The study covered both mainstream and Pentecostal churches in Nairobi. Specifically, the researcher targeted church leaders since they are involved in policy making for their churches and also church members who form the mass assembly in their churches hence were better placed to provide the required information for this study.

In this regard, purposive and quota sampling methods were found to be most ideal. Purposive sampling method was used to select the 6 churches and it is from these churches that the 6 leaders were obtained. The selection of 6 churches was informed by the assumption that disaster preparedness is a policy issue and should be uniform in all the churches because their gatherings are one form of mass assemblies. Quota sampling method was used to select 24 members from

each church with an exception of one church where 25 members were selected thus giving a total of 145 members and a total sample size of 151 participants.

The selection of the churches was based on:

i) Population: The high population in the city of Nairobi increases the vulnerability of the residents.

ii) Infrastructure was another factor that was considered in selecting churches within the city of Nairobi. Under infrastructure, factors considered were the accessibility to the road. Due to the high population and the narrow roads at times poorly maintained, accessibility to these areas in times of a disaster poses a challenge due to the traffic jams that characterize the roads.

iii) Exact location: Some of the churches are located within the residential areas and this adds to their vulnerability in terms of enhancing safety and security for the church members.

iv) The church structures that is; whether permanent or semi-permanent.

The selection of the members was based on the following characteristics;

i) Gender: each church is composed of both male and female members. In all the selected churches however, the leaders were only male.

ii) Age of the respondents. Those selected were all above 18 years of age.

iii) The literacy levels were considered in selecting the respondents as all the church members have different literacy levels.

iv) Physical disabilities. Within the church assemblies there are physically challenged people and this was also considered in identifying the respondents in the study.

v) Role played. The church member's role was also considered in selecting the respondents based on the assumption that in a mass gathering, the crowd looks up to a leader to give direction. The study sought to establish how well informed those holding special roles in the church were in matters of disaster management.

Names of the Churches and Number of Respondents Sampled from each Church

No.	Name of the Church	No. of respondents Leaders	No. of Respondents Members	Total
1	St. Peter Claver Church	1	24	25
2.	Divine Mercy Church	1	24	25
3.	Deliverance Church	1	24	25
4.	St. John's ACK Pumwani	1	25	26
5.	House of Grace Church	1	24	25
6.	Pentichrist Church	1	24	25
	Total	6	145	151

3.3 Methods of Data Collection

This study used interview and observation methods for purposes of data collection:

3.3.1 Interview Method

Through interviews, the study sought to establish the awareness of existing hazards in the churches and assess the knowledge on the management of hysteria and panic in the mass assembly of the congregations. Six church leaders from each of the 6 identified churches were interviewed using an interview schedule. Since disaster management is a policy issue which

involves the administrators of the churches, the church leaders were better placed to give information on the same.

3.3.2. Observation

By using this method, the church structures and other assembly areas were observed to capture the structural designs including the entry and exit points. The availability and set up of response aids like fire extinguishers, first aid kits, and emergency rooms were observed.

3.4 Tools of Data Collection

The interview schedule was administered to the 6 church leaders purposively selected. It included both open-ended and close-ended questions. For the 145 church members purposively selected for this study, an interview schedule was also administered to them in order to establish their awareness and knowledge on disaster preparedness in their church.

3.5 Sources of Data

Primary and secondary sources of data were used in this study. Primary data was obtained from interviewing the church leaders and the congregants drawn from 6 churches and also observed by the researcher. Secondary data was obtained from published materials, journals and internet sources.

3.6 Unit of Observation

The study focused on church leaders from the sampled six churches within the city of Nairobi and members of their churches.

3.7 Unit of Analysis

The study sought to assess the vulnerability of the churches by establishing the awareness of hazards, knowledge of hazards posed by mass assemblies that could result to panic and hysteria and the contingency measures put in place in the churches.

3.8 Data Collection Procedure

A visit prior to data collection was made to the study sites and permission sought from the relevant authority. A date was then set for the start of the interviews. Impromptu visits were made to the identified churches for purposes of observing the structures and flow of the people in and out of the churches.

3.9 Data Processing and Analysis

Responses to specific questions were summarized, coded and categorized using common themes and phrases relevant to the research questions. The statistical package for Social Sciences (SPSS) was used for data analysis and presentation in frequency tables.

3.10 Ethical Considerations

The researcher arranged for a meeting prior to the interview dates so as to notify the church leaders of the intended study and also to seek their consent for the same. By meeting the church leaders first, the researcher was able to reach the congregants with the permission of the church leaders. The researcher sought consent from each interviewee and promised to ensure confidentiality of the information given by the respondents.

CHAPTER 4: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0Introduction

This data was collected with the aim of establishing the extent to which disaster management has been incorporated in places of mass assemblies. The data was collected from church leaders and members from six churches within Nairobi. The churches selected are strategically located in highly populated zones of Nairobi.

4.1 Overview of the Churches

In the last three years, attacks on church assemblies have been witnessed in some parts of the country; specifically in Garissa, Nairobi and Mombasa. Lives were lost and people injured in these attacks which caught both the church leaders and members unaware. These experiences show that even the churches are vulnerable to disasters. This study examined the level of awareness and knowledge of the threats surrounding the churches by the leaders and members of the following six churches within Nairobi.

4.1.1 St. Peter Claver Catholic Church

The church is located along Racecourse Road and is in between the Nairobi Bus station and the OTC Bus stop in Nairobi. The activities surrounding the church include main bus-stops, markets and business premises. The church is squeezed in between roads adjacent to buildings and has very limited open space between the church and the roads. The church structure is a tall permanent building with five doors and windows above the lintel and is secured by a perimeter wall and only one gate. For purposes of this study, this church was coded as C1.

4.1.2 Divine Mercy Catholic Church Kariobangi South

This church is located within Kariobangi South estate and is surrounded by residential flats, a market and a school. The church structure is a permanent building with five doors and several windows that are secured with grills. Two of the doors exit to the backyard of the church and are permanently locked as they exit to the church boundary fence. For purposes of this study, this church was coded as C2.

4.1.3 Deliverance Church Umoja

This church is located within an estate and is surrounded by residential flats/houses, a school and is near a main road. The church which has ample open space was under construction at the time the researcher went for data collection. The structure under construction is however used for the church assemblies. At the time of this study, the structure had no fixed doors or windows and in their place were iron sheets that secured the structure. For purposes of this study, this church was coded as C3.

4.1.4 St. John's ACK Church Pumwani

Located within Majengo Slum, the church stands in between the slum and a city council estate. It has an ample compound and is surrounded by residential houses, and a school. It has one main door and two smaller side doors which remain open during the church services. For purposes of this study, this church was coded as C4.

4.1.5 House of Grace Rongai

This church is located in Rongai within a residential area, surrounded by homes and a road on one side. It is a permanent structure with only one main door and several windows secured with grills. The main door is used for both entry and exit. The church has a smaller exit door that is

used only in special circumstances. Otherwise it remains closed most of the time. There is ample space around the church. For purposes of this study, this church was coded as C5.

4.1.6 Pentichrist Church Kariobangi South

This is church located within Kariobangi South estate and is sandwiched between a bar and restaurant, shanties that house a number of garages and a main road. The church structure is a tent under which there are plastic chairs arranged hence no windows and doors as such but just an open area that is covered by the tent. There is limited space around the church as on all the three sides there are structures and then the road at the entrance of the church. For purposes of this study, this church was coded as C6.

4.2 Demographic Data

The study targeted church leaders and members from conveniently selected churches within the city of Nairobi. The church assembly comprises of people of all walks of life. In a church assembly, one is likely to find young and old people, male and female, able and physically challenged and people with different levels of education. Following the attacks witnessed in the churches in the last three years in Kenya, the vulnerability of all those present in a church assembly clearly presented. The researcher sought to gather demographic data of the respondents and the findings are stated below.

4.2.1 Gender

Gender imbalance in church attendance is a long standing issue in many countries and among the reasons given by scholars for this imbalance is the socialization of both males and female (Kaldor, 1987, 112-116). According to Kaldor (1987) boys are taught independence and self-reliance while girls are taught interdependence, obedience and responsibility for others and as

such girls are more predisposed to church involvement which features such behavior. However for this study, out of the 151 respondents 62.3 percent were male while 37.7 percent were female as indicated in the table below:

Table 1: Gender of the respondent

GENDER	NO. OF RESPONDENTS FROM EACH CHURCH						FREQ	PERCENTAGE
	C1	C2	C3	C4	C5	C6		
Male	15	16	14	16	16	17	94	62.3
Female	10	9	11	10	9	8	57	37.7
TOTAL	25	25	25	26	25	25	151	100

Even though practically there are more females attending church than males (Wright 2007), fewer women were willing to be interviewed on the subject under study which some of them described as scaring and technical. According to Wright (2007) weekly church attendance rates are consistently 7-10 percent higher for women than men, indicating that women Christians are more likely to attend church frequently than men. Ford (2012) further explains that women often prefer 'feel good' sentiments and shy away from confronting matters involving evil and this probably explains why more men than women were willing to be interviewed. In justifying why she would not wish to participate in the interview, one female respondent referred the researcher to her husband stating that since he was a man, he was better placed to respond to the questions in the study. It would appear that this reaction was informed by socialization of gender roles. Though both men and women are at risk in the event of any disaster, the perception and socialization of women leaves them ignorant of important safety issues hence increasing their vulnerability.

4.2.2 Age

Church attendance is a socially desirable behavior which attracts people across all ages. A study by Wright (2007) showed that church attendance among those aged 50 and above was higher as compared to those aged 50 and below and this according to that study was influenced by the fact that they were more decided in church going unlike the others. In this research however, the researcher found out that majority of the respondents fell in the ages between 18 and 59 as indicated in the table below:

Table 2: Age distribution of the respondents

AGE	NO. OF RESPONDENTS FROM EACH CHURCH						FREQ	PERCENTAGE
	C1	C2	C3	C4	C5	C6		
18-30	9	7	6	6	7	7	42	27.8
31-45	9	7	8	7	8	7	46	30.5
46-59	4	6	6	8	5	7	36	23.8
60+	3	5	5	5	5	4	27	17.9
TOTAL	**25**	**25**	**25**	**26**	**25**	**25**	**151**	**100**

The study was based in an urban set up which is characterized mainly by a working population and their nuclear families. Majority of the retired people at around the age of 60 opt to go back and settle in their rural homes hence the lower number of respondents within this age available for the interview in this research.

4.2.3 Levels of Education

Out of the 151 respondents, 20 percent indicated primary school education as their highest level of education, 28.3 percent indicated secondary school as their highest level, 29 percent had college level of education while 22.7 percent had university education as their highest level.

Table 3: Education levels of respondents

Education Level	RESPONDENTS FROM EACH CHURCH						FREQ	PERCENTAGE
	C1	C2	C3	C4	C4	C6		
Primary	6	4	4	5	5	5	29	20.0
Sec	8	7	7	5	5	9	41	28.3
College	6	7	9	8	7	7	42	29.0
University	5	7	5	8	8	4	33	22.7
TOTAL	**25**	**25**	**25**	**26**	**25**	**25**	**151**	**100**

From the data collected, all the respondents had some level of education with the majority indicating college as the highest level of education. Despite having been to school, the study revealed that respondents though aware of hazards surrounding them in their churches lacked adequate knowledge of response to the threats that faced them in their churches. This leaves the impression that the education system does not expose people to the knowledge of hazards like stampedes, fire, terrorist scares and attacks thus the people remain vulnerable to such hazards.

4.2.4 Physical ability

Physical ability is an important factor in disaster response. For purposes of this study, the physical ability refers to the basic abilities of an individual to move independently without relying on support because they can see, hear and walk on their own. The researcher sought to establish how many members of the churches under study were physically challenged and if there were any measures in place in the churches to cater for these persons. The findings were as follows:

Table 4: Physical abilities of the respondents

PHYSICAL ABILITIES	RESPONDENTS FROM EACH CHURCH						FREQ	PERCENT
	C1	C2	C3	C4	C5	C6		
People without Disabilities	23	22	25	23	24	25	142	94.0
People with Disabilities	2	3	0	3	1	0	9	6.0
TOTAL	**25**	**25**	**25**	**26**	**25**	**25**	**151**	**100**

The researcher found out that there were fewer people with disabilities (6 percent) attending the churches under study. According to a survey by the Kessler Foundation and the National Organization on Disability (2010) people with disabilities are significantly less likely than those without disabilities to attend religious services due to architectural, communications and attitudinal barriers which prevent people with disabilities from attending church services. Among the 9 respondents in this category, 2 were blind and they relied on others to get to their church. One of them had support from family members but the other one did not have any family around him and he depended on well wishes to get him in and out of the church.

The other 5 had disabilities of their legs, 3 of these persons used clutches to walk while 2 used walking sticks for support. There were 2 other respondents who had a disability of hands but were able move about independently and did not need support to enter or leave the church. There were able to locate comfortable sitting areas for themselves inside the church and had no challenge sitting and moving in and out of their seats.

The churches from where these physically challenged respondents came from did not have any special infrastructure for them. At the entrance there were stair cases to reach the church door. For the blind and those with disabilities of the legs, this posed a major challenge of movement. The seats in these churches were benches and identifying a convenient sitting space at either edge of the bench for ease of movement required help from other people. In the event of a disaster in the church, these people were more at risk because of their inabilities.

It might be helpful to have a sitting area with well spaced seats where people with disabilities would comfortably sit. This area should probably have an entrance and exit designed close to it for easy movement in and out of the church without obstruction.

The researcher noted that there were no special arrangements to address the needs of the people with disabilities in all the churches under study.

4.2.5 Duration of membership in the church

The researcher sought to establish the duration which the respondents had been members of their respective churches and also the duration that they had been at their current church station. This was considered by the researcher as an important indicator in this study as it informed the respondents' response in the interview. The findings are presented in the table below:

Table 5: Duration of membership in the church

YEARS	FREQUENCY	PERCENTAGE
0 – 5	28	18.5
6 – 9	51	33.8
10 and above	72	47.7
Total	151	100

Out of the 151 respondents, 28 percent had been members in their churches for 0 to 5 years, 51 percent had been members for 6 – 9 years and the highest number of 72 percent had been members for 10 and more years. The researcher found out that those participants who had been members of the different churches for a longer time (6 years and above) easily consented to participating in the research as compared to the new church members.

4.2.6 Duration in the current station

Movement from one church to another is a common phenomenon within the city since the churches have branches at different locations and people also tend to move from one estate to another for various reasons. For the respondents to be able to respond to the questions in this interview it was important for them to have been conversant with their current church station and

its surroundings. The study sought to establish the duration that they had been in their station and this is presented in the table below:

Table 6: Duration in the current church station

YEARS	DURATION IN CURRENT STATION	
	FREQUENCY	**PERCENTAGE**
0 – 5	91	60.3
6 – 9	21	13.9
10 and above	39	25.8
Total	**151**	**100**

The researcher found out that the highest number of the respondents (91 percent) had been at their current church station for 0 – 5 year. There were only 21 percent participants who had been at their current station for 6 – 9 years and 39 percent for 10 years and above. This indicates the high mobility within the church assemblies in the urban set up and hence the need for frequent education and awareness creation sessions within the churches.

4.3 Awareness of hazards surrounding the church

Hazards exist anywhere including the churches and as such the researcher sought to establish if the respondents were aware of the hazards that surrounded their churches. Usually, people regardless of their ages go through their day to day lives oblivious of these hazards probably out of familiarity with the surrounding. The basic assumption that the church is safe since all those going to the church are supposedly "good people" further suppresses the awareness of church goers. In order to establish the level of awareness of both the church leaders and members, the researcher sought to know the number of the respondents who were aware of the hazards surrounding their churches and those who were not. The respondents were asked to indicate if they were aware of the hazards or not and the findings were as follows:

Table 7: Number of members who were aware of hazards around their church

RESPONDENTS	AWARE		NOT AWARE	
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
MEMBERS	81	53.6	64	42.4
LEADERS	5	3.3	1	0.7
TOTAL	**86**	**56.9**	**65**	**43.1**

These findings show that out of the 151 respondents, 56.9 percent said they were aware of the hazards that surrounded their church. The remaining 43.1 percent indicated that they were not aware of any hazards surrounding their churches. Out of these 43.1 percent, 42.4 percent were church members while 0.7 percent represented one church leader who was not aware. This indicates that a significant part of the church going population is ignorant of the hazards in their church surroundings. They go about their church activities ignorant of the obvious hazards around them. Lack of awareness enhances the vulnerability of any community including the church.

Being able to recognize a threat is as important as responding to that threat. Disaster preparedness calls for awareness of existing threats in order to make the necessary plans for mitigation in the event that these are triggered. Awareness and education forums would be ideal for the churches in an effort to reduce their vulnerability to the possible threats.

4.3.1 List of hazards that they were aware of

After establishing if the respondents were aware or not of the hazards surrounding their churches, the researcher further asked them to list the hazards which they were aware of and also the reasons why they considered these as hazards. The findings were as follows:

Table 8: List of hazards and the reasons why they were considered as hazards

Hazards you are aware of	**Why you consider these as hazards**
Terrorism	Possible attacks to the congregation
Open sewer	Disease outbreaks and deaths
Dumping/poor Garbage disposal	Blocking the drainage system, hence increase of diseases within the community
Noise from loudspeakers, noisy vehicles	Negative impact on health – hearing and also poor communication
Fire	Loss of life
Live electric wires exposed to the public	Electrocution thus Loss of life
Electricity Poles/Transformer too close to the church building	Fire outbreaks as a result of electrical faults hence loss of life and property
Congestion	Suffocation, difficulties in offering intervention in case of a disaster
Proximity to a busy road without bumps: over-speeding vehicles	Increased accidents of hit and run incidents as people cross over to and from the church
Drugs/Alcohol abuse	Irrational behavior that could be destructive

The findings revealed that the respondents considered the listed hazards as such because of the loss that they associated to them; mainly loss of life, health and property.

4.3.2 Effects of the hazards on the congregation

The researcher sought to find out what the respondents thought would be the effect of the hazards on their congregation and asked them to list. The following effects were listed:

- Causalities which the church was not really prepared for
- Injuries and harm

- Loss of life
- Loss of property
- Loss of confidence in the church
- Turn away Christians hence low membership of the churches
- Anxiety, fear, and panic among the church members
- Communicable diseases
- Distraction during worship
- A general sense of insecurity

According to the Disaster crunch model, a disaster happens when and only when a hazard impacts on vulnerability. It is only when the hazards listed by the respondents impact on their vulnerability that a disaster could occur thus resulting in the destruction and loss of life and property as indicated in the effects listed above.

4.3.3 Actions which the church had taken so far to respond to the hazards

The researcher sought to find out if there was some action taken towards responding to the known hazards listed above and therefore asked the respondents to list down the ways that the church had responded to these hazards. The following actions were listed:

Table 9: Actions taken by the churches so far towards existing hazards

Existing Hazards	**Action taken so far**
Terrorism	In collaboration with the local authority and security agents, enhanced security checks and patrols in and around the churches
Open sewer	Informed the County Council of Nairobi
Dumping/poor Garbage disposal	Cleaning up the area around the church with the help of the church members and staff employed for the job. Collaboration with the county council workers responsible for that area
Noise: from loudspeakers, noisy vehicles	Prayer
Fire	None
Live electric wires exposed to the public	Informed the Kenya Power Authority
Electric Poles/Transformer too close to the church structure	Reported to the Kenya Power Authority
Congestion	None
Proximity to a busy road without bumps: over-speeding vehicles	None
Drugs/Alcohol abuse	Community awareness and education on the same

The researcher established that with the awareness of the existing hazards, some action had been taken to respond to some of these hazards as follows:

4.3.3.1 Terrorism

Terrorism is one of the hazards mentioned by the respondents. The respondents said that in response to this hazard, the churches were collaborating with the local authority and security

agents to enhance security checks and patrols in and around the churches. This is an effective action towards addressing the issue of terrorism because the church on its own may not achieve much on the same. By working in collaboration with the police, security firms and the church community itself the churches can minimize the likelihood of terrorist attacks in the churches. The security personnel would offer patrols in and around the churches to ensure no suspicious persons or items found their way into the church. Security firms would ensure that the entrance into the church is manned throughout and all entering the church are screened by trained and equipped security guards before entering the church compound. The church community also has a responsibility to keep an eye on any suspicious persons or items in and around the church and report immediately to the appropriate authority.

4.3.3.2 Environmental Hazards

The respondents pointed out environmental hazards like open sewers, dumping and poor garbage disposal. These hazards threaten the health of people around them. The respondents said that they would inform and collaborate with the department of the county council that deals with environmental matters.

> One Key informant said: “As a church, we have a social and welfare department that oversees that there is no dumping around the church and that the staff assigned with the duty of cleaning and garbage disposal keep the church and its environs clean. However, since there are staff employed by the County Council of Nairobi to clean up the area, we as a church also keep in touch with them to ensure that no garbage is disposed around the church.

The researcher established however that in one of the churches under study, there was some garbage near the church entrance. On enquiring what the church was doing about it, the respondent said that usually they wait for the county council staff to clear the garbage which is dumped often by unknown people. There was no initiative on the part of the church to address dumping which at times heaps up for days before it is cleaned up. This church had not considered the possibility of engaging its own cleaning team and also a team to oversee the stoppage of dumping near the church.

On open sewers, the researcher established that the churches under study relied on the city council department charged with maintenance. The researcher found out that the churches did not have the contacts of the Nairobi Water and Sewerage Company's call centre's Toll free No.0800720018 which they could call to report about burst or open sewers.

4.3.3.3 Fire

The researcher established that none of the churches had put in measures towards the hazard of fire. The Kenya Standard (2012) gives guidelines on making a premises like the church safe from fire. In order to achieve this safety, there should be one or more competent persons appointed to assist in undertaking any of the preventive and protective measures required by the occupational health and safety act. Another requirement is that clear and relevant information should be provided on the risks identified by the fire risk assessment, measures that have been put in place to prevent fires and how these measures would protect them if a fire breaks out. The fire risk assessment is an organized and methodical look at a premises, the activities carried out there and the likelihood that fire could start and cause harm to those in and around it. The procedure of carrying out a fire risk assessment entails the following steps:

i) **Identifying the fire hazards:** This involves identifying the three things needed for a fire to start which are:

- **sources of ignition** for example candles or gas, cigarettes, matches and lighters, cooking equipment and activities, faulty electrical equipment, electrical or gas heaters, obstruction of equipment ventilation like office equipment and also arson
- **sources of fuel** for example flammable liquid based products like paints, varnishes, thinners and adhesives, cooking oils, methylated spirit, disposable cigarette lighters, flammable chemicals like certain cleaning products, packaging materials, decorations for religious or seasonal occasions, textiles, soft furnishings, flammable gases like liquefied petroleum gas, wall and ceiling hangings
- **sources of oxygen** for example oxidizing materials, oxygen supplies from cylinder storage and piped systems.

In view of these three components of a fire, some of the listed sources of ignition, fuel and gas can be found in the churches. As such, it is important for them to take a risk assessment as recommended by the safety guidelines.

ii) **Identifying people at risk:** In a church the people at risk could include people with disabilities (mobility, hearing or vision impairment), the elderly, parents with small children, unaccompanied children and visitors who are unfamiliar with the premises.

By identifying these people, the church can be able to factor their needs in the fire safety protocols of the church.

iii) **Evaluating the risk of fire, removing, reducing and protecting the premises from this risk**:

- Evaluating the risk of fire occurring: The chances of a fire starting will be low if the premises has few ignition sources and combustible materials are kept away. Fires generally start accidentally like when smoking materials are not properly extinguished, by an act of omission such as when an electrical equipment is not properly maintained or deliberately for example an arson attack. It is important that those responsible in the churches should look critically at the premises and identify any accidents waiting to happen, any acts or omissions which could allow a fire to start and any situation that may present an opportunity for an arson attack.

- Removing or reducing the hazards involves removing or reducing the sources of ignition, fuel and oxygen.

- Protecting the premises from the risk of fire can be done through various ways like: providing earlier warning of fire using automatic fire detection, removing or reducing combustible materials or ignition sources, increase the awareness and training on fire safety for the church community. Installation of fire fighting equipments like fire extinguishers, hose reels for use by trained staff, fire suppression systems like sprinklers and gas or foam flooding systems and having these equipments well maintained is also key in protecting the premises from the risk of fire. Providing escape routes with wide exits is another way of protecting the premises and those using it from the risk of fire. These routes should be accessible and also known to the people within the premises.

None of the churches had incorporated these measures hence making them vulnerable to the threat of fire. This study established that the perception within the churches that fire was a remote threat had led to the omission of the churches investing in fire safety hence rendering the people assembling in these churches vulnerable to the threat of fire. It may be important for the churches to invest in adopting the recommendations of the fire safety requirements to make the churches safer.

4.3.3.4 Electrical Hazards

The respondents pointed out two electrical hazards:

Exposed live electric wires: These pose the risk of causing fire and also electrocution. Electrocution is dangerous and could easily lead to death. The action given as having been taken by the churches of informing the Kenya Power and Lighting under whose docket electrical repairs fall is appropriate. Live electric wires are lethal and ought to be handled with care and professionally.

Electric Poles and transformer close to the church structure: While these pose a threat in the event of electric faults leading to fire, the Kenya Power and Lighting has the authority in electing them in safe grounds. The researcher however established that the church where this was presented as a hazards was located a little off the power line. However, in instances where churches have encroached into the power line space and hence the proximity to a transformer and electric poles this poses a risk and the action should be taken by the church but not the Kenya Power and Lighting. Need to inform and educate the church leadership on the basic safety measures was established.

4.3.3.5 Congestion

In a mass assembly, congestion poses the risk of suffocation or stampede should there be a trigger that causes panic in the crowd. This was sighted as an existing hazard by some respondents. The cause of the congestion is the limited assembly space that is available in the churches. To minimize the risk of suffocation in a congested area, it is paramount that adequate ventilations be provided. The church could also invest in air conditioning that would help in having air circulating in the church. This will minimize or completely avert chances of people fainting due to poor air circulation. Spreading out the church services could also aid in addressing the issue of congestion. The church could spread out the services so that no one service (assembly) gets full to capacity hence creating room within the church incase of any eventualities. The church members could be encouraged to avoid crowding in one service due to the limited space. In the event that need be for all the church members to gather in one service, this should be organized in a larger premises with all the safety precautions of crowd management taken into consideration as outlined in the FIST model.

4.3.3.6 Noise

The respondents from one church which is located on a busy commercial area identified noise as a hazard. This they said was noise from neighbouring business premises and vehicles using the busy road next to the church. They said that the noise distracted them in their church services and prayer sessions and also felt it was a health hazard as it endangered their hearing abilities. However, some respondents said that the action which the church had taken towards addressing this hazard was prayer. The church could invest into acoustics that would absorb the noises from outside hence minimizing their impact on the churches activities.

4.3.3.7 Proximity to a Busy Road without bumps and with Speeding Vehicles

This posed a danger to the people going in and out of the church. The researcher learnt that there had been several incidences of pedestrians getting hit by the vehicles as they were crossing the road to or from the church. No action was mentioned as having been taken by the church as an intervention. The church may approach the department of public works and infrastructure within the County Council of Nairobi and request for erection of road bumps or a zebra crossing point where pedestrians can cross the road with ease. The church could also request for the services of traffic police to regulate traffic in order to offer safety for pedestrians crossing the road. The church could also engage a crossing guard usually used to help school children cross busy roads. The crossing guard in this case could be helpful to both children and adults wishing to cross the road to and from the church. All these measures may help minimize or even completely eradicate the incidences of people being hit by vehicles on their way to or from the church.

4.3.4 Vulnerability and Perception

According to Davis & Wall (1992) in the disaster crunch model, a disaster only happens when a hazard impacts on a vulnerable society. There has to be an underlying cause like the unsafe conditions which include ignorance, population shifts and settlement patterns, lack of choice, corruption and bureaucracy. Some of the church members interviewed in this study depicted some unsafe conditions for instance ignorance of the hazards surrounding their church and also actions taken. This is clearly shown by the following statement from one member:

> We are believers and for us we do not anticipate disasters because we are redeemed. However, should anything happen for example fire or terrorist attack, we trust that God would deliver his church including me as an individual. (45 year old Male)

This shows the perception under which some of the people in the mass assembly operate. They take the role of passive participants in the basic safety measures for themselves and others in their assembly. Little or no initiative was shown towards familiarizing themselves with safety measures while in a mass assembly. There was an expression of resignation to fate from some respondents.

> One 62 year old lady said: "There is nothing I can do if anything happens while in the church. With the recent trend of attacks in the churches, I feel helpless and should my church be attacked, which I pray wont happen, I will only wait for whatever outcome even if it is death because I don't think there is anywhere to run to because I think the church is the only safe place to be in time of a disaster."

The researcher established that the perception which the majority of the respondents had led to their ignorance of their own safety. It offered fertile ground for panic which, according to Lang & Lang (1973) occurs out of perception rather than reality. According to Merton (1968) men respond not only to the objective features of a situation, but also, and at times primarily, to the meaning that the situation has for them. Once they have assigned some meaning to the situation, their consequent behavior and some of the consequences of that behavior are determined by the ascribed meaning. Probably strategies need to be put in place to aid members of mass assemblies gain insight into the subject of disaster awareness and response and hence influence their perception towards the same.

4.3.5 Conclusion

In view of the first objective, the researcher was able to establish that more than half of the respondents (56.3 percent) were aware of the hazards that surrounded their churches. However this awareness did not necessarily translate to an understanding of the right interventions. In this regard, the need for organized awareness creation forums was identified in order to reach all the church members. General and regular education on safety and risk reduction measures for the church members and leaders are recommended.

4.4 Knowledge of Responding to likely Hazards in a Mass Assembly

Having assessed the hazards surrounding the churches under study and the awareness of the respondents about these hazards, the researcher then sought to find out if the respondents had any knowledge on responding to some common hazards that are likely to occur in mass assemblies such as the church assembly. These common hazards are stampedes, fainting, fire, armed attacks, terrorist scares and terrorist attacks.

4.4.1 Knowledge of responding to a stampede

A stampede can occur anywhere where there is a mass of people as long as an event triggers the people into panic. Jorgustin (2012) states that mass casualties can result from a human stampede. A peaceful crowd can quickly turn into a senseless panicked heaving mass in which rational behavior by any single individual becomes nearly impossible. The stampede can be triggered while there is no actual danger. Under certain situations, a crowd that has grown to a big and tight enough size and density reaches a critical state at which the slightest twitch is sufficient to send it into a stampede.

In order to assess the knowledge the respondents had on responding to a stampede, the researcher sought to find out if the respondents had experienced a stampede in their churches. The findings were as follows:

Table 10: Number of respondents who had ever experienced a stampede in the church

Prior Experience	**Frequency**	**Percentage**
YES	6	4
NO	145	96
TOTAL	151	100

Only 4 percent of the respondents had experienced a stampede occurrence in a church. The 4 respondents were from the same church. The remaining 96 percent had not experienced a stampede in their churches and these made the majority number of the respondents in this question. The reason for the stampede that was given by those who had experienced it was a terrorist scare in their church that led to the congregants scampering for safety. The researcher sought to find out from the leader of this particular church what action the leader had taken during this incidence.

The key informant (leader) said:
"I watched helplessly as the members ran to different directions and waited for the situation to calm down. Later on, I gathered a few members together in order to establish what had exactly happened. I discovered that there was a rumour that there was a bomb planted near the church door. The effect of the rumour was that the members were scared, confused and hence the running as members sought for safety outside the church. As a result of this experience some members left the church for other churches.

The researcher went further to find out what the key informant would have done differently.

> The Key informant said: "I would have sought the immediate intervention of the police so as to reassure the members that the situation was under control"

The researcher asked the respondents who had not experienced a stampede (96 percent) in their churches to rate the likelihood of this occurring in their church and this is how they rated it:

Table 11: Likelihood of a stampede occurring

Likelihood	**Very High**	**High**	**Neutral**	**Low**	**Very Low**	**Unlikely**	**Don't Know**	**Total**
Frequency	9	34	27	23	10	33	9	145
Percentage	6.2	23.4	18.6	15.9	6.9	22.8	6.2	100

From the study, 6.2 percent of the respondents said that there was a very high likelihood of the occurrence of a stampede because of the location and the limited space in and around their church while 23.4 percent rated the likelihood as high. These also quoted location and limited exit space. Some respondents (18.6 percent) took a neutral position giving the reason that a stampede can occur anywhere as long as there is a crowd and found it difficult to make a different rating.

Respondents who rated the likelihood as low were 15.9 percent and the reasons which they gave were that there was adequate space and that the church was well manned. Some respondents in this category described their church assembly as one of prayerful and orderly people who respected each other thus felt that the possibility of a stampede occurring was low.

Some of the respondents (22.8 percent) said that it was unlikely for a stampede to occur in their church because there were adequate entrance and exit points in their churches. However, the researcher observed that though there were several doors in the churches, only the main doors were used frequently and as such the other doors remained locked during the services and the keys to these doors were kept in the church office. One of the churches was set up in a tent hence did not have any doors or windows as such. This tent is sandwiched between a bar & restaurant on one side, a garage on the other side with limited space in and outside the tent and a busy road at the front of the church increasing the vulnerability of the church assembly.

There were 6.2 percent of respondents who did not know how to rate as they said they had never thought of the possibility of a stampede in the church.

Further the researcher sought to establish the knowledge of the respondents in responding to a stampede. According to Jorgustin (2012), if one is caught in a stampede, the following actions are recommended:

i. First and most important make yourself familiar with your surroundings and mentally notice alternate exits. No matter where you are, make sure you always know how to get out.

ii. Make yourself aware of the type of ground you are standing on, and know that in a crowd of moving people wet or uneven ground can be slippery or hazardous, causing you to fall.

iii. Be aware of the general atmosphere of the event, as panic situations can often be anticipated. When in danger, a few seconds can make all the difference, giving you the possibility of taking advantage of your escaping route. Always stay closer to the escape route.

iv. If you find yourself in the middle of a moving crowd do not fight against the pressure, do not stand still or sit down, because you could easily get trampled.

v. Instead, move in the same direction of the crowd; take advantage of any space that may open up to move sideways to the crowd movement where the flow is weaker.

vi. Keep your hands up by your chest, like a boxer – it gives you movement and protects your chest.

vii. If you fall, get up quickly. If you can't get up because you are injured, get someone to pull you back up. If you have kids, lift them up.

viii. If you fall and cannot get up, keep moving by crawling in the same direction of the crowd, or if that is not possible, then cover your head with your arms and curl up into the fetal position (do not lay on your stomach or back, as this dangerously exposes your lungs).

ix. Try to stay away from walls, fences or barricades, as the crowd pressure can build up rapidly.

x. After you're pushed forward, like in a wave there's a lull. In that lull is your chance to move, and the way you move is on a diagonal, between pockets of people. There's always space between people. A couple of steps sideways, another wave surge, then another couple of steps in the next lull. You work your way out that way till you get to the periphery.

In order for the researcher to establish the level of knowledge that the respondents had on responding to a stampede, the respondents were asked to state what they would do if a stampede occurred in their church. The responses given were as follows:

Table 12: What respondents said they would do incase of a stampede

What respondents would do in a stampede	Frequency	Percentage
Run away	27	17.9
Run to the exit	25	16.6
Break open any available but locked doors	16	10.6
Call the police	9	6.0
Call an ambulance	7	4.6
Involve a first aid team	5	3.3
Just flow with the crowd	19	12.5
Don't know/Don't expect it to happen in church	43	28.5
Totals	151	100

In the event of a stampede, running away as indicated by 17.9 percent or running to the exit as indicated by 16.6 percent of the respondents could only be helpful if a person is aware of and near an escape route otherwise they could be running deeper towards the crowd. The recommendation by Jorgustin (2012) is that one needs to be familiar with their surroundings and mentally notice alternate exits and always make sure that one knows how to get out.

Breaking open any available doors so as to run out as indicated by 10.6 percent of the respondents may be helpful only if one is closer to the escape or alternative route and has the time and means to break open the door if it is locked without causing more harm to themselves in the process. Escape routes with wide exits are necessary in ensuring safety in any building and the church is no exemption. Probably this is a consideration which churches should take into account in the architectural designs of their churches.

Calling for help from the police, ambulance, or service providers as indicated by 21 percent of the respondents does not offer one an immediate opportunity to pull out of a crowd. According

to Jorgustin (2012), when in danger, a few seconds can make all the difference between escaping or getting held up in the stampede. Calling for help from a first aid team, an ambulance or the police could only be useful once one has escaped from the crowd.

Flowing with the crowd and not against it as indicated by 12.5 percent of the respondents is recommended (Jorgustin 2012) since moving against the pressure of the crowd could cause one to fall and get trampled on easily.

> One respondent said: "I am not sure of what I would do. I think I would just flow with the crowd if there is no escape near me. It is scaring to think about such an experience." (38 year old male)

The researcher found out that amongst majority of the respondents (28.5 percent), there was a perception that the church was orderly and calm and therefore unlikely for a stampede to occur. These respondents said they did not know what they would do in case of a stampede in church as they did not expect it to happen in church. These respondents maintained the perception that a mass assembly in a church cannot be triggered into a stampede and as such could not even think of an action they would take incase this happened. This perception explains the ignorance of some of the members which makes them vulnerable in the event of a stampede.

Since a stampede can be triggered even in a peaceful crowd like the one found in a church the church leaders probably need to familiarize themselves with the recommended response to a stampede and also organize regular drills to empower their members on how to respond to a stampede. Nevertheless, prevention of a stampede by proper planning and preparation for the mass gatherings taking into consideration the FIST model is highly recommended. According to

Fruin (2002) the FIST model is ideal for developing guidelines for the prevention of mass assembly disasters resulting from threats like stampedes. This model recommends a basic understanding of the force exerted by any crowd, updated information upon which the crowd acts on, the physical space in terms of individual density and architectural features. According to this model, time; that is the duration of the incident (assembly), is helpful in crowd management. This approach facilitates crowd management thus minimizing the likelihood of the occurrence of a stampede.

4.4.2 Fainting

Fainting occurs when one loses consciousness for a short time because the brain lacks enough oxygen and it can occur anywhere even inside the church. It can be triggered by a number of factors, like fear, emotional trauma, severe pain, a sudden drop in blood pressure, low blood sugar due to diabetes or from going too long without eating, hyperventilation, dehydration and standing in one position for too long.

According to Derrer (2013) the recommended set of actions to take in response to fainting are:

> Lay the person flat on his or her back, Loosen tight clothing, Elevate the person's legs to restore blood flow to the brain, Check for signs of circulation (breathing, coughing or movement), Don't get the person up too quickly, once the person is alert give fruit juice especially if the person has not eaten in more than 6 hours, stay with the person until he or she is fully recovered, call a doctor if the person does not regain consciousness

In order to establish if the respondents were knowledgeable in responding to fainting the researcher presented the following options and asked the respondents to tick on the most appropriate:

i) Lay the person flat on his or her back, Loosen tight clothing, Elevate the person's legs to restore blood flow to the brain, Check for signs of circulation (breathing, coughing or movement), Don't get the person up too quickly, once the person is alert give fruit juice especially if the person has not eaten in more than 6 hours, stay with the person until her or she is fully recovered, call a doctor if the person does not regain consciousness

ii) Elevate the person's legs, give the person a glass of water or fruit juice, keep the person warm by covering them, put the person in a position of their choice, observe them until they fully recover and call a doctor if the person does not regain consciousness

iii) Call a doctor or rush the person to the nearest clinic, place the person in a comfortable position, loosen tight clothing, give the person a glass of water or fruit juice

iv) Give the person a glass of water or fruit juice, shake the person vigorously, help the person up to their feet as soon as there are signs of circulation (breathing, coughing, or movement) call a doctor or rush the person to the nearest clinic if the person does not regain consciousness

v) I don't know

The researcher found out that only 39.7 percent of respondents ticked the correct option (i) as their most appropriate option. It is notable that 19.2 percent of the respondents were not able pick out any set of actions that they would take incase someone fainted in the church. The table below presents the findings:

Table 13: Fainting in the church

Option	Frequency	Percentage
(i)	60	39.7
(ii)	32	21.1
(iii)	-	-
(iv)	30	19.9
(v)	29	19.2
Total	151	100

From the above findings, 60.3 percent of the respondents did not know how to respond to fainting. Probably this lack of knowledge is out of ignorance and importance of awareness creation and education of the church goers on basic first aid and their role in the face of emergencies was found to be necessary. It is notable that in the church where there is a first aid department, the members relied heavily on them and said that they did not need any skills as the first aid team was well trained to intervene.

Under some instances in some churches, when one faints, this may be interpreted as a supernatural manifestation and if caution is not taken in handling the individual, those responding may endanger the life of the person further by using the wrong interventions. Regardless of whether one is a leader or just a member, responding to someone who has fainted in the church calls for a uniform set of actions in order to help the person and save life. Basic first aid on fainting can be offered by any one as long as they are equipped with the right information on the response. While appreciating that a first aid team is useful, the need to equip as many members of the church assemblies with information on some basic first aid skills was established.

4.4.3 Fire

In a mass assembly, the breakout of fire can be triggered by a number of factors for instance, electrical faults, a grenade explosion or an arsonist attack. Regardless of the cause of the fire, the recommended set of actions in response to fire according to the National Fire Prevention Act (1986) is as follows:

> Do not panic, Raise Alarm. Shout fire, Attack Fire using available appliances. Leave the doors and windows open for the smoke to go out. Evacuate the building using the staircase and do not return to the building unless authorized to do so. Once you are safely out, then call the fire brigade. Report to the assembly point for roll call

To establish the knowledge that the respondents had in regard to fire safety in case of a fire emergency within the church, the respondents were presented with four options on the most appropriate actions that they would take in responding to a fire in their church. The options were as follows:

i) Do not panic, Raise Alarm. Shout fire. Call fire brigade or dial 999. Mobilize the members to attack the fire using available appliances, close doors and windows behind you, evacuate the building using staircase and don't return to the building unless authorized to do so, report to the assembly point for roll call

ii) Do not panic, Find out the cause of the fire, if it's a small fire, attack it using available appliances, if unmanageable call fire brigade or dial 999, Close the doors and windows behind you, use the lift to leave the building faster, raise the alarm to alert the rest, report to the assembly point for roll call.

iii) Do not panic, Raise alarm, shout fire. Attack fire using available appliances, leave the doors and windows open for the smoke to get out, evacuate the building using staircase and do not return to the building unless authorized to do so, once you are safely out call the fire brigade or dial 999. Report to the assembly point for roll call

iv) I don't know

The researcher found out that only 21.9 percent of the respondents ticked the correct option (iii) as per the recommended set of actions stated above. The highest number (48.3 percent) ticked option (i) while 11.9 percent ticked option (iv) which stated "I don't know". The table below captures these findings:

Table 14: Fire in the church

Option	Frequency	Percentage
(i)	73	48.3
(ii)	27	17.9
(iii)	33	21.9
(iv)	18	11.9
Total	**151**	**100**

From the above findings, it showed that 78.1 percent of the respondents did not have the right knowledge of how to respond to a fire outbreak as per the recommended Standard of operations in the event of fire. Out of the six churches under study, only one church conducted fire drills yearly. This probably explains why majority of the respondents lacked the correct knowledge of responding to fire. The researcher established need for education on fire safety and regular fire drills to equip the members of the church assemblies with the necessary skills of responding to a fire in the church and even in any other venues.

4.4.4 Armed Intruder

Churches are soft targets and sometimes can be easy targets for violent people coming into them and shooting at the congregation or the pastor or priest. This happened in Garissa on 1st July 2012 when masked gunmen attacked two churches simultaneously and killed seventeen people and left fifty injured and also in Mombasa on 23rd march, 2014, when six worshippers were killed by gunmen who burst in through the church's back door and opened fire on the congregation.

According to RIT Public Safety (2010 – 2011) the most ideal sequence of actions is as follows:

> Try to remain calm, if there is an opportunity to escape or hide do so, close all doors and windows, put off the lights, silence any source of noise, contact the police, remain in your hiding place until you are instructed by the police that it is safe to leave your hideout. If there is no absolutely no opportunity to escape or hide, hide behind large items e.g. cabinets, poles, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.

The researcher sought to find out what actions that the respondents were likely to take in the event that the church was attacked by armed attacker during a church service and presented them with the following options:

i) Try to remain calm, enter into a prayer session, if there is an opportunity to escape or hide do so, close all doors and windows, ensure all the lights are on, let the choir continue singing as you contact the police, If there is absolutely no opportunity to escape or hide, hide behind large items e.g. cabinets, poles, attempt to disrupt or

incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.

ii) Try to remain calm, if there is an opportunity to escape or hide do so, close all doors and windows, put off the lights, silence any source of noise, contact the police, remain in your hiding place until you are instructed by the police that it is safe to leave your hideout. If there is no absolutely no opportunity to escape or hide, hide behind large items e.g. cabinets, poles, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.

iii) Pray, try to remain calm, take courage and confront the intruder, raise the alarm and shout for help, ensure you are within the vicinity of the intruder so that the intruder does not escape before the police arrive, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons

iv) I don't know

The findings were that out of the 151 respondents, 20.5 percent of them indicated option (i) as their most ideal response, 51 percent chose option (ii) 25.2 percent ticked option (iii) while 3.3 percent ticked the option that they did not know as their most ideal response as summarized in the table below:

Table 15: Armed Intruder in the church

Options	Frequency	Percentage
(i)	31	20.5
(ii)	77	51
(iii)	38	25.2
(iv)	5	3.3
Total	**151**	**100**

The researcher found out that even though 51 percent were able to tick the appropriate option (ii), 49 percent of the other respondents represent a huge number that need knowledge and skills on responding to an armed intruder imparted on them. Out of the six churches under study, none of them ever carried out emergency drills on how they would respond to an armed intruder in the church. This may be explained by the fact that in the past this had never happened until the incidents in Garissa and Mombasa mentioned above. These incidents proved that the church was not safe from armed intruders and hence need to put strategies in place to deal with the same while equipping members with information on responding to such occurrences.

One way of equipping the church community is by conducting drills annually on responding to an armed attack in the church.

4.4.5 Terrorist Scare

With the rising incidences of terrorist threats and actual attacks, occasions of bomb scare happen. While most of these bomb scares are unfounded threats some of them are real. Should a bomb threat be received human safety is the primary concern and it is therefore necessary that those present be evacuated from the site. Evacuation in this case means interrupting the normal activities and even shutting down the premises until it is declared safe. Each incident therefore needs to be dealt with calmly and consistently. According to Intercon Security in the event of a bomb threat, the following actions are recommended:

> Remain calm, evacuate the people from the premises to a safe location, ask them to take with them their personal items and not touch anything but to report any suspect object. Notify the police. Incase a suspicious object is found the police will be informed and

they will in turn notify the explosives disposal unit. Keep the place sealed until declared safe.

The researcher sought to find out if the church leaders had knowledge on how to respond to a bomb scare in their church. To do this the leaders were presented with the following options and asked to tick the most appropriate one according to them:

i) Find out the source, assess its authenticity, if found to be true, call the police and assist them in the intervention, if not reassure the members and continue with the service.

ii) Facilitate a safe but immediate exit of the church members assembled, call the security officers to examine the area if found to be safe, reassure the members, if not allow the security officers to intervene. Do not hold another service until the place is declared safe.

iii) Direct the members to run away from the building immediately, have a security check at the exit as they leave, establish the authenticity of the scare, if true, call the police for intervention, if not true, call back the members and continue with the church services.

iv) I don't know

Out of the six leaders, five of them ticked the option (ii) which was the right one. Only one leader ticked option (iii). This showed that from the scenario given, majority of the leaders knew how to respond.

Even though a scare may be just that, a scare, it is necessary to respond to it in order to avert possible destruction and loss of life should the threat actually be executed. With the recent

attacks on the churches, there is great need for the church leadership to keep abreast with the likely threats and how to respond to them. Involving the government security in the church policies on safety especially in matters related to terrorism was found paramount in this study.

4.4.6 Terrorist Attack

Following the Garissa and Mombasa terrorist attacks in the churches, it is evident that churches are an easy target for terrorists. In the past, churches in Kenya had been safe requiring no armed guards or screening at the entrance of the churches. This has since changed after the attacks in the churches. Securing the churches from terrorist attacks is no longer an option but a necessity in the churches in Kenya. The attacks that have so far happened caught the church community unaware and resulted in a lot of confusion and uncertainty. Probably this would have been different had the churches anticipated the possibility of terrorist attacks and equipped themselves with the necessary response skills. Church attacks are not unique to Kenya as they have happened in other countries like Nigeria. While most fatalities occur as a result of the direct impact of the mode of attack for example bombing, more deaths and injuries result from lack of knowhow of responding to these attacks. In some instances, once an attack occurs, curious crowds move towards the scene to witness what has happened oblivious of the fact that another bomb could blast at the same site.

The researcher sought to know if the respondents had ever experienced a terrorist attack in their churches. None of the respondents indicated that they had ever experienced a terrorist attack. However, it was given as a likely threat considering the attacks that had been mounted on churches in the past months. Though it may be difficult to respond effectively due to the unpredictable nature of terrorist attacks, there are still measures that could be taken to mitigate

the impact of an attack in case it occurred. There is need therefore for church members and leaders to know the right flow of actions in response to a terrorist attack.

In view of this, the researcher assessed the knowledge of both the church members and leaders in responding to a terrorist attack. The assessment was done differently for both the members and leaders.

4.4.6.1 Knowledge of the church members

The church members form the mass which as an easy target for a terror attack and the action of each individual at the moment of the attack could determine the individual's survival or extent of injuries that the individual might suffer. According to the American Red Cross, the most ideal flow of action for an individual in the event of a terrorist attack is as follows:

> Stay Calm, lie flat on the floor, crawl under a solid object and remain there for a while, take cover, listen to emergency officials if any at the scene, seek first-aid in case of life-threatening injuries you or others may have received and wait for the security officers' direction.

The church members were assessed on response at an individual level. They were offered some actions and asked to rank them in order of priority according to what they considered as the most ideal sequence of action incase an attack occurred in their churches. These actions were:

> Stand still and pray, Run to the Alter, Run towards the door, take cover in the church's side room/office/sacristy, Lie flat on the floor, Crawl under a solid object and remain there for a while, Stay calm, Seek first aid in case of life threatening injuries you or

others may have obtained, wait for the pastors/priests direction, Listen to emergency officials if any at the scene.

The church members ranked the actions differently and these were analyzed according to the highest number of respondents that indicated a similar priority:

Table 16: Actions in response to a Terrorist Attack as Prioritized by the church members

Priority	Action	Correct responses		Incorrect responses	
		Freq	Percent	Freq	Percent
1st	Lie flat on the floor	20	13.8	125	86.2
2nd	Stay calm	13	9	132	91
3rd	Crawl under a solid object and remain there for a while	12	8.3	133	91.3
4th	Take cover in the church's side room/office/sacristy	9	6.2	136	93.8
5th	Seek first aid	9	6.2	136	93.8
6th	Listen to emergency officials on site	8	5.5	137	94.5
7th	Wait for the pastors/priests direction	9	6.2	136	93.8
8th	Run towards the door	8	5.5	137	94.5
9th	Run to the alter	7	4.8	138	95.2
10th	Stand still and pray	8	5.5	137	94.5

It is notable from this analysis that only a small percentage of the respondents managed to rank the actions in order of priority. This indicates a knowledge gap within the church members that calls for education on response to terrorist attacks. According to the American Red Cross, the first action recommended is to stay calm and then lie down. In crisis time, one is able to respond objectively if one is calm unlike when one panics. In the event of an attack, it is recommended that one tries as much as possible to stay calm, then lie flat on the floor, then crawl under a solid object if possible and remain there for a while according to the American Red Cross. The first priority as indicated by 13.8 percent of the respondents was "lying flat on the floor" followed by "stay calm" (9

percent) contrary to the recommendation above. Crawling under a solid object if possible and remain there for a while was correctly ranked by 8.3 per cent of the respondents. The fourth priority was also correctly indicated by the respondents and that is to take cover in the church's churches' room/office/sacristy. The American Red Cross recommends that one should try and take cover where possible. It is also notable that seeking first aid was correctly ranked by only 6.2 percent and listening to emergency officials on site by 5.5 percent of the respondents. The last three actions were meant to assess the how the respondents interpreted their response to a terrorist attack while in the church. The fact that they did not prioritize standing still and praying or running to the altar indicates their awareness on saving life in the event of (danger) an attack.

4.4.6.2 Knowledge of the church Leaders

As leaders of their mass assemblies, it is important for the church leaders to have the knowledge of the basic actions to take should a terrorist attack occur in their church. The American Red Cross recommends a flow of action in an assembly venue as follows:

> Clear all exits, decongest the area by letting the people leave through several exits, engage a first aid team, move any casualties to the emergency room/area, call emergency service providers, continuously update the people on the situation to ease tension

The church leaders were offered the following sets of actions and asked to tick on the most appropriate one:

i) Close all the doors, call police, pray, call emergency service providers, engage the church first aid team, clear all exits, decongest the area by letting the people leave

through several exits, continuously update the people on the situation to ease tension, move any casualties to the emergency room/area

ii) Clear all exits, decongest the area by letting the people leave through several exits, engage the church first aid team, move any casualties to the emergency room/area, call emergency service providers, continuously update the people on the situation to ease tension, pray

iii) Close all the doors, have a prayer session, call police, pray, call emergency service providers, engage the church first aid team, decongest the area by letting the people leave through several exits, continuously update the people on the situation to ease tension, move any casualties to the emergency room/area

iv) Have a prayer session, call police, take the casualties to nearby clinic by whatever available means, close the doors, continuously update the people in the church on the situation to ease tension

v) I don't know

From the data collected,4 out of the 6 leaders ticked option (ii) as the action they would take in the event of a terrorist attack. This is the correct option and it showed that majority of the leaders had knowledge of how to respond to a terrorist attack. The researcher had added prayer to the options given to assess the perception of the leaders on response alongside faith with regard to their priorities. The fact that majority of them were able to pick the right option showed they had basic knowledge on the subject.

In the event of a terrorist attack, all exists should be cleared for evacuating the people present. This will help to decongest the area and allow the causalities be moved to a safer ground like an

emergency room so as to receive timely medical help from the church's first aid team or other emergency responders who make it to the scene on time. Triage should be done on the casualties so that appropriate referrals for further medical care can be done. Since people will be curious to see and know what is going on at the scene, the scene needs to be condoned off by security for mainly two reasons. One is to avert further disaster incase another strike by the attackers on the crowd happens once it reassembles and second is to enable rapid medical response to the casualties.

> One of the informants said: "Last week I attended a conference organized for the church leaders whose objective was to educate them on the subject of basic safety measures for the churches. This forum opened up a subject that has been silent in our church but which was necessitated by the recent attacks on churches."

Terrorism is a real threat today and it is important for the church community to familiarize itself with these basic response actions. Regular education forums and drills within the churches would be ideal avenues of empowering them. Probably more forums like the one reported above are necessary to equip the leaders with knowledge and skills towards establishing safer worshipping grounds.

4.4.7Conclusion

From the findings of the second objective, the majority of the respondents had some basic knowledge on responding to some likely threats that could face a mass assembly. However, the researcher established the need for continuous education so that the members have updated

information on the response strategies and the importance of their role in response as individuals in a mass assembly.

4.5 Contingency Measures in the Churches: Response Preparedness

Contingency planning is a key component in disaster preparedness. According to the IFRC (2007) disaster response and contingency planning leads to organizational readiness in anticipation of an emergency. Contingency plans are based on specific events or known risks at all levels and aims at preparing an organization to respond well to an emergency and its potential humanitarian impact. The contingency planning process can basically be broken down into three simple questions:

i) What is going to happen?

ii) What are we going to do about it?

iii) What can we do ahead of time to get prepared?

Developing scenarios is a good way of thinking through the possible impacts. On the basis of sensible scenarios it is possible to develop a plan that sets out the scale of the response and the resources needed. In view of this, the study sought to establish the contingency measures which the churches had put in place in response preparedness.

4.5.1 Emergency Drills

Emergency drills are a key component in mitigating the impact of a disaster. Evacuation is core in minimizing the loss of lives in the event of a disaster and hence the importance of drills. According to the Fire Safety Technical Note TN103 (www.ucl.ac.uk/fire), Emergency drills are helpful in that:

- They help to familiarize all occupants of the premises with evacuation procedures
- They help to identify any weaknesses in the evacuation strategy
- They enable the testing of the procedure following any recent alteration or changes to working practices
- They test the arrangements for people with disabilities
- They identify weaknesses in emergency communications procedures and systems
- They identify positive and negative reactions of those designated with the responsibility of evacuation

It is with this background that the researcher sought to establish from the church leaders if the churches carried out any emergency drills and if so, the frequency of the drills. The question was asked to the leaders since this is a policy issue which the leaders were likely to be more informed about. The leaders were asked if they carried out any emergency drills on the following hazards and the frequency of the drills. The responses were as follows:

Fire Drills: Only one out of the six churches carried out fire drills once a year.

Armed Attack: None of the churches carried out drills on an armed attack

Terrorist scare: None of the churches carried out drills on a terrorist scare

Terrorist attack: None of the churches under study carried out drills on terrorist attack

Congested Exit: Only one church carried out yearly drills on congested exit

Stampede: Only one church carried out a drill yearly

Out of the six churches under study, only one church reported having had yearly emergency drills for fire, congested exit and stampede. The other five churches never carried out any drills.

Among the reasons given for not carrying out emergency drills were lack of past experience of the emergencies hence had not considered having any drills in their churches.

> One Key informant said: “We have never experienced any emergency in the church and thus have never considered having any drills. However, we realize now that the church is not exempt from emergencies and emergency drills in the church are necessary. We already have ongoing discussions on this and hopefully we shall conclusively map a way forward”

The researcher established from the interview that the absence of trigger events hence the absence of emergencies so far was the reason why emergency drills had not been considered in most of the churches.

4.5.1.1 Fire Drills

According to Euro Fire protection and maintenance service, fire drills provide an opportunity to practice evacuation procedures to make sure all occupants of a premises are familiar with them. They get the occupants used to exiting a building quickly and therefore in a real life situation panic will be reduced, as everyone will know what they need to do. Fire drills are also useful for testing escape routes to evaluate their effectiveness. During the fire drills, checks can also be carried out on alarm systems to ensure they are working correctly and that emergency exits are unobstructed. Overall fire drills help improve safety, so that you will be best prepared if a real fire does occur. Ideally, two fire drills per year should be held but this depends on the risk assessment done. In the case of churches where new members are likely to come in throughout the year, these drills could be scheduled in such a way that all members participate in at least one drill per year.

4.5.1.2 Armed Intruder

Though not a very common occurrence, the two incidences mentioned above indicate that the church too is at risk of armed intruders. By carrying out drills on how to respond in the event of an armed intruder, the church would be aiding the members with skills of self protection hence minimizing the loss of life that would otherwise result from panic and lack of knowledge.

4.5.1.3 Terrorist Scare

A terrorist scare like any other scare could easily result into panic and hence stampede as people scamper for safety. Drills on terrorist scare would aid the members on evacuation procedures in the event of a terrorist scare that would minimize the chances of a stampede and enable a systematic evacuation from the site. They would also equip them with knowledge on being vigilant to suspicious objects around them and reporting of the same to the relevant authority.

4.5.1.4 Terrorist Attack

Terrorist attacks take many forms as such it may be difficult to ensure that one is well prepared for the same. However, it is possible to minimize likely impact through drills that would equip the church members with skills on how to respond to an attack. The key point being evacuating safely from the point of attack within the shortest time possible. Through drills on terrorist attacks, the church members can learn skills for example surviving a blast. The churches can organize these drills at least once a year so as to inform, educate and equip all church members on the basic skills.

4.5.1.5 Congested Exit

Where space is limited, incidences of church members pushing through narrow exits exist. In those churches, regular drills on orderly exit from the church are necessary to avoid the hazards of people falling and getting trampled on as they push through the exit. This will minimize possibilities of stampede occurring as people get out of the church.

4.5.1.6 Stampede

To safeguard the church community from experiencing a stampede, drills on congested exit and use of escape routes could be helpful to the church community. These can be organized even quarterly as new church members join the church from time to time.

4.5.2 Existing Services in Place

In contingency planning, having established response services is paramount in enabling swift and effective response in the event of need. Some basic services include security checks, first aid, emergency exits, ambulance services, emergency rooms and an emergency operation centre where applicable.

The study sought to find out from the leaders what basic response services the churches had put in place and the following were the findings:

4.5.2.1 First Aid Services

Only three out of the six churches had first aid services within the church premises. In one of the churches, there was a first aid team with fully equipped first aid kits for purposes of their church needs. The members in this team were well trained by the St. John's Ambulance and therefore

were quite competent. The fact that it is only one church that had organized and well equipped first aid service shows a gap that needs to be addressed by the churches.

4.5.2.2 Security Checks

All the churches had security checks conducted by security firms which they had contracted. However, these checks, the researcher established were only initiated after the grenade attacks in churches in Garissa and Mombasa. Previously, the church gates for the churches under study were free for "walk-in walk-out" to all people but this has now changed.

The leaders were asked to rate the effectiveness of these security checks in their view. Only one out of the six leaders felt that the security checks were very effective while two of them rated the security checks as effective.

> One of the leaders said: Under our circumstances, the security checks are effective. We have about 3500 people coming to our church every Sunday and our compound is relatively small. The security officers work hard to ensure each person and vehicle is screened before allowing them into the church compound.

Two of the leaders, rated it as neutral saying that even the security firms did not equip their officers appropriately with the gadgets and skills required.

> One leader said: "Some of them only physically look at the person and rarely inspect any luggage that they are carrying and when they do, they only look at the surface without checking all the contents. This leaves a gap in the security checks. Some of the officers however are thorough and know how to use the screening skills and gadgets well."

Ideally, the screening should be done on every vehicle and individual entering the church premises so as curb the entrance of dangerous weapons and explosives into the church premises. The researcher established that security screening is one of a key area that requires more consideration and improvement in order to minimize easy accessibility to the church by armed attackers or terrorists.

4.5.2.3Emergency Exits

Five out of all the six churches under study had emergency exits. These however also served as entrance/exit points during the church services (assemblies) and sometimes remained closed leaving the members with only the main doors for entrance and exit. In one of the churches, the researcher observed that the structure was a tent with only the front part towards the gate open as the other sides of the church walls were perimeter walls for other businesses hence the church lacked adequate space to plan for emergency exits.

None of the churches had an ambulance, an emergency room or an emergency operation centre. Individual churches may not have the capacity to set up some of these services. However, they could network with institutions where these services are readily accessible and available and maintain their contacts.

4.5.2.4 Contract with Service Providers

As noted above, individual churches may lack the capacity to establish the required services for themselves hence making it necessary for them to engage other institutions. Some of the services cannot be personalized such that each church has for instance, its own service force. They have to make use of the already existing services providers hence the need to have contracts with them. The researcher asked the leaders about the services providers with whom they had a

working contract with. All the church leaders indicated that the churches had contract of service with security firms which offered security checks at the churches. Two of the churches had a contract for ambulance services.

Among the service providers which the churches had contracts with, the police and security firms were the most popular service providers to the churches. Only one church had a contract with a fire brigade service firm. The reason given as to why the other churches did not have any contracts with the fire brigade was mainly because not much thought had been given to the possibility of a fire outbreak in the church and therefore the leaders had not considered maintaining any contracts with the fire brigade services prior to this interview. However, as a result of this interview, they said that they had realized the importance of the same.

4.6 Churches with a Disaster Management Policy

A disaster management policy guides an institution on disaster related issues. The policy outlines appropriate institutional structures and formalizes partnerships between all stakeholders, it offers basic principles and guidelines formulated and enforced by the governing body of an institution to direct and limit its actions in pursuit of long term goals (Namaa 2010). Any institution without a policy on how to manage disasters is vulnerable in the event that these occur since the disasters would demand action for which the institution lacks a point of reference.

The researcher sought to find out from the leaders if there was a disaster management policy in their respective churches. None of the churches under study had a disaster management policy. In fact one of the church leaders had no idea of what a disaster management policy entailed. The other five leaders were however in agreement that this was important in order to guide the church

on various emergency matters within the church which, even though uncommon, are a possibility.

The researcher established that the church as an institution needs to have a disaster management policy to enable it formulate a framework for managing disasters and ensure that there is coordination and focus on risk reduction and maintaining an efficient disaster response capacity. This however would need to take into consideration the national policy on disaster management since even though the subject under study is the churches; disasters are a national concern regardless of where they occur.

4.7 Role of the Church Member in Disaster Management

According to the IFRC (2007), a people-centered approach makes communities safer in that the local people are the first to respond when disaster strikes. Clarke (2002) also says that it is important to engage the public as partners in recovery rather than as an item to be handled. If they are well trained in early warning and knowledge of danger signs to monitor, they can help in saving more lives. The researcher sought to find out what the leaders position was on the role of the church members in disaster management in the church.

Five out of the six church leaders recognized that the church members were key players in disaster management in the churches.

> According to one of the leaders:
> "They are likely to have first hand information and communicate it quickly and effectively. The church leader alone cannot spearhead the management of disasters in the church. The members are the main stakeholders."

In agreement with IFRC (2007), it is not possible to manage disasters only from the top. It calls for collective action of all those concerned as each and every person has a role to play towards saving lives. What is probably required is awareness creation, education and training for basic interventions that do not necessarily require professional interventions.

4.8 Conclusion

The above data reveals a gap in disaster management in the churches. It shows a need for a training and awareness programme which the churches can use to equip their leaders and members on disaster management in the churches. This it seems from the study should be an on-going programme to ensure that the church community is not left out in the national disaster management planning.

CHAPTER FIVE: SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the research findings, conclusion and recommendations drawn from the study. It also presents the research gap identified for future studies.

5.1 Summary of Findings

The main objective of this research was to establish the extent to which disaster management has been incorporated in places of church assemblies. Specifically, the researcher sought to find out if the respondents were aware of hazards that surrounded their churches and their likely behavior towards these hazards. Further, the researcher sought to establish if the respondents had knowledge on how to respond to the hazards in their churches and finally the researcher sought to assess the contingency measures that the churches had put in place.

On awareness of the hazards surrounding their churches, 56.3 percent of the respondents were found to be aware of the hazards while 43.7 percent were not aware. This represents a large percentage of the population that was not aware of hazards surrounding them in their churches. In order to establish the level of awareness, the respondents were asked to list the hazards around their churches which they were aware of and also give reasons why they considered these as hazards. The researcher found out the hazards listed by the respondents who were aware were terrorism, fire, open sewer, dumping/poor garbage disposal, noise, exposed live electric wires, electric poles/Transformer close to the church structure, congestion, drugs/alcohol abuse and

proximity to busy road. Interesting to note is the awareness of the threat of terrorism that faced the churches following the attacks experienced in the country in the past months.

On knowledge of responding to likely hazards, the respondents were asked if they had prior experience of a stampede or a terrorist attack in their churches. Only 4 percent of the respondents had prior experience of a stamped and none of the respondents had prior experience of a terrorist attack in their church. They were further presented with five hazards; a stampede, fire, fainting, armed attack, terrorist scare and terrorist attack. For each of these hazards, knowledge of the recommended standard of operation was assessed by offering the respondents different sets of actions that one should take and they were asked to tick the appropriate set. Majority of the respondents (60.3 percent) did not know how to respond to fainting, 78.1 percent did not know the right steps to take in response to a fire outbreak and 51 percent had the knowledge of responding to an armed intruder. Five out of the six church leaders interviewed had knowledge on what to do in the event of a terrorist scare while four of the leaders had knowledge on what to do should a terrorist attack occur in their church.

On the contingency measures that have been put in place in the churches, the researcher established that only one church conducted emergency drills on fire, congested exit and stampede. It is notable that lack of prior experience of any disaster in the churches was given as a reason why the churches had not incorporated the idea of emergency drills. Through the interviews, the leaders came to the realization of the gap and the need to address it.

The study established that only one church had an organized and well equipped first aid team. All the churches had engaged the services of security firms to provide security in and around the churches and conducted security checks at the entry points. Effectiveness of the security checks

was rated differently by the six church leaders interviewed depending on how well equipped and skilled the security personnel were. Among the service providers which all the church leaders indicated that they had a contract with were security providers. Only one church had a contract with a fire brigade service firm.

None of the churches had a disaster management policy according to the church leaders and only one of the leaders said that the church members did not have a role in disaster management in the churches.

5.2CONCLUSION

The church which is one forum of a mass assembly offers a potential ground for disasters to occur and awareness of this fact is key to mitigating the likely impact of disasters. Lack of awareness and knowledge increases the vulnerability of the church assemblies to disasters. The church leaders could benefit from training and workshops on disaster management. A change in the perception that churches are safe is gradually taking place after the terrorist attacks in the churches which so far have been the main disasters experienced in the churches in the last three years.

5.3 RECOMMENDATIONS

Further to the above findings, the following are the recommendations:

Awareness:

(i) There should be awareness creation forums in the churches on the subject of disasters and their management. This should be done by professionals and should target all the members of the church assembly.

Knowledge:

(ii) Comprehensive training of the church leaders on disaster management in churches to equip the leaders with knowledge on the same should be offered.

(iii) The church community should be educated on basic responses according to the recommended Standards of Operation in order to equip them appropriately. This includes equipping them on life saving skills and it can be achieved through emergency drills and training.

Contingency Measures:

(iv) Each church should set up a special trained team charged with disaster management in the churches. This team should include first aiders and security staff and it should be well equipped. Contact details of all relevant service providers within the church locations should be maintained by the churches.

(v) Decongesting the churches is also recommended. This may be done by increasing the number of services so as to spread out the numbers of people gathering at each given time and where space is available, the expansion of the assembly space should be considered.

(vi) All churches should install of basic firefighting equipment like fire extinguishers and horse pipes which should be serviced regularly. They also should carry out fire drills at least once a year and also have a contract with a fire fighting service provider.

(vii) There is need for all churches to have clear evacuation routes with adequate exits that are easily accessible.

(viii) The churches should address the needs of persons with disabilities in their churches. They could consider having friendly entry/exit points and sitting arrangements for convenience of the persons with disabilities in their congregation

(ix) Disaster management policy should be developed to guide the churches in the area of disaster management.

5.4 SUGGESTED AREAS FOR FURTHER STUDY

From the findings of this study, the following are suggestions for further research:

(i) A study on individual perceptions of people in church (mass) assemblies that render them vulnerable to disasters

(ii) A research on how the churches can effectively address the challenges that face people with disabilities in the churches in order to make them safer and accommodative for them.

REFERENCES

Abraham D. & Gee A. (1992).**A Tragedy of Errors**. Chicago Publishers, Chicago

American Psychiatric Association (1994). **Diagnostic and Statistical Manual for Mental Disorders: DSM-IV** (4th ed.) (304 – 403). Washington DC.

Blumer H. (1935). **Moulding of Mass Behavior through the Motion Picture.** American Sociological Society, 29 (1935): 115-127.

Blumer H. (1937). **Man and Society.** New York, Prentice Hall

Blumer H. (1951). **Collective Behavior.** in A. M. Lee, Principles of Sociology, New York, Barnes & Noble, 1951, pp. 67-121.

Freud, S. 1945. **Group Psychology and the Analysis of the Ego**. Hogarth. London

Fruin J. (2002). **The Causes and Prevention of Crowd Disasters**. B.B. Publishers London.

Hirschfeld L. A. (1986): **Mapping the Mind:** Domain specificity in cognition and culture as cited in Appadurai, Arjun: Theory in anthropology: center and periphery. Comparative Studies in Society and History 28.02 (1986): 356-374.

IFRC (2012) **Contingency Planning Guide**. Geneva

Kasperson J. R., Kasperson B.L. Turner, W. Hsieh & A. Schiller (2005).**Vulnerability to Global Environmental Change** in J. Kasperson and R. Kasperson, eds, The Social Contours of Risk. Volume II: Risk Analysis, Corporations & the Globalization of Risk, London: Earthscan, pp. 245–285.

LeBon, G. (1896). **The Crowd: A Study of the Popular Mind.** The Viking Press. New York

LeBon, G. (1960). **The Crowd: A Study of the Popular Mind**. The Viking Press. New York.

McCauley C & Segal M (1987). **The Social Psychology of terrorist Groups.** In C. Hendrick (ed.) Review of Personality and social psychology (Vol. 9) (pp.231 – 256). Thousand Oaks, CA: Sage

Merton R. (1968).**Social Theory and Social Structure.** New York. Free press

NFPA (1986).**Fire Prevention Handbook, 16th Edition.** A. E. Cote & J. L. Linville, Eds. National Fire Protection Association Quincy. Massachusetts

Roeckelein J.E. (2006). **Elsevier's Dictionary of Psychological Theories.** Elsevier Ltd. Oxford

Sia, C. L, Tan B. & Wei K. K. (2002). **Group Polarization and Computer-Mediated Communication:** Effects of Communication Cues, Social Presence, and Anonymity". Information Systems Research13: 70–90.

Smyth I. & Hai V M. (2012). Disaster Crunch Model. Oxfarm GB

Stoner J. A. (1961). **A comparison of individual and group decision involving risk**. Unpublished master's thesis, Massachusetts Institute of Technology.

The Kenya Standard (2012): **A guide to making your premises safe from fire**: Kenya Bureau of Standards (KEBS)KS 2390 (2012) (English)

Turner R. H. and Killian M. L. (1993) **Collective Behavior.**4th ed. Englewood Cliffs, N. J., Prentice-Hall

Zimbardo, P. G. (1969). **The human choice: Individuation, reason, and order vs. deindividuation, impulse, and chaos.** In W. J. Arnold & D. Levine (Eds.), Nebraska Symposium on Motivation (pp. 237-307). Lincoln: university of Nebraska press.

JOURNALS

Kreps, Gary A. and Thomas E. D. (1996). **Disasters are non-routine Social Problems.** International Journal of Mass Emergencies and Disasters 14:129-153.

Lang K. & Lang G.E. (2009). **International Journal of Communication.**3, 998-1024. University of Washington.

Soomaro L. and Murray V. **Disasters at Mass Gatherings: Lessons from History**. Journal Article Version 2. PLoS Curr. 2012 February 2

Sunstein C. R. (2002). **Journal of Political Philosophy:** The Law of Group Polarization. Vol 10, Issue 2, Dec 2002

Zeitz K, Tan M., Zeitz John (2009): **Crowd behavior at Mass gatherings:** A literature review. JEMS Communications

WEBSITES

Antony Giddens: Sociology 5th Edition: http://www.polity.co.uk/giddens5/news/sociology-and-terrorism.asp

American Red Cross: www.redcross.org/prepare/disaster/terrorism

Bosire Boniface; 30 August 2012. Timeline: grenade and landmine attacks in Kenya http://sabahionline.com/en_GB/articles/hoa/articles

Boundless: www.boundless.com/gender-roles

Bulmer A., Hansford B. (2009): The local church and its engagement with disasters: tilz.tearfund.org/media/files/Topics/DRR

Burkle FM Jr, Hsu EB. Ram Janki Temple: Understanding human stampedes Lancet 2010;377:106-107: www.ncbi.nlm.nih.gov/pubmed

Crooks B. and Mouradian J. (2011): Disasters and the Local Church: Guidelines for church leaders in disaster-prone areas. www.tearfund.org

Church Safety: www.churchsafety.org.uk

David T. Derrer (2013)www.webmd.com/first-aid/fainting-treatment

Davis I and Wall M. (eds). 1992): Christian Perspectives on Disaster Management: A training manual. International Relief and Development Association, Middlesex, UK: desastres.unanleon.edu.ni/pdf/2002/agosto/eng

Derrer T. D. (2013 November) www.webmd.com/first-aid/fainting-treatment

Euro fire protection and maintenance service on fire drills: www.eurofireprotection.com

Fire Safety Technical Note TN103 (www.ucl.ac.uk/fire)

Ford B. (2012) Is Gender a factor in Church attendance? www.newsinfaith.com

Football Safety Officer's Association Scotland (1997): www.footballsafety.com

Gender profile of Church Attenders: www.ncls.org.au

Hinsz, V.B. & J.H. Davis (1984). "Persuasive Arguments Theory, Group Polarization, and Choice Shifts". *Personality and Social Psychology Bulletin*: 260–268. doi:10.1177/0146167284102012

Hyseria: www.thegoddessproject.org

IFRC (2007)https://www.ifrc.org/Global/Publications/disasters/poster-earlywarning.pdf

IFRC: Contingency Planning Guide (2012) http://www.ifrc.org/Docs/idrl/I290EN.pdf

Intercon Security: (www.popcenter.org/problems/bomb_threats/PDFs/planCanada.pdf)

International Religious Freedom Report (2010)
(www.state/gov/documents/organization/171619.pdf)
Jorgustin K. (2012 October 16): modernsurvivalblog.com/security/how-to-survive-a-stampede

Kasperson J.X, Hsieh W. & A. Schiller (2002): Vulnerability to Global Environment Change in the Human Dimensions of global environmental change: https://weadapt.org/knowledge-base/vulnerability/vulnerability-definitions

Kasperson & Pijwaka 1985: The Search of an Adequate Framework for Hazard, Risk and Vulnerability Analysis: A Focus on Renn's Framework:
Training.fema.gov/emiweb/edu/docs/hazrm/handout%203-8.doc

Kessler Foundation and the National Organization on Disability (2010): NOD-Kessler Surveys - National Organization on Disability www.nod.org/assets/downloads/01-2011

Leary M (2004). The First 72 Hours: A Community Approach to Disaster Preparedness. Lincoln (Nebraska), iUniverse Publishing: www.iuniverse.com/bookstore/book_detail.asp?&isbn=0-595-31084-2

Liolio S. E. (2012). Re-thinking the state apparatus of Counterinsurgency; its raise to classical terrorism. www.culturaldiplomacy.org

Luhan W. J., Kocher M.G. & Sutter M. (2009). Group Polarization in the Team Dictator Game Reconsidered. Experimental Economics:doi:10.1007/s10683-007-9188-7.

Maskrey, A.: 1989, Disaster Mitigation: A Community Based Approach, Oxfam, Oxford.unpan1.un.org/intradoc/groups/public/documents/…/unpan009661.pdf

Menya W. 2010: www.nation.co.ke/sports/football

Moi International Sports Centre: en.wikipedia.org/wiki/Moi_International_Sports_Centre

Moyle District Council: A guide to Safety and Health in Churches, Church Halls and other places of Worship: www.moyle-council.org

Myers, D.G. & S.J. Arenson (1972). Enhancement of dominant risk tendenciesin group discussion.Psychological Reports*:* 615–623. doi:10.2466/pr0.1972.30.2.615.

Myers D. & Bishop G. D. (1970). "Discussion effects on racial attitude". *Science* 169 (3947): 778–779. Bibcode1970Sci…169..778M. doi:10.1126/science.169.3947.778.

Nairobi City Stadium: en.wikipedia.org/wiki/Nairobi_City_Stadium

Namaa A. W. (2010): National Policy on Disaster Management: www.disasterriskreduction.net

Nyayo National Stadium: en.wikipedia.org/wiki/Nyayo_National_Stadium

Ombati, Cyrus (2012). "Standard Digital : Kenya : 17 killed, scores injured in twin church attacks in Garissa". http://www.standardmedia.co.ke/?articleID=2000060931&pageNo=1.

Prof. David Alexander: Vulnerability to Disasters, Sept 10, 2009:www.slideshare.net/dealexander

RIT Public Safety (2010 – 2011): Rochester Institute of Technology: https://www.rit.edu/publicsafety

Kenya Population 2009 census: Softkenya.com/Kenya/Kenya-population

Still K. G. (2013) Crowd Safety and Risk Analysis: www.gkstill.com/expertwitness/crowddisasters.html

Still K.G. (2013). FIMA FICPEM: http://www.gkstill.com/CV/index.html

The Associated Press. Deadly grenade blasts rattle Nairobi. 24 October 2011. http://www.cbc.ca/news/world/story/2011/10/24/kenya-blast.html.

United States Department of State, *2009 Report on International Religious Freedom - Kenya*, 26 October 2009: http://www.unhcr.org/refworld/docid/4ae86130c.html

Uhuru Park: en.wikipedia.org/wiki/Uhuru_Park www.uhurupark.com

Wright B. (2007) brewright.blogspot.com/2007/04/church-attendance-rates

APPENDIX 1: INFORMED CONSENT FORM

Dear Respondent

My name is Jennifer Wanjiku Kimaru and I am a student at the University of Nairobi where I am undertaking a Masters Degree in Sociology (Disaster Management). As part of the fulfillment for the award of a Masters of Arts Degree in Sociology, I am required to submit a research paper in my area of interest. I am therefore carrying out a research on Mass Assemblies and Disaster preparedness: The case of Churches in Nairobi. The general objective of this study is to establish the extent to which disaster management has been incorporated in places of mass assemblies.

You have been selected as a participant in this research and kindly requested to give your honest response to the questions. You are free to withdraw from the research at any time if you so wish. The information given will be treated with confidentiality and will be used purely for academic purposes and not for publicity. Kindly append your signature here below to indicate your consent as a participant in this study. At the end of the study, I will share with you the findings obtained.

Thank you.

I have read the above and confirm my willingness to participate in the study. I am also aware that I can withdrawal from the study if I so wish.

Signature: …….. **Date:** …….

APPENDIX II: INTERVIEW SCHEDULE FOR CHURCH LEADERS

My name is Jennifer Wanjiku Kimaru. At the moment, I am pursuing a Masters of Arts Degree in Advanced Disaster Management at the University of Nairobi. As part of fulfillment for the award of a Masters Degree, I am required to submit a research paper in my area of interest which is **Mass Assemblies and Disaster Preparedness: The case of churches in Nairobi**. You have been selected to participate in this study and kindly requested to give your honest response to the following questions. The information obtained from this study will be used purely for academic purposes and will be treated in confidence and not for publicity. Your assistance will be highly appreciated.

DEMOGRAPHIC DATA

1. **Identification Code: _____**

2. **Age: _____**

3. **Gender: _____**

4. **Level of Education (Tick one):**

   a) Primary b) Secondary c) College d) University

5. **Duration of Working as a Church Leader: 0 – 5 years 6 – 9 years 10 and above**

6. **Duration at the current church station: 0 – 5 years 6 – 9 years 10 and above**

A: AWARENESS OF HAZARDS SURROUNDING THE CHURCH

1. Are you aware of any hazards surrounding your church?
   Yes [ ] No [ ]

   If yes, please list them _____

2. Why do you consider these as hazards? _____

3. What effect could these hazards have on your church? _____

4. So far, how has the church responded to the hazards stated above? _____

5. How in your view could the hazards above lead to a disaster in your church? Indicate in the table below:

HAZARD	HOW THIS COULD LEAD TO A DISASTER

B. KNOWLEDGE OF RESPONDING TO LIKELY HAZARDS IN A MASS ASSEMBLY

6. During the time that you have been a leader in this church, has there ever occurred a **stampede?**

   Yes [ ] No [ ]

   i) If yes, what was the cause?

   ii) What action did you take as a leader then?

   iii) What effect did it have?

   iv) What would you have done differently?

   v) If No, what is the likelihood of it occurring? Please tick.

   Very High ☐ High ☐ Neutral ☐ Low ☐ Very Low ☐ Unlikely ☐

   vi) Why do you think so?

vii) What would you do if it occurred?

7. What would you do if a member of your congregation fainted?

   i) Lay the person flat on his or her back, Loosen tight clothing, Elevate the person's legs to restore blood flow to the brain, Check for signs of circulation (breathing, coughing or movement), Don't get the person up too quickly, once the person is alert give fruit juice especially if the person has not eaten in more than 6 hours, stay with the person until her or she is fully recovered, call a doctor if the person does not regain consciousness

   ii) Elevate the person's legs, give the person a glass of water or fruit juice, keep the person warm by covering them, put the person in a position of their choice, observe them until they fully recover and call a doctor if the person does not regain consciousness

   iii) Call a doctor or rush the person to the nearest clinic, place the person in a comfortable position, loosen tight clothing, give the person a glass of water or fruit juice

   iv) Shake the person vigorously, help the person up to their feet as soon as there are signs of circulation (breathing, coughing, or movement) call a doctor or rush the person to the nearest clinic if the person does not regain consciousness

   v) I don't know

8. In the event of a fire in your church, how would you respond as the church leader?

   i) Do not panic, Raise Alarm. Shout fire. Call fire brigade or dial 999. Mobilize the members to attack the fire using available appliances, close doors and windows behind you, evacuate the building using staircase and don't return to the building unless authorized to do so, report to the assembly point for roll call

   ii) Do not panic, Find out the cause of the fire, if it's a small fire, attack it using available appliances, if unmanageable call fire brigade or dial 999, Close the doors and windows behind you, use the lift to leave the building faster, raise the alarm to alert the rest, report to the assembly point for roll call.

iii) Do not panic, Raise alarm, shout fire. Attack fire using available appliances, leave the doors and windows open for the smoke to get out, evacuate the building using staircase and do not return to the building unless authorized to do so, once you are safely out call the fire brigade or dial 999. Report to the assembly point for roll call

iv) I don't know

9. What steps would you take should an armed intruder come in to your church?

i) Try to remain calm, enter into a prayer session, if there is an opportunity to escape or hide do so, close all doors and windows. Keep your hands visible, Ensure all the lights are on, let the choir continue singing as you contact the police, If there is absolutely no opportunity to escape or hide, hide behind large items like cabinets or poles, call police if possible, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.

ii) Try to remain calm, if there is an opportunity to escape or hide do so, close all doors and windows. Keep your hands visible, Put off the lights, silence any source of noise, contact the police, remain in your hiding place until you are instructed by the police that it is safe to leave your hideout. If there is absolutely no opportunity to escape or hide, hide behind large items like cabinets or poles, call police if possible, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.

iii) Pray, try to remain calm, take courage and confront the intruder, raise the alarm and shout for help, ensure you are within the vicinity of the intruder so that the intruder does not escape before the police arrive, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons.

iv) I don't know.

10. Which would be the most ideal steps to take in the event of a terrorist scare in your church during a church service?

    i) Find out the source, assess its authenticity, if found to be true, call the police and assist them in the intervention, if not reassure the members and continue with the service.
    ii) Facilitate a safe but immediate exit of the church members assembled, call the security officers to examine the area if found to be safe, reassure the members, if not allow the security officers to intervene. Do not hold another service until the place is declared safe.
    iii) Direct the members to run away from the building immediately, have a security check at the exit as they leave, establish the authenticity of the scare, if true, call the police for intervention, if not true, call back the members and continue with the church services.
    iv) I don't know

11. Have you ever experienced a **terrorist attack** in your current church?
    Yes [ ] No [ ]

    If yes, what form of attack? Please tick.

    Bombing ☐ Grenade attack ☐ Armed attack ☐ Chemical terrorism ☐

    Kidnapping ☐ Holding Hostage ☐ Hijacking ☐

12. In the event of a terrorist attack in your church, which would be the most ideal steps to take?

    i) Close all the doors - call police – pray - call emergency service providers - Engage the church first aid team - clear all exits - decongest the area by letting the people leave through several exits - continuously update the people on the situation to ease tension - move any casualties to the emergency room/area
    ii) Clear all exits - decongest the area by letting the people leave through several exits - engage the church first aid team - move any casualties to the emergency room/area - call emergency service providers - continuously update the people on the situation to ease tension - pray
    iii) Close all the doors - have a prayer session - call police – pray - call emergency service providers - engage the church first aid team - decongest the area by letting the people leave through several exits - continuously update the people on the situation to ease tension - move any casualties to the emergency room/area

iv) Have a prayer session - call police - take the casualties to nearby clinic by whatever available means - close the doors - continuously update the people in the church on the situation to ease tension

v) I don't know

C: RESPONSE PREPAREDNESS

13. Does the church carry out any emergency response drills? Please indicate in the table below:

HAZARD	**DRILL**		**FREQUENCY**			
	YES	NO	Weekly	Monthly	Yearly	Other
Fire						
Armed attack						
Terrorist scare						
Terrorist Attack						
Congested exit						
Stampede						

If no, explain the reasons. _____

14. Does the church have a contract with any emergency service providers that you would call in the event of an emergency? _____

15. Does the church maintain any contacts for the emergency responders?
Yes [ ] No [ ]

If yes, which ones do you have? _____

If no, why not? _____

16. Kindly tick the services/facilities that already exist in your church today:

- ☐ A trained first aid team
- ☐ An emergency room
- ☐ An Ambulance
- ☐ Emergency Operation Center
- ☐ Security checks

☐ Alternative power supply e.g. a Generator

☐ Emergency exits

17. If you have security checks/screening in your church, who conducts them?_____

18. How would you rate the security checks/screening at your church? Please tick.

Very Effective ☐ Effective ☐ Neutral ☐ Less Effective ☐ Not Effective ☐ Cant Tell ☐

19. Does your church have a policy on disaster management?

Yes ☐ No ☐ I don't know ☐

20. If yes, what does it entail? _____

If no, do you think it is necessary? _____

21. Do you think your church members have any contribution to make in disaster management in your church? Yes ☐ No ☐

22. If yes, which one? _____

23. If no, explain _____

Thank you.

APPENDIX III: INTERVIEW SCHEDULE FOR CHURCH MEMBERS

My name is Jennifer Wanjiku Kimaru. At the moment, I am pursuing a Masters of Arts Degree in Advanced Disaster Management at the University of Nairobi. As part of fulfillment for the award of a Masters Degree, I am required to submit a research paper in my area of interest which is **Mass Assemblies and Disaster Preparedness: The case of churches in Nairobi**. You have been selected to participate in this study and kindly requested to give your honest response to the following questions. The information obtained from this study will be used purely for academic purposes and will be treated in confidence and not for publicity. Your assistance will be highly appreciated.

DEMOGRAPHIC DATA

1. **Identification Code: _____**
2. **Age: _____**
3. **Gender: _____**
4. **Level of Education (Tick one) :**

   a) Primary b) Secondary c) College d) University

5. **Duration as a member in this church: 0 – 5 years 6 – 9 years 10 and above**
6. **Duration at the current church station: 0 – 5 years 6 – 9 years 10 and above**
7. **Any special duty assigned to you in the church: _____**

A. AWARENESS OF HAZARDS SURROUNDING THE CHURCH

1. Are you aware of any hazards surrounding your church?
   Yes [ ] No [ ]

   If yes, please list them _____

2. Why do you consider these as hazards? _____

3. What effect could these hazards have on you as a church member? _____

4. What would be your response to the hazards stated above? _____

5. What in your view could easily cause a disaster in your church? Please indicate in the table below:

HAZARD	HOW THIS COULD LEAD TO A DISASTER

B. KNOWLEDGE OF RESPONDING TO LIKELY HAZARDS IN A MASS ASSEMBLY

6. Has there ever been a **stampede** in your current church?
   Yes [ ] No [ ]

   i) If yes, what was the cause?

   ii) What did you do at that moment?

   iii) What effect did it have on you?

   iv) What would you have done differently?

   v) If No, what is the likelihood of it occurring? Please tick.

   Very High ☐ High ☐ Neutral ☐ Low ☐ Very Low ☐ Unlikely ☐

   vi) Why do you think so?

   vii) What would you do if it occurred?

7. What would you do if someone fainted in your church?
   i) Lay the person flat on his or her back, Loosen tight clothing, Elevate the person's legs to restore blood flow to the brain, Check for signs of circulation (breathing, coughing or movement), Don't get the person up too quickly, once the person is alert give fruit juice especially if the person has not eaten in more than 6 hours, stay with the person until her or she is fully recovered, call a doctor if the person does not regain consciousness
   ii) Elevate the person's legs, give the person a glass of water or fruit juice, keep the person warm by covering them, put the person in a position of their choice, observe them until they fully recover and call a doctor if the person does not regain consciousness
   iii) Call a doctor or rush the person to the nearest clinic, place the person in a comfortable position, loosen tight clothing, give the person a glass of water or fruit juice
   iv) Shake the person vigorously, help the person up to their feet as soon as there are signs of circulation (breathing, coughing, or movement) call a doctor or rush the person to the nearest clinic if the person does not regain consciousness
   v) I don't know

8. In the event of a fire in your church, what would you do?
   i) Do not panic, Raise Alarm. Shout fire. Call fire brigade or dial 999. Attack the fire using available appliances, close doors and windows behind you, evacuate the building using staircase and don't return to the building unless authorized to do so, report to the assembly point for roll call
   ii) Do not panic, Find out the cause of the fire, if it's a small fire, attack it using available appliances, if unmanageable call fire brigade or dial 999, Close the doors and windows behind you, use the lift to leave the building faster, raise the alarm to alert the rest, report to the assembly point for roll call.
   iii) Do not panic, Raise alarm, shout fire. Attack fire using available appliances, leave the doors and windows open for the smoke to get out, evacuate the building using staircase and do not return to the building unless authorized to do so, once you are safely out call the fire brigade or dial 999. Report to the assembly point for roll call
   iv) I don't know

9. What would you do if an armed intruder came in to your church during the service?

   i) Try to remain calm, enter into a prayer session, if there is an opportunity to escape or hide do so, close all doors and windows, ensure all the lights are on, let the choir continue singing as you contact the police, If there is absolutely no opportunity to escape or hide, hide behind large items e.g. cabinets, poles, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.
   ii) Try to remain calm, if there is an opportunity to escape or hide do so, close all doors and windows, put off the lights, silence any source of noise, contact the police, remain in your hiding place until you are instructed by the police that it is safe to leave your hideout. If there is no absolutely no opportunity to escape or hide, hide behind large items e.g. cabinets, poles, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons, yell, fight back or overpower the armed intruder as a last option.
   iii) Pray, try to remain calm, take courage and confront the intruder, raise the alarm and shout for help, ensure you are within the vicinity of the intruder so that the intruder does not escape before the police arrive, attempt to disrupt or incapacitate the active intruder by throwing items and improvising weapons.
   iv) I don't know

10. Have you ever experienced a **terrorist attack** in your church?

    Yes [ ] No [ ]

    If yes, what form of attack? Please tick.

    Bombing ☐ Grenade attack ☐ Armed attack ☐ Chemical terrorism ☐

    Kidnapping ☐ Holding Hostage ☐ Hijacking ☐

C. LIKELY BEHAVIOUR IN THE EVENT OF A TERRORIST ATTACK

11. Should a terrorist attack occur in your church, what would you do? Please indicate numerically in order of **priority**

- ☐ Stand still and pray
- ☐ Run to the alter
- ☐ Run towards the door
- ☐ Take cover in the church's side room/office/sacristy
- ☐ Lie flat on the floor
- ☐ Crawl under a solid object and remain there for a while
- ☐ Stay calm
- ☐ Seek first-aid in case of life-threatening injuries you or others may have received.
- ☐ Wait for the Pastor's/Priests direction
- ☐ Listen to emergency officials if any at the scene.

Thank you.

D: FOR THE RESEARCHER'S OBSERVATION

1. The church structure
2. Number of points of entrance and exit and their location.
3. Sitting arrangement
4. The security checking process
5. The emergency room (where it exists) and what it is equipped with.
6. The Ambulance (where it exists) and its equipment.