DISASTER PREPAREDNESS IN PUBLIC SECONDARY SCHOOLS IN
MUTITO CONSTITUENCY, KITUI COUNTY, KENYA

BY

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E55/CE/11739/07

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DECLARATION

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

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DEDICATION

To my wife Jane

To our children Cynthía and Sandra

Thank you for your love and support throughout this study
ACKNOWLEDGEMENTS

Special thanks to the Almighty God for His love, providence and for giving me wisdom to accomplish my work.

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<td>Board of Governors</td>
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<tr>
<td>CDE</td>
<td>County Director of Education</td>
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<td>District Education Board</td>
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<td>District Education Officers</td>
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ABSTRACT

The purpose of the study was to assess the level of disaster preparedness in public secondary schools in Mutito Constituency, with an aim of suggesting policy measures that could be employed to enhance disaster management in secondary schools in Kenya. The objectives of the study were: to find out whether secondary schools in Mutito Constituency have been implementing the Ministry of Education policy guidelines on safety and disaster preparedness in institutions of learning; to assess the levels of knowledge of safety guidelines among secondary school headteachers, teachers and students; to determine the attitudes of headteachers, teachers and students toward various disaster preparedness issues; to identify the factors hindering adherence to disaster preparedness guidelines in secondary schools and to suggest policy measures that could be employed to enhance disaster management in secondary schools in Kenya. The study used a descriptive survey design. The target population was all the 20 principals, 287 teachers and 5891 students in the 20 public secondary schools in Mutito constituency. Simple random sampling was used to select 6 teachers per school, giving rise to 90 teachers. From each of the sampled schools, 24 students were selected randomly from Form 3 and Form 4 (12 students from each class), giving a sample of 360 students. All the 15 principals from the 15 sampled schools participated in the study. The sample size therefore included 360 students, 15 head teachers and 90 teachers. Questionnaires and an observation schedule were used as the main tools for data collection. The study gathered both qualitative and quantitative data. Quantitative data was analyzed using descriptive statistics including frequencies and percentages. Qualitative data was put under themes consistent with the research objectives. The study established that that most of the schools in Mutito constituency partially implemented safety guidelines set in classrooms, dormitories, sanitation infrastructures, libraries and administration block. It was established that all the sampled schools did not have safety standard manuals which explains why most of the principals, teachers and students were not aware of the safety precautions. The study also established that most schools do not conduct adequate training for staff and students on how to prevent disaster. It however emerged that principals, teachers and students had a positive attitude towards school safety guidelines. The study recommends that relevant authorities should organize frequent workshops and seminars for teachers, students and parents to sensitize them on disaster management; schools should be inspected frequently to check whether they fully implement the school safety guidelines; among other recommendations.
CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Disaster preparedness can be defined as the process of ensuring mitigation or prevention, awareness, response, and recovery in case of a disaster. In schools, a safe and secure environment is a prerequisite for effective teaching and learning. According to the United State’s Council on School Health (2008), schools are generally considered to be safe havens for millions of children and the greatest socializing institutions after the family. However, the recent experiences with natural disasters, school violence, acts of terrorism, and the threat of pandemic diseases such as cholera and flu demonstrate the need for schools all over the world to be prepared for all hazard and crisis possibilities (DeVoe, et al. 2004).

There is a fundamental link between day-to-day emergency readiness and disaster preparedness. Threats to the safety and security of pupils and school property can arise from natural hazards – for example earthquake, floods and storms – or from human actions – such as vandalism, arson, and violence. While catastrophic events and human tragedies cannot be eliminated entirely, there is a role for facility designners, institutional managers, emergency response teams, and post-crisis intervention in mitigating their negative impact. Schools that are well prepared for an individual emergency involving a student or staff member are more likely to be prepared for complex events and disasters. In many countries of the world, including Kenya, there is a great regard for the role of school safety in creating environment conducive to learning. Such learning environment provide for children’s needs so that they can perform to the best of their ability (Wortman
and Loftus, 1988). On the contrary, an unsafe environment poses great threat and anxiety in both teachers and pupils and causes lots of damage to schools and education systems (Orpinas and Frankowski, 2001).

Kenyan education institutions have witnessed several school tragedies. Most of them have been as a result of students’ unrest and strikes which have resulted to destruction of property and loss of lives. Although there are many factors attributed to loss of property and lives in schools, a big number of unsafe conditions in schools are as result of fire. Some of the worst school tragedies witnessed in Kenya include Bombolulu Girls Secondary School in 1998, where 26 girls perished in a dormitory fire after they had been locked overnight in their dormitory and the keys taken away by the school matron who was nowhere to open the door for them. In another incident, students of Nyeri High School in 1999 dosed the prefects’ cubicle with petrol and set it ablaze. In the horrendous inferno tragedy, the school head boy, deputy head boy and two other prefects were seriously injured and finally died at Kenyatta National Hospital (Republic of Kenya, 2001).

In March 26th 2001, fire swept through Kyanguli High School dormitory killing 68 students and destroying property worth millions of shillings. Following this school tragedy, the Director of Education wrote a circular letter Ref. No. G9/1/169 dated 10th April, 2001 on Health and Safety Standards in Educational Institutions (Republic of Kenya, 2001). The circular was sent to all educational stakeholders. Its intention was to direct all educational managers, headteachers, and other stakeholders under the direction of the Provincial Education Board (PEB), District Education Board (DEB) and Provincial Director of Education (PDE) to review their institutions safety standards and also
implement the attached guidelines and specifications on physical facilities. It is however not clear whether these Ministry of Education policy guidelines are being followed in the schools, and whether they help improve disaster preparedness in our learning institutions.

Several years after the issuing of the safety standards guidelines by the Director of Education incidences of fires and other risky situations continue being reported in the local media. Recently in October 2010, two students from Endarasha Secondary Schools in Nyeri were burnt to death when a dormitory was set ablaze by fellow students. Hardly does a month pass without reports of fires or other unsafe situations like floods, earthquakes, landslides and social conflicts occurring in the country’s educational institutions. One wonders why this is so despite the emphasis on the importance of the health and safety standards by the law and the existence of Ministry of Education Health and Safety Standards Guidelines to be followed by all schools.

Failure by schools to ensure proper health and safety measures can be blamed for various incidences of tragic incidences experienced in Kenyan schools. Previous studies have shown that the state of health and safety standards in Kenyan schools is wanting. Dierkx (2002) found out that Kenya’s urban conditions create hurdles for children to get quality education, and form barriers to school planning.

It is evident from literature that Kenyan schools may not be adequately prepared to deal with disasters, both natural and man-made. Previous studies have shown that there are safety measures that schools can take to enhance disaster preparedness. Such activities include personal inspections of work areas, open and informal communications between workers and management, and frequent contacts between workers, management and
supervisors. In the case for Kenya, it is not clear the extent to which schools have put in place disaster preparedness measures.

1.2 Statement of the Problem

Incidences of fires and other fatal accidents like landslides and floods within the school environment have been on the rise. The proportion of incidences of insecurity in schools that continue to be reported in the local daily newspapers and other electronic media is alarming. These incidences have left a number of lives lost and property worth million of shillings destroyed in Kenyan secondary schools. Many questions pertaining to the reasons for the increase in these incidences have been raised. Despite the emphasis on the importance of disaster preparedness by the government and the issuing of the Ministry of Education Guidelines on Health and Safety Standards to be followed, disasters continue to happen in schools. This study will therefore seek to find out the level of disaster preparedness in public secondary schools.

1.3 Purpose of the Study

The purpose of the study was to establish the level of disaster preparedness in public secondary schools in Mutito Constituency of Eastern Province, Kenya.

1.4 Objectives of the Study

1. To find out the extent to which secondary schools in Mutito Constituency have been implementing the Ministry of Education policy guidelines on safety and disaster preparedness in institutions of learning.

2. To assess the levels of knowledge of safety guidelines among secondary school headteachers, teachers and students.
3. To determine the attitudes of headteachers, teachers and students toward various disaster preparedness issues.

4. To identify the factors hindering adherence to disaster preparedness guidelines in secondary schools.

5. To suggest policy measures that could be employed to enhance disaster preparedness in secondary schools in Kenya.

1.5 Research Questions

1. To find out the extent to which schools in Mutito Constituency implement Ministry of Education policy guidelines on safety and disaster preparedness?

2. What is the level of knowledge on safety guidelines among secondary school headteachers, teachers and students?

3. What are the attitudes of headteachers, teachers and students toward various disaster preparedness issues?

4. What are the factors hindering adherence to disaster preparedness guidelines in secondary schools?

5. Which policy measures could be employed to enhance disaster preparedness in secondary schools in Kenya?

1.6 Significance of the Study

This study sought to determine the level of disaster preparedness in public secondary schools. The study comes at a time when cases of destructive and at times tragic incidents are on the rise in Kenyan secondary schools. There have been increased incidences of fires and other fatal accidents within the school environment, which have left a number of lives lost and property worth million of shillings destroyed. Many questions pertaining to
the reasons for the increase in these incidences have been raised. This study could benefit
the policy makers, researchers and the stakeholders in the following ways:
The research could provide the Ministry of Education and other relevant government
departments with information to strengthen the present policies in order to improve on
disaster preparedness in schools. The study could help create awareness to the
stakeholders on issues related to safety and security in schools. The results could also
benefit school leaders, among them headteachers, members of the board of governors
(BoG), District Education Officers (DEOs), the Quality Assurance and Standards
Officers (QASOs), and other persons involved in implementation of safety and disaster
preparedness policies in schools. The study could also provoke more research by future
researchers in related areas such as disaster preparedness, health and safety in schools.

1.7 Scope and Delimitations of the Study
The study assessed the level of disaster preparedness in public secondary schools in
Mutito Constituency of Eastern Province, Kenya. The study participants included
principals, teachers, students, BoG and PTA members, and Ministry of Education
officials responsible for formulation and implementation of policies guiding safety and
disaster preparedness in schools. The study was only conducted in a few schools within
Mutito Constituency, due to shortage of time and inadequacy of finances.

1.8 Limitations of the Study
The study was limited by the fact that some of the respondents – principals, teachers and
education officials – were new in the schools, and therefore did not have adequate
information on disasters that have hit their schools.
1.9 Basic Assumptions of the Study

The study was based on the following assumptions:

(a) That the respondents would be co-operative and give truthful information regarding levels of disaster preparedness and the number of incidences of disasters that have taken place in their schools.

(b) The school principals and education officials would be willing to divulge information on their levels of commitment to disaster preparedness.

1.10 Theoretical Framework

This study was based on the Comprehensive Emergency Preparedness and Response for Schools Model by Cole, Henry, Tyson, Fitzgerald & Hopkins (2008). According to this model, School Emergency Operation Plans, should be based on what Cole et al (2008) refer to as the four phases of disaster management: a) Mitigation/Prevention, b) Preparedness, c) Response, d) Recovery. Figure 1.1 below outlines the four phases, which illustrates that the life cycle of disasters can be depicted as on-going, overlapping activities or phases.
Cole et al (2008) however note that while prevention, preparedness and mitigation activities tend to be on-going, response and recovery activities tend to have starting points while response tends to also have an end point. According to Cole et al the four phase of disaster management are as follows:

**Mitigation and Prevention:** Both mitigation and prevention occur during the first phases. Mitigation is defined as on-going actions taken to identify assets and risk factors, steps taken to reduce and/or eliminate harm to persons or property, and efforts undertaken to protect the environment. Such actions may include school policy and rules, community education, environmental assessments and subsequent implementation of countermeasures. Prevention is defined as actions taken to protect life and property and avoid or intervene in incidents. It requires the application of intelligence and other information and may include surveillance, immunizations, inspections, warning systems, public notification, development of response partnerships, and exercise or testing various aspects of the school's Safety Plan.
**Preparedness**: The second phase in the disaster management cycle is Preparedness. Preparedness is defined as pre-determining responses prior to incidents, developing contingency plans, practicing the plan with school and first responders such as local police and fire departments, and identifying transitional steps necessary to move the school environment from incident response into recovery. Preparedness actions could include identifying a Safety Team to develop the plan including recognizing the triggers that move schools from normalcy to crisis response, identifying the various resources, detailing response roles and responsibilities, developing methods and protocols for communicating with staff, students, parents and the media, practicing the three school-wide response (Evacuation, Shelter-in-place, Lock-down), and identifying and incorporating lessons learned from other incidents into updated Safety Plans.

**Response**: The third phase of the disaster management cycle is response. Response is defined as providing emergency assistance to save lives, protect property, and speed recovery. Response actions generally include the mobilization of emergency personnel and equipment to assess the situation, save lives, protect property and the environment, and contain the incident.

**Recovery**: The fourth and final phase of disaster management is Recovery. Recovery is defined as long-range actions taken to restore the community to some degree of normalcy, as quickly and completely as possible through the provision of services and programs. Within a school setting, recovery usually includes a plan for academic, social-emotional, physical facilities, and fiscal recovery. Recovery actions may include cleaning the area, repairing the structure, restoring disrupted services, providing counselling or grief support, and preparing for the resumption of classes. Once started,
the Recovery phase often continues for a period of time. There are usually well devised, albeit time-consuming strategies for restoring the physical environment. However, restoring the social and emotional environment is generally more complex.

This model is relevant to the proposed study because it clearly outlines the phases that are needed for a school to effectively manage disaster. In this study, the interest of the researcher was to determine the extent to which schools have implemented the four disaster preparedness phases of disaster management: a) mitigation/prevention, b) preparedness, c) response, and d) recovery.

1.11 Conceptual Framework

The conceptual framework of the study was based on Comprehensive Emergency Preparedness and Response Model by Cole, et al (2008). As presented earlier, the model states that there are four phases of disaster management: mitigation/prevention, preparedness, response, and recovery. Figure 1.2 presents the conceptual framework of the study.
The independent variables of the study borrow from these four phases, whereby the study sought to find out the extent to which schools have put in place strategies for disaster management. It is expected that schools where the management has put in place mechanisms for disaster management experience less incidences of strikes, violence, fire outbreaks and other accidents. On the other hand, schools that have not put in place disaster management mechanisms experience more incidences since they are not adequately prepared to prevent disasters.
1.12 Definition of Operational Terms

**Disaster**: Refers to a perceived tragedy, being either a natural calamity or man-made catastrophe, which poses a level of threat to life, health, property, or that may deleteriously affect society or an environment.

**Disaster Preparedness**: Refers to the process of ensuring mitigation or prevention, awareness, response, and recovery in case of a disaster.

**Safety standards**: Refer to the set conditions, principles and values that schools are expected to operate on in order to safeguard the security and wellbeing of all members of the school.

**School safety**: Refers to the activities undertaken by the students, staff, parents and sponsors that seek to either minimize or eliminate risky conditions or threats that may cause accidents or bodily injury as well as emotional and psychological distress.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature related to the study on the level of disaster preparedness in public secondary schools in Mutito Constituency of Eastern Province, Kenya. The chapter presents literature on the rationale for school safety and disaster preparedness, policy guidelines on safety and disaster preparedness; levels of knowledge of safety guidelines; perceptions on disaster preparedness issues; policy measures to enhance disaster preparedness; factors hindering adherence to disaster preparedness guidelines and empirical literature review. Finally a summary of the literature review is presented.

2.2 Types of Disasters affecting Schools

Each year, schools all over the world suffer disasters ranging from small to large more damaging disasters that seriously affect the operation of the school. The school management spends millions of shillings in repairing or replacing schools after disasters. Further, students are left anxious, uprooted, out of classrooms for long periods of time or relocated to other facilities disrupting their education and increasing their stress. There is no single school that is not vulnerable to disasters (FEMA, 2009). In order to mitigate any disaster, the causes of the problem must be brought to the fore. To this effect, school disasters have a multiplicity of causes and by extension effects.

Each year, schools all over the world suffer disasters ranging from small to large more damaging disasters that seriously affect the operation of the school. The school
management spends millions of shillings in repairing or replacing schools after disasters. Disasters in schools could be caused by student violence, which include slapping, beating, bullying, rape and weapon use. The causes of school shootings (violence) are complex and varied. School killers feel powerless and begin to be obsessed with killing or injuring others. Use of guns gives them the power they felt deprived off and makes those offending them powerless. Indeed the first recorded school shooting was on May 4, 1956 when a 15 year old student called Billy Prevatte opened fire on teachers at the Maryland Park Junior High School in Prince George’s County. He wanted revenge for having been reprimanded by the school authorities (Bose, 2010).

The leading causes for school violence could be: behavioral problems/poor adjustment, family environment, lack of parental guidance, community environment, school environment, media, and easy accessibility to firearms (Bose 2009). According to the United States Secret Service, bullying and teasing were the leading causes of school shootings. Being bullied or teased by others can often lead a troubled youth to violent revenge or retribution.

According to the U.S. National Highway Traffic Safety Administration, school bus accidents result from a variety of causes, including driver negligence, defective equipment, dangerous roadways, poor weather conditions and improper maintenance. Srednicki (2002) noted that an average of forty-one (41) school-age children are killed in school bus-related traffic accidents each year in the U.S. Numerous injuries have occurred when riding, boarding or unloading from a school bus.
Nderitu (2009), in her study on implementation of safety standards Guidelines in Secondary schools, reported that school fire disasters are caused by students as an expression of dissatisfaction with the school administration, poor fire fighting equipments, poor-school-community relations, insecurity, failure to observe safety regulations, failure to follow construction guidelines, poor school administration, powerful prefects, as well as media influence. Indiscipline was singled out as the main cause of school fire disasters in Kenya. For example, the March 26th 2001 fire tragedy at Kyanguli High School where 68 students lost their lives, has been the most remembered of all (Red Cross, 2001).

According to ISDR (2008) Landslides are described as the downward movement of earth and rocks resulting from naturally occurring vibrations, changes in water content, removal of weathering as well as human manipulation of water courses and the composition of the slope. Landslides are triggered by rapid saturation of the soil, which in turn reduces cohesion, surface tension and friction. The El Nino rains experienced between October 1997 to February 1998 exacerbated the landslide hazards in Kenya (Wendo, 2002). Seismic activity, volcanic activity, geological, human and morphological causes have led to landslides.

Lightning is a giant spark. A single stroke of lighting can heat the air around it, causing the air to expand at an explosive rate. The expansion creates a shock wave that turns into a booming sound wave, known as thunder (Roeder, 2003) Thunder and Lighting occur at roughly the same time, although the flash of lighting appears much faster than sound. According to Spencer (2010), Lighting is produced in thunderstorms when liquid and ice particles above the freezing level collide, and build up large electrical fields in the clouds.
Once these electric fields become large enough, a giant "spark" occurs between them, reducing the charge separation. Objects that are struck by lighting can catch fire, or show little or not evidence of burning at all.

An earthquake is a sudden tremor or movement of the earth’s crust, which originates naturally at or below the earth’s surface (FEMA, 2010). Earthquakes are caused by volcanic eruptions and tectonic activity associated with plate margins and faults. The excessive exploitation of earth’s resources like building dams and blasting rocks leads to light tremors (Ganguly, 2010). In Japan in March 2011, a powerful earthquake led to a deadly tsunami, which led to deaths of thousands of people and destruction of property.

School disasters usually have profound effects on the school community members. School shootings, bus accidents, school fire disasters, flying roofs, collapsing buildings, bombs, strong winds like Katrina, and lightning strikes are a nightmare for students, parents, entire communities and often the whole country. Robinson (2001), notes there are decades of potential life lost by murder and accident victim(s) short and long term loss of health and finances by those injured, emotional distress by friends and family of the victim(s) and the incarceration of the perpetrator. Those of the 1999 Thurston School shooting have lived with post traumatic stress disorders. Some have been diagnosed with depression, anxiety and live with perpetual fear of another shooting (Ibid).

Moreover, the destruction caused by floods, landslides, lighting and earthquakes with respect to lives and material destruction leaves the land hit by one, completely shattered (FEMA, 2010). For example, during the Northridge Earthquake, California schools were damaged, after the Red River flooded in the spring of 1997, North Dakota and Minnesota schools were inundated by mud and made uninhabitable (FEMA, 2007).
2.3 Rationale for School Safety and Disaster Preparedness

According to UNISDR (2009), disaster is defined as a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceed the ability of the affected community or society to cope using its own resources. According to UNISDR (2009), disasters are often described as a result of the combinations of vulnerabilities that are present and insufficient capacity of measures to reduce or cope with the potential negative and catastrophic consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation. Wisner (2004) maintains that disasters are a constraint to economic and human development at the household and national level when roads, bridges, hospitals, schools and other facilities are damaged.

According to Lezotte (2001), school safety is one of the correlates of an effective school. Safe and orderly schools are characterized by a climate and culture characterized by reasonable expectations for behaviour, consistent and fair application of rules and regulations, and caring, responsive relationships among adults and students. School safety refers to the activities undertaken by the pupils, staff, parents and sponsors, that seek to either minimize or eliminate risky conditions or threats that may cause accidents or bodily injury as well as emotional and psychological distress. Accidents can lead to disability or death while emotional and psychological trauma can result in lack of self-esteem and ultimately lead to poor performance of tasks and responsibilities. Creating a school safe zone does not only mean ensuring an accident free school environment,
rather, it is the responsibility taken by pupils, staff, parents and sponsors to foster allround safe living (Ministry of Education, 2007).

According to Bose (2010) schools admit a wide range of students often from markedly different backgrounds. They have differences in terms of tribes, races, religious background, economic status, family stability and personality which manifest themselves in form of tensions in schools. Some students on being ridiculed by others for their ineptness tend to resort to acts of aggression as a means of retribution. Besides, the students are exposed to repeated violence through the media and there is easy accessibility to firearms. A survey showed that during the 1990s, on any given day, an estimated 250,000 firearms would be carried to schools in the United States (Ibid). This has increased juvenile acts of violence in schools.

Many fires in schools are started deliberately. An alarming trend is that deliberately set fires are generally set from inside the school increasing the risk to the occupants and the property. In Kenya, the main cause of these incidences has been closely related to strikes. As Nderitu (2009) notes, strikes occur in schools due to the high handedness of the headteachers, drug abuse, communication barrier, media and societal influence. Moreover, negligence in the laboratory and the kitchen, electric and electronic overload, poor electrification have also led to fire disasters in schools (Fire Fighter Forum, 2009). This suggests that schools are highly vulnerable to fire disasters.

Floods are one of the most widespread and destructive natural disasters. Often floods are sudden and are difficult to predict. An example of this is flash floods. Some floods develop slowly during an extended period of rain (FEMA, 2004). In fact floods have
historically killed more people than any other form of natural disaster (Bradshaw, et al, 2007). In Kenya, several fatal incidences in schools have brought an urgent need for the government and the public to take action and deal with the problem of violence in our learning institutions and the youth in general (NACADA, 2002). Some of these cases that are still vivid in our minds include: the 1991 Meru tragedy where 19 girls of St. Kizito Secondary school in Meru were killed in an orgy of rape and subsequent stampede when boys from a neighbouring school invaded them; the 1998 Bombolulu disaster in which 23 girls were burnt to death in Bombolulu Secondary School; the 1999 Nyeri High School tragedy where fellow students attacked and killed four prefects; and the 2001 tragic incident that occurred in Kyanguli Secondary School, Machakos where 58 students perished in a night of inferno started by some students using petrol (Republic of Kenya, 2001). More recently there have been many disasters that have befallen our schools, leading to loss of life, injuries, destruction of property, and constant anxiety among students, teachers and parents. Such tragedies seem to suggest that our schools are not adequately prepared or are ill-equipped to deal with disasters.

Such tragedies as outlined above can have a negative impact on the health of students, teachers, administrators, and others associated with the school and surrounding community. Schools experiencing insecurity and disasters are less effective in educating learners. These schools have lower levels of learner achievement, higher rates of absenteeism, and more dropouts. Even in schools where a low percentage of learners are victimised, a few violent acts may have far-reaching detrimental effects for a large number of learners. Fear of victimisation has been found to inhibit learners' educational
and psychological development (Cox, Bynun & Davidson, 2004). It is therefore important for schools to institute disaster management measures.

2.4 Policy guidelines on Safety and Disaster Preparedness

In Kenya, the dawn of 21st century saw an increase in insecurity in secondary schools where students exhibited excessive unbecoming conducts (MOEST, 2001). In 2007 alone 300 secondary schools were closed after students went on the rampage destroying property and a number of them lost their lives (Kindiki, 2009).

Safety in Kenya secondary schools is guided mainly by a ministry circular ref G9/1/169/2001 and a safety standards manual for issues published in 2008. These two instruments were issued out of the conviction that safe and secure school environment facilitates and fosters quality teaching and learning. Safety is more critical given the fact that young children are vulnerable to insecurity /safety standards (Republic of Kenya, 2008 pg. 2-3). Other instruments guiding the safety in public secondary schools includes; Education Act Cap 211, Public Health Act 242, Ministry of Roads and Public Works Regulation, occupation Safety and Health Act and NEMA Regulations 2003. In each of the instruments, safety is enhanced through various guidelines in management, implementation, supervision, monitoring and evaluation by various departments of the government. Similarly the new constitution of Kenya is explicit in grading each citizen right to clean and health environment (chapter 4:42) and one may take legal redress if such rights are violated (chapter 5: 70).

The existence of policy guidelines on school safety has however not stopped the incidences of injury, death and loss of property in Kenyan public schools. For instance,
the 1991 raid by boys on the girls' dormitory at St. Kizito Secondary School in Meru resulted in the death of 19 girls (Simatwa, 2007). In 1993, armed gangsters stormed Hawinga Girls Secondary School. The school had no perimeter fencing making it easier for the gangsters to access the school and rape students (Oriang, 2001). Gicheru (1998) states that overcrowding was one of the factors that contributed to the death of 27 girls in the 1998 Bombolulu Girls dormitory fire. Odalo (2001) stated that the absence of firefighting equipment and emergency exits led to the high death toll during the Kyanguli Secondary School fire. Sixty eight boys lost their lives in this incident. The schools were ordered to remove grilles from dormitory windows to protect students during disasters. It was recommended that school managers should beef up security by employing an adequate number of watchmen (Savula and Atsiaya, 2004).

School safety policies in Kenya as indicated in the Ministry of Education Circular No. G9/1/169 (Republic of Kenya, 2001) includes guidelines such as:

i. Head teachers should reside in schools.

ii. Fire drills should be held at least twice every year.

iii. Emergency doors should be created in dormitories and special rooms.

iv. Safety instructions should be prominently displayed in laboratories and workshops.

v. Dormitory windows should open outwards and be without grilles.

vi. Dormitories should have double doors opening outwards.

vii. Firefighting equipment should be provided.

viii. Regular painting and white washing of buildings.
IX. Involvement of registered professionals in site planning, design, construction and maintenance of school buildings.

x. Regular health inspection of premises and students.


xii. Classrooms should be built upwind from laboratories, kitchens and play grounds and their longer sides to run in an east to west direction.

xiii. One toilet to be provided for every thirty students and wholesome water be provided for consumption by students.

xiv. Clearly demarcated school grounds with proper fencing and secure gates.

2.5 Levels of Knowledge of Safety Guidelines

Knowledge about effective school safety practice has expanded considerably. Shaw (2002) in a study on international experiences and actions in promoting school safety states that new collections of exemplary, good or promising practices have been published. Data have been collected and tools developed that support effective practice. Manuals, guides and training materials have been written. A number of national, regional and international meetings have been organized by bodies such as the Council of Europe, the European Forum for Urban Security and the Australian Institute of Criminology. Each of these developments has reinforced the need to work in more collaborative, comprehensive ways in improving safety in schools. A number of countries have developed cross-sectional, national, regional or local strategies on implementing school safety. Some of these strategies are implemented within the broader context of national crime prevention policies. These strategies recognize the multidimensional causes of school safety problems and the need for preventive long term plans that encourage
partnerships between schools and other stakeholders. They may also provide information necessary for funding of project development and implementation, including training and technical assistance.

National Curriculum Statements in South Africa revealed that learners could go from Grade 1 to 6 without being taught about hazards and disasters prevalent in their areas or any dangers resulting for those risks. However in some schools teachers take the initiative by inviting fire fighters to discuss the dangers of fire. There is, however, a need for learners to be aware of many more hazards, such as epidemics and other health hazards. The curriculum implicitly includes hazard and disaster teaching in that it stipulates the teaching of some other concepts that can be used to teach about hazards and disasters. This realization therefore leads to the argument that the national curriculum should explicitly stipulate what educators must teach learners in relation to safety and disaster preparedness (Shiwaku et al., 2007).

In literature such as the UNESCO (2007) and ISDR reports (2008), Fothergill and Peek (2004), Paton and Johnston (2001) and Hosseini and Izadkhah (2006) there is strong evidence that the more prepared and knowledgeable a community is, the more resilient it becomes to disaster. It is argued that education, in particular curriculum and teaching, is regarded as an important resource in making learners more aware of the hazards prevalent in their areas and even to be prepared when disasters occur. This argument is supported by Shaw et al., (2004), Hosseini and Izadkhah (2006) and Ozmen (2006) who maintain that school education is important to ensure that learners respond appropriately when they are faced with a disastrous event.
The South African National Curriculum Statements explicitly prescribe the teaching of hazards and disaster learning outcomes in Grade 7 Social Sciences but are silent regarding this topic in lower grades and in other learning areas. An argument by Smith and Lovat (2003) that there is a hidden and explicit curriculum which imply that although not listed explicitly as learning outcomes, hazards and disasters can be regarded as hidden in other learning outcomes such as those related to the environment, water, forestation, etc. Dekens (2008) argue that indigenous and local knowledge, if combined with external, scientific knowledge, can enable implementing organizations to create innovative and sustainable solutions to reduce disaster risks and is important in building community confidence as communities themselves need to be convinced that some of their local knowledge and practices are relevant to disaster preparedness. According to a report by UNESCO (2007), education for disaster preparedness is a never-ending process that requires constant collaboration efforts by all parties concerned. Hartnady (2010) argues that sustainable development agencies must engage with education authorities to promote hazard awareness and community preparedness by influencing the development of new curricula, textbooks and teacher training in both primary and secondary schools. King (2000) observes that by raising awareness of expected hazards and increasing both knowledge of and active participation in appropriate preparations, it can be hoped that people will respond more effectively to warnings and behave safely when a disaster does occur. National governments have been seen to change their school curricula to include learning outcomes on hazards and disasters. This was done for instance in the USA because of fears of terrorist attacks (Ozmen, 2006) and in Japan after the country had experienced a number of earthquakes (Shaw et al., 2004). Chile and Thailand also
responded by amending their curriculum to integrate the teaching of hazard awareness and disaster preparedness. This study therefore sought to assess the levels of knowledge of safety guidelines and disaster preparedness among secondary school headteachers, teachers and students.

2.6 Perceptions on Disaster Preparedness Issues

While a proactive crisis management approach is more often successful than reactive posturing (Massey, 2001; Penrose, 2000; Smits & Ally, 2003); perceptions of internal and external publics to disaster preparedness, as well as to the affect of critical events, influence the organization’s ability to recover from a damaging event. The view of a crisis as an opportunity for growth and improvement results in greater implementation of proactive measures, training, evaluation, and restructuring in a real-world context. Adversely, those that perceive crises as threats to avoid limit their capacity towards implementation of disaster preparedness actions (Fowler, Kling, & Larson, 2007; Massey, 2001; Penrose, 2000; Wang, 2008).

Kano et al. (2007) indicated in their study that principals’ general perceptions to disaster preparedness were that their schools were prepared for emergencies and disasters. However, the responses to specific questions about school preparedness indicated that perception does not correlate with compliance of their school’s emergency plan, or with coordinating and training with first responders (which was not commonly reported among participants) (Kano et al., 2007). The implications suggest further research is needed to identify factors related to the significant differences among schools in compliance, training, and preparedness activities; as well as to school emergency preparedness in general.
The school managers who are the principals often have suffered from lack of exposure in terms of training and safety, crisis management and disaster preparedness. Refresher programmes organized by the ministry have been approached in a casual and a lackluster approach by many school managers some who opt not to attend under the guise of more pressing school management issues and send junior teachers instead, (Okwiri, 2010). This portends a great risk to the institutions in that the often casual approach may be a pointer to the attitude of the affected managers in terms of implementation of safety and health policy guidelines. Consequently, this study sought to determine the perceptions of headteachers, teachers and students towards disaster preparedness issues.

2.7 Policy Measures to Enhance Disaster Preparedness

Various approaches are used in enhancing school safety in the United States of America. School wide policies and practices are effected to systematically address needs of students, school personnel, the community and the physical plants of the school. The United States Department of Education (U.S.D.E) requires safety policies in schools to be strictly enforced in view of the threats posed by terrorism, drug related violence, proliferation of firearms and natural disasters like typhoons floods and hurricanes. Most American public schools have zero-tolerance policies on activities that are likely to compromise safety. A school survey on crime and safety (S.S.O.C.S) report states that in the 1996/1997 school year, 90% of the schools reported zero-tolerance policies for firearms. In the same period of time, schools implemented a number of approaches to enhance safety and security. Ninety six percent of public schools required visitors to sign in before entering into the school plant. Eighty percent of public schools had a closed
school policy that prohibited students from leaving school premises except at specified times. Six percent of schools had policemen or other law enforcement personnel stationed thirty hours a week or more at the school in a typical week (United States Department of Education, 2004).

Cavanagh (2004) in a report on schools’ responses to the threat of terrorism states that the implementation of school safety and security policies in European countries has been greatly influenced by school tragedies and near misses. The September, 2004 school hostage crisis which led to the massacre of 320 children, teachers and parents at School Number One in Beslan, Russia led to the provision of armed military personnel to guard schools. This was done to prevent future terror attacks on schools. Cavanagh (2004) further states that since the 1993 school hostage crisis in the French City of Neuilly- Sur-Seine, police authorities regularly coordinate security with school officials. Police and school officials meet at the beginning of each term to work out security details of schools. In Paris, policemen are stationed in front of public schools to provide security, maintain the traffic flow and check suspicious activities. This study sought to suggest policy measures that could be employed to enhance disaster preparedness in secondary schools.

2.8 Factors Hindering Adherence to Disaster Preparedness Guidelines

The partial or total lack of the implementation of school safety policies has been a cause of concern in both India and China. Reuters (2004) in a report documenting the Indian school fire of July 2004 blames the tragedy, in which 90 children died, on failure to fully implement safety norms. The school building in this case was overcrowded and had only one exit. There were no emergency doors or firefighting equipment. School
tragedies in India, including the 1995 school fire, which led to the death of 400 students, are blamed on failure by Regulatory Authorities to enforce safety norms. For example, schools may stay for as long as three years without being inspected. In China, the 2001 school blast in which a storied building collapsed on school children was blamed on selective implementation of safety policies.

In a study conducted in Kisumu, Omolo and Simatwa (2010) found out that inadequate funds were by far the most significant factor influencing the implementation of safety policies. A majority of head teachers (86.67%) and QASOs (100%) stated it as influencing the implementation of safety policies. The implementation of safety policies involves extensive modification of existing buildings, the purchase of expensive safety equipment and fittings and capacity development at all levels. Without adequate funds, all the safety policies may not be implemented at once. While agreeing with their findings, safety can be enhanced greatly by utilizing available resources if they are sensitized. The main sources of funding in secondary schools in Kenya today are the Ministry of Education which provides funds for free secondary school project and the parents also contribute funds for development.

Quality assurance and health and safety inspections on the other hand are very occasional activities in the public secondary school settings. Rarely do we have impromptu inspections in the facilities. The situation thus has the effect of having the school administrators putting their act together to create an impression for the purposes of the inspection exercises, (Mutwiri, 2010). The institutions are many at times given a clean bill of health but the occurrences, of safety breaches raises questions as regards the
inspections exercises. It thus calls for the change of tact and devising ways of carrying out impromptu checks to find out the wellness in the institutions without prior knowledge of the school managers. The study therefore sought to identify factors hindering adherence to disaster preparedness guidelines in secondary schools.

2.9 Empirical Literature Review

A study conducted in Kenya by Omolo and Simatwa (2010) investigated the implementation of safety policies in public secondary schools in Kisumu East and West Districts. The study population consisted of 2 Quality Assurance and Standards Officers (QASOs) and 54 head teachers from 54 public secondary schools in Kisumu East and West Districts. The findings of the study showed that the implementation of some safety policies was to a large extent implemented as evidenced by the following: Housing for teachers was provided in 76.67% of the schools. Dormitories in 70% of the schools had emergency doors, 17 out of 30 schools had dormitories with doors opening outwards, and 28 out of 30 schools had secure fences and gates while 96.67% of the schools had first aid kits. The study also established that some safety policies were implemented to a lesser extent as evidenced by the following cases: There was a decreasing trend in conducting fire drills, fire extinguishers were found in only 26.67% of the schools, there was crowding in 70% of the schools and 93.33% of the schools did not have enough toilets. Factors influencing the implementation of safety policies included inadequate funds, time, capacity, transport and coordination. The study found out that teachers and QASOs played significant roles in the implementation of safety policies. Head teachers’ and QASOs’ attitudes towards implementation of safety policies was positive. Based on these findings, it was concluded that the overall implementation of safety policies fell short of
the requirements as stated in the policy circular. The implementation of safety policies was also negatively affected by factors within and outside the schools. Head teachers and QASOs had a positive attitude towards the implementation of safety policies. Based on the conclusions and findings of this study, it was recommended that: Ministry of Education should ensure that head teachers reside in schools and implement safety policies, head teachers should ensure that fire drills are conducted more regularly and that the fire extinguishers required are purchased. Head teachers should also construct and maintain adequate number of toilets and secure fences.

Kimathi (2011) carried out a study to investigate disaster preparedness in public secondary schools in Githunguri District, with a view to make recommendations on how schools can be equipped with skills for emergency preparedness and response to prevent and deal with disasters when they occur. The study was carried out in 12 secondary schools with study participants comprising 12 principals and 60 teachers. The study established that most schools in Githunguri District had experienced disasters and therefore awareness levels of disasters in the region were high. The most common disaster faced in schools was fire. It emerged that the schools had adequate security lighting and first aid kits accessible by all. The schools quickly responded to any disasters as they arose. The study revealed that the schools had disaster management policies which turned out to be ineffective. Regarding disaster management facilities and equipment, it was established that most schools had fire extinguishers and fire alarms. It however emerged that the equipment was hardly replaced over time and if in bad state, was not repaired thus making them useless in times of emergency. It was established that most schools had well ventilated and lit corridors as well as open (unobstructed) escape
routes, therefore making evacuation easy in times if disaster. The Kenyan researchers recommended that studies on disaster preparedness be conducted in other parts of the country in order to establish the salient factors hindering adherence to disaster preparedness. In view of the foregoing there was need to conduct a study on the level of disaster preparedness in secondary schools in Mutito Constituency.

Muigai (2011) conducted a study in Kenya to establish the level of implementation of safety standards guidelines in public secondary schools in Ngong Division, Kajiado District. The study established that knowledge of the most safety guidelines among the institutional headteachers, teachers and students was poor. This is explained by the fact that all headteachers and teachers had not attended any course, seminar or workshop on school safety, only a few had a copy of the safety standard manual, a few of them were aware of all safety precautions that schools should take to avert accidents and disasters. Most of the students were also not aware of the school safety guidelines.

2.10 Summary

The literature reviewed in this chapter has shown the approaches to safety and disaster preparedness in schools in developed countries, Africa and Kenya. The review has shown that although Kenya is among the countries that adopted the Hyogo Framework for Action (HFA), the priority for action 3 indicator 2 has not been implemented in the country. The school curricula and education material in Kenya do not include disaster risk reduction and recovery concepts and practices, the major constrain being that the school curricula is presently congested. Although there exist policies on school safety and disaster preparedness, such as the safety and standards manual (Ministry of Education, 2007), the National Policy for Disaster Management in Kenya (Ministry of Special
Programmes, 2009), Education Act Cap 211, Public Health Act Cap 244, and the Ministry of Public Works Building Regulations; it is not clear the extent to which school leaders are committed to promoting disaster preparedness. There exist very little empirical studies on the status of implementation of school safety and disaster preparedness policies in Kenyan schools. The study therefore sought to assess the level of disaster preparedness in public secondary schools in Mutito Constituency of Eastern Province, Kenya.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter presents the procedures that were used to conduct the study. The chapter focuses on research design, target population, sample and sampling procedures, data collection methods, and data collection procedure, and data analysis.

3.2 Study Design
The study used a descriptive survey design to assess the level of disaster preparedness in public secondary schools in Mutito Constituency of Eastern Province. Descriptive survey designs are used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2008). The choice of descriptive survey design is based on the fact that the researcher would not manipulate any variables.

3.3 Target Population
Target population is all the members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of the study (Borg and Gall (1989). The target population for this study was all the 20 principals, all the 287 teachers and all the 5891 students in the 20 public secondary schools in Mutito Constituency of Eastern Province.

3.4 Sample Size and Sampling Methods
Sampling is the process of selecting a sufficient number of elements from the population so that by studying the sample properties and characteristics they can be generalized to
the entire population. A sample is a sub-set of the population and comprises some elements from the population. According to Mugenda and Mugenda (2003) a sample is a smaller group that has been procedurally selected from the population to represent it. For the purpose of this study, stratified random sampling technique was used to select the study sample. The schools were first stratified according to school type, and then a proportionate number of schools were randomly selected. The researcher selected 15 schools for the study, which represented 75% of the 20 schools in Mutito Constituency. The schools were proportionately distributed across all categories – girls only, boys only, mixed day and boarding, mixed day, and mixed boarding schools.

All the 15 principals of the sampled schools took part in the study. In addition, simple random sampling was used to select 6 teachers per school, giving rise to 90 teachers. The 90 teachers comprised 31.3% of the targeted 287 teachers, which is in line with Gay’s (1992) recommendation of a minimum sample of 10% for educational research. To determine the number of students for the study, the guidelines given by Krejcie & Morgan (1970) were be used. These guidelines are used to estimate a sample size from a given finite population such that the sample will be within plus or minus 0.05 of the population proportion with a 95 percent level of confidence. According to the guidelines, a sample of 360 should be selected from a population of 5,900. Therefore, since there are 5,891 students in the target population, the researcher sampled 360 students for the study. Consequently, from each of the sampled schools, 24 students were selected randomly from Form 3 and Form 4 (12 students from each class). The sample size therefore include 360 students and 15 headteachers, and 90 teachers from the 15 schools.
3.5 Research Instruments

Two sets of data collection instruments were employed in the study: questionnaires and observation schedules. There was a questionnaire for principals, a questionnaire for teachers, and a questionnaire for students, as well as an observation schedule. Kombo and Tromp (2006) maintain that questionnaires gather data over a large sample and that the person administering the instrument has an opportunity to establish rapport, explain the purpose of the study and explain the meaning of items that may not be clear. Three questionnaires were employed in the study, for principals, students and teachers.

3.5.1 Questionnaire for Principals

The questionnaire for principals was divided into four sections. Section A collected the background information of the principals, section B was on knowledge of disaster management guidelines, section C gathered information on status of implementation of school safety guidelines while section D gathered information on attitudes towards various safety guidelines.

3.5.2 Questionnaire for Teachers

The questionnaire for teachers was divided into three sections. Section A collected the demographic information of teachers, section B was on knowledge of disaster management guidelines while section C gathered information on teachers’ attitudes towards various safety guidelines.

3.5.3 Questionnaire for Students

The questionnaire for the students had three sections. Section A gathered the background data for students, section B collected information on knowledge of safety measures
among students while section C collected data on students' attitudes towards safety measures.

3.5.4 Observation Schedule

The observation schedule helped the researcher to confirm what the study participants responded in the questionnaires for validation. The researcher made observations on the condition of physical facilities in schools following the Ministry of Education guidelines on safety standards in secondary schools. For example, observe whether there are posters on the walls on security, how doors and windows are constructed (are they burglar proof, are there exit doors), see if fire extinguishers been installed.

3.6 Validity and Reliability of Research Instruments

3.6.1 Validity of Research Instruments

Validity is defined as the accuracy and meaningfulness of inferences, which are based on the research results (Mugenda and Mugenda, 1999). In other words, validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. Validity according to Borg and Gall (1989) is the degree to which a test measures what it purports to measure. According to Borg and Gall (1989), validity of an instrument is improved through expert judgment. As such, the researcher sought the assistance of research experts, experienced graduates, lecturers and experienced supervisors in order to help improve validity of the instrument.

3.6.2 Reliability of Research Instruments

Mugenda and Mugenda (1999) define reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trial. To enhance
reliability, a pilot study was conducted in two secondary schools in Mutito Constituency, but which were not used in the final study. The aim of the pilot study was to enhance the validity and reliability of the research instruments and allow the researcher to gain familiarity with the instruments. Split-Half technique for reliability was employed. Spearman rank order correlation coefficient was calculated where a value of 0.5 was obtained and considered as indicating that the instruments was reliable. The researcher assessed the clarity of the questionnaire items so that those items found inadequate or vague were modified to improve the quality of the research instrument thus increasing its reliability.

3.7 Data Collection Procedure

A research permit was obtained from the National Council for Science and Technology. Thereafter the office of the District Education Officer, Mutito district, was contacted before the start of the study. The selected schools were visited and the questionnaires administered to the respondents. The researcher personally administered the questionnaires to the principals, teachers and students. In case a selected respondent was not available, another respondent was randomly selected to participate. The respondents were assured that strict confidentiality would be maintained in dealing with the responses. The filled-in questionnaires were collected immediately after respondents finish filling in. As the respondents filled in the questionnaires, the researcher moved around the school making observations on the status of physical facilities in relation to safety.
3.8 Data Analysis

Data collected from the field was coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS). As Martin and Acuna (2002) observe, SPSS is able to handle large amount of data, and given its wide spectrum of statistical procedures purposefully designed for social sciences, it is quite efficient. Data collected was of both qualitative and quantitative nature. Descriptive statistics including percentages and frequency counts were used to analyze the quantitative data obtained. Bell (1993) maintains that when making the results known to a variety of readers, simple descriptive statistics such as percentages have a considerable advantage over more complex statistics. Borg and Gall (1989) also hold that the most widely used and understood standard proportion is the percentage. The results of data analysis were presented in frequency tables and bar charts. The qualitative data was presented thematically in line with the objectives of the study. Thereafter, conclusions and recommendations were drawn.
CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter presents the results of the study and discussion of the study findings. The purpose of the study was to establish the level of disaster preparedness in public secondary schools in Mutito Constituency of Eastern Province, Kenya. The study findings were presented based on the following research objectives.

i. To find out whether secondary schools in Mutito Constituency have been implementing the Ministry of Education policy guidelines on safety and disaster preparedness in institutions of learning.

ii. To assess the levels of knowledge of safety guidelines among secondary school headteachers, teachers and students.

iii. To determine the attitudes of headteachers, teachers and students toward various disaster preparedness issues.

iv. To identify the factors hindering adherence to disaster preparedness guidelines in secondary schools.

v. To suggest policy measures that could be employed to enhance disaster preparedness in secondary schools in Kenya.

4.2 Background Data of the Respondents

Data was collected from 15 principals, 90 teachers and 360 students in public secondary schools in Mutito Constituency. Among the 360 students, 183 (50.8%) were male students while 177 (49.2%) were female students. Of the 90 teachers, 41 (45.6%) were
male teachers while 49 (54.4%) were female teachers; along with, 10 (66.7%) of the principals were male while 5 (33.3%) were female. Table 4.1 illustrates principals’ age.

Table 4.1: Principals’ Age

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between 30-39 yrs</td>
<td>3</td>
<td>20.0</td>
</tr>
<tr>
<td>Between 40-49 yrs</td>
<td>8</td>
<td>53.3</td>
</tr>
<tr>
<td>50yrs plus</td>
<td>4</td>
<td>26.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 4.2 shows that 8 (53.3%) principals were aged between 40-49 years, 4 (26.7%) were 50 years and above whereas 3 (20.0%) were between 30-39 years. This shows that majority of the principals were above 40 years.

Table 4.2 shows principals’ and teachers academic qualification.

Table 4.2: Respondents Academic Qualification

<table>
<thead>
<tr>
<th>Academic qualifications</th>
<th>Principals (n = 15)</th>
<th>Teachers (n = 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Diploma</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>SI</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>BA/Bsc without PGDE</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>B.Ed</td>
<td>7</td>
<td>46.7</td>
</tr>
<tr>
<td>Masters</td>
<td>8</td>
<td>53.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 4.2 shows that 8 (53.3%) of the school heads had Master’s qualification while 7 (46.7%) had attained Bachelor’s in education. The table also illustrates that 55 (61.1%) of the teachers had Bachelor in education, 19 (21.1%) of the teachers had diploma...
qualifications while 7 (7.8%) had masters qualifications. This shows that both principals and teachers were highly qualified. Figure 4.1 shows principals’ working experience.

![Figure 4.1: Principals' Working Experience](image)

As shown in Figure 4.1, 7 (46.7%) of the principals had a working experience of 16 years and above, 6 (40.0%) had worked in headship for 11-15 years while 13.3% had an experience of 6-10 years.

Presented in Table 4.3 are teachers responses on duration served in the current school.

<table>
<thead>
<tr>
<th>Years served in current school</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 1 yr</td>
<td>12</td>
<td>13.3</td>
</tr>
<tr>
<td>2-5 yrs</td>
<td>23</td>
<td>25.6</td>
</tr>
<tr>
<td>6-10 yrs</td>
<td>27</td>
<td>30.0</td>
</tr>
<tr>
<td>11-15 yrs</td>
<td>13</td>
<td>14.4</td>
</tr>
<tr>
<td>16-20 yrs</td>
<td>15</td>
<td>16.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>90</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

n = 15
As shown in Table 4.3, 27 (30.0%) teachers had served in the current school for 6-10 years, 23 (25.6%) had served for 2-5 years whereas 15 (16.7%) had taught for 16-20 years.

Figure 4.2 illustrates teachers’ responses on school category

![School Category Pie Chart]

**Figure 4.2: School Category**

Figure 4.2 shows that 43 (47.8%) of teachers were in day schools, 35 (38.9%) were in boarding school while 12 (13.3%) were in mixed day and boarding.

### 4.3 Implementation of School Safety Guidelines

The first objective of the study was to find out whether secondary schools in Mutito Constituency have been implementing the Ministry of Education policy guidelines on safety and disaster preparedness in institutions of learning. Disaster can strike any school in any location. During an actual emergency, quick and effective action is required. This action often depends on having made and implemented effective preparedness plan,
(IFRC, 2000). To ensure schools safety standards were maintained, physical structures (classrooms, dormitories, sanitation infrastructure, libraries and administration block) should be appropriate, adequate and properly located, devoid of any risks to users or to those around them. Schools should comply with the guidelines of the Basic Education Act (2013) and the safety standards manual (MOE, 2007). According to the Basic Education Act No. 14 of 2013 (Republic of Kenya 2013) The Board of Management of a basic education institution has the responsibility to manage the institution’s affairs in accordance with the rules and regulations governing the occupational safety and health; and provide for the welfare and observe the human rights and ensure safety of the pupils, teachers and non-teaching staff at the institution. The Basic Education Act further provides that the County Education Board shall license and register a basic education and training institution only if the premises and accommodation conform to the prescribed requirements of the occupational health and safety regulations. In relation to this, the study first sought to establish the extent to which schools implemented safety guidelines in the following areas; classrooms, dormitories, sanitation infrastructure, libraries and administration block.
Table 4.4 presents principals’ responses on safety guidelines in classrooms.

### Table 4.4: Classroom Safety Guidelines

<table>
<thead>
<tr>
<th>Classrooms</th>
<th>Fully implemented</th>
<th>Partially implemented</th>
<th>Not implemented at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>The size of the classroom (length/width) is as specified in the MoE building specifications.</td>
<td>6 40.0%</td>
<td>9 60.0%</td>
<td>0 0.0%</td>
</tr>
<tr>
<td>Doorways are adequate for emergency purposes.</td>
<td>15 100.0%</td>
<td>0 0.0%</td>
<td>0 0.0%</td>
</tr>
<tr>
<td>Doorways open outwards and are not locked from outside at any time when students are inside.</td>
<td>2 13.3%</td>
<td>5 33.3%</td>
<td>8 53.3%</td>
</tr>
<tr>
<td>The corridors are well ventilated and lit.</td>
<td>0 0.0%</td>
<td>7 46.7%</td>
<td>8 53.3%</td>
</tr>
<tr>
<td>The width of corridors is wide enough for students to walk along without bumping into each other.</td>
<td>1 6.7%</td>
<td>4 26.7%</td>
<td>10 66.7%</td>
</tr>
<tr>
<td>Classroom windows are without grills and are easy to open.</td>
<td>3 20.0%</td>
<td>9 60.0%</td>
<td>3 20.0%</td>
</tr>
<tr>
<td>The classrooms are properly lit and ventilated.</td>
<td>0 0.0%</td>
<td>13 86.7%</td>
<td>2 13.3%</td>
</tr>
<tr>
<td>The floors are level and kept clean always.</td>
<td>0 0.0%</td>
<td>7 46.7%</td>
<td>8 53.3%</td>
</tr>
<tr>
<td>Each classroom block is fitted with serviced fire extinguishers.</td>
<td>1 6.7%</td>
<td>8 53.3%</td>
<td>6 40.0%</td>
</tr>
<tr>
<td>Regular inspection of classrooms, halls and stairways is carried out and immediate measures taken to correct any problem noticed.</td>
<td>0 0.0%</td>
<td>12 80.0%</td>
<td>3 20.0%</td>
</tr>
<tr>
<td>Furniture in the classrooms are appropriate for use without risk of injuries</td>
<td>0 0.0%</td>
<td>7 46.7%</td>
<td>8 53.3%</td>
</tr>
<tr>
<td>Class teachers ensure that the desks are arranged in a manner that facilitates easy and orderly movement of students in the classroom.</td>
<td>7 46.7%</td>
<td>8 53.3%</td>
<td>0 0.0%</td>
</tr>
</tbody>
</table>

\( n = 15 \)

Classrooms constitute important infrastructure in a school setting since learners spend most of their time in these facilities. As shown in Table 4.4, all principals reported that school had fully implemented guideline which stated that doorways should be adequate for emergency purposes 15 (100.0%). Majority of them also indicated that they had partially implemented the following; classrooms are properly lit and ventilated 13
(86.7%) and regular inspection of classrooms, halls and stairways is carried out and immediate measures taken to correct any problem noticed 12 (80.0%).

However, most of the principals further reported that the following guidelines were not implemented at all; the width of corridors is wide enough for students to walk along without bumping into each other 10 (66.7%), doorways open outwards and are not locked from outside at any time when students are inside 8 (53.3%) and furniture in the classrooms are appropriate for use without risk of injuries 8 (53.3%). This shows that most schools in Mutito constituency did not fully adhere to guidelines set by Ministry of Education circular on Health and Safety Standards in Educational Institutions (2001): the major guidelines that were not followed at all by most schools were: The size of the classroom, in terms of length and width, should be as specified in the Ministry of Education building specifications i.e. 7.5m x 5.85m or 7.5m x 6.0m. Such classrooms should accommodate a maximum of 30 learners in one-seater desks or 40 learners in two seater desks; the doorways should be adequate for emergency purposes, open outwards and should not be locked from outside at any time when learners are inside and the furniture in classrooms, especially the desks, should be appropriate for use by both male and female learners. Poorly constructed or inappropriate desks can lead to physical deformities such as curvature of spine, contraction of chest, roundness of shoulders or a confirmed stoop. They can also create tension and fatigue among learners. Table 4.5 illustrates principals’ responses on dormitories guidelines.
Table 4.5: Dormitories Safety Guidelines

<table>
<thead>
<tr>
<th>Dormitories</th>
<th>Fully implemented</th>
<th>Partially implemented</th>
<th>Not implemented at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>The space between the beds is at least 1.2 metres</td>
<td>0 f</td>
<td>7 f</td>
<td>8 f 53.3</td>
</tr>
<tr>
<td>Corridors and/or pathways space is not less than 2 metres.</td>
<td>2 13.3 f</td>
<td>10 66.7 f</td>
<td>3 20.0</td>
</tr>
<tr>
<td>All doorways are wide enough at least 5 feet wide</td>
<td>5 33.3 f</td>
<td>8 53.3 f</td>
<td>2 13.3</td>
</tr>
<tr>
<td>All doorways open outwards.</td>
<td>2 13.3 f</td>
<td>7 46.7 f</td>
<td>6 40.0</td>
</tr>
<tr>
<td>All doorways are never locked from outside when students are inside.</td>
<td>5 33.3 f</td>
<td>7 46.7 f</td>
<td>3 20.0</td>
</tr>
<tr>
<td>Each dormitory has a door at each end and an additional emergency exit at the middle.</td>
<td>2 13.3 f</td>
<td>10 66.7 f</td>
<td>3 20.0</td>
</tr>
<tr>
<td>Emergency exit doors are clearly labelled Emergency Exit.</td>
<td>8 f 53.3</td>
<td>6 f 40.0 f</td>
<td>1 f 6.7</td>
</tr>
<tr>
<td>Dormitory doors are locked at all times when students are away such as in class or the playing fields.</td>
<td>10 66.7 f</td>
<td>5 33.3 f</td>
<td>0 0.0</td>
</tr>
<tr>
<td>The keys to the doors are kept by the dormitory master/mistress or the dormitory prefect.</td>
<td>10 66.7 f</td>
<td>5 33.3 f</td>
<td>0 0.0</td>
</tr>
<tr>
<td>Dormitory windows are without grills and are easy to open outwards.</td>
<td>6 40.0 f</td>
<td>8 53.3 f</td>
<td>1 f 6.7</td>
</tr>
<tr>
<td>Fire extinguishing equipment are placed at each exit</td>
<td>4 26.7 f</td>
<td>11 73.3 f</td>
<td>0 0.0</td>
</tr>
<tr>
<td>Fire alarms are fitted at easily accessible points.</td>
<td>0 f 0.0</td>
<td>4 f 26.7 f</td>
<td>11 f 73.3</td>
</tr>
<tr>
<td>Regular spot checks by the teachers and the administration are undertaken before students retire to bed.</td>
<td>0 f 0.0</td>
<td>7 f 46.7 f</td>
<td>8 f 53.3</td>
</tr>
<tr>
<td>An accurate roll call is taken every day and records well maintained.</td>
<td>6 f 40.0</td>
<td>9 f 60.0 f</td>
<td>0 0.0</td>
</tr>
<tr>
<td>There are regular patrols by the school security personnel or any other authorized school personnel.</td>
<td>6 f 40.0</td>
<td>9 f 60.0 f</td>
<td>0 0.0</td>
</tr>
<tr>
<td>No visitor is allowed in the dormitory.</td>
<td>12 80.0 f</td>
<td>3 f 20.0 f</td>
<td>0 0.0</td>
</tr>
<tr>
<td>There is regular inspection of hygiene standards of the dormitories</td>
<td>1 6.7 f</td>
<td>11 73.3 f</td>
<td>3 20.0</td>
</tr>
</tbody>
</table>

\(n = 15\)

In Table 4.5, multiple responses from over 60.0% of the principals indicated that their schools fully implemented the following guidelines in the dormitories: No visitor is allowed in the dormitory 12 (80.0%), dormitory doors are locked at all times when...
students are away such as in class or the playing fields 10 (66.7%) and the keys to the doors are kept by the dormitory master/mistress or the dormitory prefect 10 (66.7%). The table also illustrates that, majority of the respondents reported that schools partially implemented the following guidelines; fire extinguishing equipment are placed at each exit 11 (73.3%) and there is regular inspection of hygiene standards of the dormitories 11 (73.3%). However, 11 (73.3%) of the principals indicated that schools had not at all ensured that fire alarms are fitted at easily accessible points. This shows that most schools partially implemented dormitories guidelines.

According to the safety standards manual MOE (2007): The space between the beds should be at least 1.2 metres while the corridor or pathway space should not be less than 2 metres; All doorways should be wide enough, at least 5 feet wide, and they should open outwards. They must not at any time be locked from outside when learners are inside; each dormitory should have a door at each end and an additional emergency exit at the middle. It should be clearly labelled “Emergency Exit”; dormitory doors should be locked at all times when learners are in class or on the playing fields. The keys to the doors should be kept by the Dormitory Master/Mistress or the dormitory Prefect; dormitory windows must be without grills and should be easy to open outwards; fire extinguishing equipment should be functioning and placed at each exit with fire alarms fitted at easily accessible points; regular spot checks by the teachers and the administration should be undertaken before learners retire to bed; an accurate roll call should be taken every day and records well maintained.; there should be regular patrols by the school security personnel or any other authorised security personnel; no visitor
should be allowed in the dormitory; there should be inspection of hygiene standards of the dormitories and the learners on alternate days of the week.

For schools to have conducive teaching and learning environment, sanitation facilities must be built up to the required standards and kept clean with high standards of hygiene.

Table 4.6 shows principals’ responses on safety guidelines on sanitation infrastructure

**Table 4.6: Guidelines on Sanitation Infrastructure**

<table>
<thead>
<tr>
<th>Sanitation infrastructure</th>
<th>Fully implemented</th>
<th>Partially implemented</th>
<th>Not implemented at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pit toilets are built at least 10 metres away from tuition and boarding facilities and on the downwind side.</td>
<td>1 (6.7%)</td>
<td>12 (80.0%)</td>
<td>2 (13.3%)</td>
</tr>
<tr>
<td>High degree of cleanliness is maintained in all ablution blocks.</td>
<td>5 (33.3%)</td>
<td>10 (66.7%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Pit latrines are regularly well disinfected.</td>
<td>2 (13.3%)</td>
<td>12 (80.0%)</td>
<td>1 (6.7%)</td>
</tr>
<tr>
<td>Girls’ sanitation areas are separated and offered complete privacy.</td>
<td>6 (40.0%)</td>
<td>3 (20.0%)</td>
<td>6 (40.0%)</td>
</tr>
<tr>
<td>Provisions are given to students with special needs</td>
<td>6 (40.0%)</td>
<td>8 (53.3%)</td>
<td>1 (6.7%)</td>
</tr>
<tr>
<td>All sanitary facilities and equipment are in the best state of repair</td>
<td>3 (20.0%)</td>
<td>12 (80.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Running water is provided outside the toilets for cleaning hands.</td>
<td>6 (40.0%)</td>
<td>7 (46.7%)</td>
<td>2 (13.3%)</td>
</tr>
</tbody>
</table>

n = 15

As shown in Table 4.6, majority of the principals reported that the following guidelines were partially implemented; pit toilets are built at least 10 metres away from tuition and boarding facilities and on the downwind side 12 (80.0%), pit latrines are regularly well disinfected 12 (80.0%), all sanitary facilities and equipment are in the best state of repair 12 (80.0%) and high degree of cleanliness is maintained in all ablution blocks 10 (66.7%). This implies that most schools were partially implementing sanitation infrastructure guidelines. To ensure smooth teaching and learning environment in
schools, the following guidelines on sanitation infrastructure must be followed: Pit toilets should be built at least 10 metres away from tuition and boarding facilities and on the downwind side; 15 metres (50 ft) away from a borehole or well or water supply point; 6 metres (20ft) deep, and should be regularly well disinfected. In mixed schools, girls’ sanitation areas must be separate and offer complete privacy and each school should ensure safe and effective disposal of sanitary wear. All closets must be clean, well-ventilated and properly maintained; at least one third of the fittings for boys should be closets and the rest urinals. In all schools, appropriate provisions should be given to learners with special needs and very young learners in pre-unit and lower primary. For example, passageways should be accessible and toilet facilities should be suitable for use by special needs learners and very young school children and all sanitary facilities and equipment should be in the best state of repair, serviceable and inspected regularly.

Table 4.7 illustrates principals’ responses on safety guidelines in the school libraries

Table 4.7: Safety Guidelines in School Libraries

<table>
<thead>
<tr>
<th>Libraries</th>
<th>Fully implemented</th>
<th>Partially implemented</th>
<th>Not implemented at all</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Library is located in a place of least noise</td>
<td>9</td>
<td>60.0</td>
<td>6</td>
</tr>
<tr>
<td>Library is well ventilated and safe from invasion by destructive insects and pests.</td>
<td>2</td>
<td>13.3</td>
<td>8</td>
</tr>
<tr>
<td>Library has adequate lighting</td>
<td>2</td>
<td>13.3</td>
<td>6</td>
</tr>
<tr>
<td>Wide alleys of passageways are provided to facilitate evacuation</td>
<td>2</td>
<td>13.3</td>
<td>9</td>
</tr>
<tr>
<td>Library is spacious for easy movement</td>
<td>0</td>
<td>0.0</td>
<td>10</td>
</tr>
<tr>
<td>Library books are dusted regularly after every three days</td>
<td>5</td>
<td>33.3</td>
<td>10</td>
</tr>
<tr>
<td>Bookshelves are properly reinforced and well spaced</td>
<td>2</td>
<td>13.3</td>
<td>12</td>
</tr>
</tbody>
</table>

n = 15

As shown in Table 4.7, out of the 15 schools which took part in the study, 9 (60.0%) of them fully implemented guideline which stated that library should be located in a place of least noise whereas 6 (40.0%) partially implemented it. It also emerged that most of the schools partially implemented the following rules; bookshelves are properly reinforced and well spaced 12 (80.0%), library is spacious for easy movement 10 (66.7%) and library books are dusted regularly after every three days 10 (66.7%). This shows that most schools were partly practicing safety guidelines set for the school libraries. Ministry of education (2001) guidelines states that a library that meets safety standards should be rightly located in a quiet place, should have sufficient space in addition to being well ventilated and safe from invasion by destructive insects and pests.

Table 4.8 shows results obtained on safety guidelines in school administration block.