

**PRINCIPALS' ADMINISTRATIVE SAFETY STRATEGIES INFLUENCING
DISASTER MANAGEMENT IN PUBLIC SECONDARY SCHOOLS IN
NYERI COUNTY, KENYA**

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DECLARATION

I hereby declare that this thesis is my original work and to the best of my knowledge has not been presented for examination for an award of a degree in this or any other university.

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DEDICATION

This work is dedicated to my loving husband who encouraged me never to give up until I achieve my dream, my loving daughter Khawlah Amina and my sons: Abdulghan Omar Krasha and Ashraf Kamwithi Munyi for their patience and understanding during the entire period I was absent studying. Further dedication is to my Mother Amina Omar and Father Omar Khamisi who instilled in me the spirit of determination and dedication, their guidance and advice on values and importance of education.

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ABSTRACT

Disasters are very common occurrences within Kenyan secondary schools. This study sought to explore principals' administrative safety strategies influencing disaster management in public secondary schools in Nyeri County, Kenya. This study was prompted by the many disasters that have affected schools in Nyeri County especially fire disasters, therefore the need to determine how well prepared the schools are to handle disasters. The study sought specifically to: determine the influence of principals involvement in staff awareness of safety strategies on disaster management; establish the influence of adherence to infrastructure standards on disaster management; find out the extent of the influence of staff training on safety strategies on disaster management; examine the influence of safety policy implementation on disaster management; determine the extent of the influence of monitoring and evaluation of safety standards on disaster management in public secondary schools in Nyeri County, Kenya. The study adopted the descriptive survey research design. This work targeted 208 public secondary schools which comprised of 208 principals and 1040 heads of departments in Nyeri County. 15% was used to select 21 principals and 21 schools for interviewing and observation checklist respectively. To validate research instruments, a pilot study was carried in 21 schools (10%) of the targeted 208 Schools. Reliability of the research instruments was done using test-retest method. The same instruments were used by the same individuals at two different occasions; the correlation was established to determine the suitability of the use of the instruments. A sample of 30% for heads of department and 10% for principals was considered effective to the study. Stratified sampling method and a mixed method approach were used. Qualitative data was collected from the principals using interview schedule while Quantitative data were collected using questionnaires from head of departments and the checklist was used to confirm the availability of safety policies, infrastructure and equipment. Pearson Correlation Coefficient was used to analyze all the five hypotheses and were tested at 0.05 alpha levels while SPSS was used to compute the data. All ethical issues pertaining to research were observed. The study established that staff awareness of safety and adherence to infrastructure standards were positively statistically significantly correlated to disaster management $p < .05$. Training of staff and policy implementation of safety standards had a statistically significant contribution to disaster management $p < .05$. Monitoring and evaluation of safety standards were positively statistically significantly correlated to disaster management $p < .05$. It was concluded that principals' involvement in staff awareness of safety strategies influence disasters management, that principal's involvement in the adherence to infrastructure standards influence disaster management. Finally, it was concluded that principal's involvement in monitoring and evaluation of safety standard influence disaster management in public secondary schools. The following recommendations were made: Sensitization on disaster management ought to be done more frequently to ensure teachers are well aware of the importance of preventing disasters in order to promote learning and save lives. The MoE and TSC ought to ensure that the principals implement the safety policy in schools which may lead to adherence to infrastructure standards on disaster management. The Ministry of Education and Teachers Service Commission should ensure that principals monitor and evaluate the safety standards in schools to prevent disasters from happening. The study may benefit principals in that it will assist them in devising disaster management strategies. It may also assist the Ministry of Education in policy formulation and implementation in disaster management.

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LIST OF ABBREVIATION AND ACRONYMS

ADE	Arkansas Department of Education
B.O.G	Board of Governors
CDE	County Director of Education
CRC	Convention on the Rights of the child
CS	Cabinet Secretary
DEO	District Education Officer
DRR	Disaster Risk Reduction
DRRE	Disaster Risk Reduction Education
EFA	Educational For All
GDP	Gross Domestic Product
HODS	Heads Of Departments
IDNDRR	International Decade for Natural Disaster Risk Reduction
ILO	International Labour Organization
INIDE	National institute for research and education Development
Kenfiba	Kenya National Fire Brigade Association
M&E	Monitoring And Evaluation
MOEST	Ministry Of Education Science and Technology
MOET	Ministry Of Education and Technology
NACOSTI	National Commission of Science Technology and Innovation
NGOs	Non-Governmental Organization
P.E.B	Program on Educational Buildings
P.S	Permanent Secretary
PEV	Post-Election Violence
QASOs	Quality Assurance and Standards Officers
RoSPA	Royal Society for the Prevention of Accidents
RQ	Research Questions
S.S.C	Safe School Contract
S.S.O.C.S	School Survey on Crime and Safety
SPSS	Statistical Package for Social Sciences
SSOCS	School Survey on Crime and Safety
UK	United Kingdom

UN	United Nations
UNESCO	United Nation Educational Scientific & Cultural Organization
UNICEF	United Nation International Children Emergency Fund
UNISDR	United Nations International Strategy for Disaster Reduction
US	United states of America
USAID	United States of America International Development
WCDR	World Conference on Disaster Reduction
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter comprises of the background of the study, the statement of the problem, purpose of the study, research objectives, research hypothesis, significance of the study, delimitations of the study, assumptions and operational definition of terms.

1.1 Background of the Study

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 surpasses the capacity of the affected community or society to survive based on its own resources (United Nations International Strategy for Disaster Reduction (UNISDR) (2009). Disaster management is a planned, deliberate, organized, directed and visualized effort to mitigate, prepare for, respond to and recover from a disaster or emergency situation or its effect. Disaster preparedness involves an integrated combination of planning, training personnel qualification, drills, acquisition of equipment and standard certification (UNISDR, 2009).

Safety means freedom from or prevention of danger, risk or injury. School safety is the measure under taken by stakeholders to ensure threats conditions that may initiate accidents, are either reduced or eliminated (Oduor & Omoro, 2012). Need for workplace safety dates back to the 19th century from the United States of America when a small band of railroad regulators, workers and managers began campaigning for the development of better brakes and couplers for freight cars (LaTour, Kathleen, Maki & Eichenwald, 2010). In response, the passenger train brake was modified in 1887 but it was not until 1970 when occupational health and safety Act was passed. The Act that was

administered by occupational safety and health administration in the United States (U.S.), touched other departments of other ministries, was meant to encourage employers to comply with health safety standards including limiting exposure of workers to physical hazards and toxic substances (LaTour & Kathleen, 2006). It was also to ensure that employees are provided with protective devices as well as receiving effective training on their use (Copsey, 2010). In Europe, in 1987 the first European directives were adopted based on the general market harmonization provisions for safety and health at work. Moreover, the Single European Act of 1987 was a significant advancement, that is, it introduced a new legal provision on social policy to the Treaty aimed at improving the working environment as well as the safety of the workers (Copsey, 2010).

In South Africa monitoring and evaluation policy on school safety has been put in place due to many reported cases in form of gang activity, rape and sexual assaults (Xaba, 2014). In Uganda one of the East African countries the government, community, parents and private partners have tried to respond to infrastructural aspects of education and quality, but safety of the learning environment is still a hindrance (Omolo & Simatwa 2010). The Uganda government united with the USAID in 2008 and presented in above 200 schools Safe School Contract Program which intended to increase monitoring and evaluation and strengthens the features of school safety in Uganda, (Omollo & Simatwa, 2010).

In Kenya, safety issues have been addressed since the attainment of independence in 1963. In particular, safety concerns have been well outlined in the Education Act (1968-Chapter 211 - Laws of Kenya, Revised, 1980). The Act insists that “where the application is made for the registration of an unaided school, the minister shall cause the school to be provisionally registered for eighteen months, if he is satisfied among others that the premises and accommodation are suitable and adequate, having regard to the number,

ages, and sex of the pupils who are to attend the school, and fulfill the prescribed minimum requirement of health and safety and conform with any building regulations for the time being in force under any written law”(Cecilia, 2009).

The Ministry of Public Works building regulations have been given mandate to deliver appropriate site plans and latter should be observed. Any facility not built conforming to set directive should be adjusted and the school management ought to severely abide by the set building regulations. In this regard, the Directorate of Quality Assurance and Standards of the Ministry of Education are required to examine a school in accordance to compliance with safety standards and guidelines. The Government of Kenya has devoted itself to raising the education standards. A commitment compelled by motives like the need to deliver education as an ultimate human right, education as a social vaccine in the fight against poverty, and education as an integral and indispensable vehicle for attaining the aims of national development and integration, and peace (Republic of Kenya, 2008).

School Physical Infrastructure includes classrooms, dormitories, offices, kitchens, toilets. The construction should comply with the stipulations on Health and Safety Standards as outlined in the Ministry of Education circular in Educational Institutions (2001), Basic Education Act, 2013, Public Health Act (Cap 242) and Ministry of Public Works building standard. In addition, further legitimate documents which handle safety anxieties in schools includes The Public Health Act Cap 242 (Chapter 242-972 Revised 2010), which enumerates provision for acquiring and upholding health for the citizens. It also provides strategies concerning health and building constructions. However, although the strategies are overall, they ought to be applied to schools. Another important document is the Children’s Act (Chapter 586-2001),

which highlights and stresses on security of all children. In general, educational institutions must be well informed of such rights so as to adhere to them and also safeguard them.

The Commission of Inquiry in the Education System in Kenya (2010), commends those clear regulations governing the least standard of infrastructure to be permitted prior to establishment or running of any educational institution. Concerning basic education, the government is recently focusing on quality, access, equity, and relevance of education. In particular, the policy framework sought to achieve Education for All (EFA) by 2015, guaranteeing children right to basic education as emphasized in the Children's Act (2001). Therefore, raising access, equity and relevance of basic education as well as effectively and efficiently delivering quality services at all times and levels (Republic of Kenya, 2005). Finally, the Safety Standards Manual enumerates standards and instructions for use in all over schools in Kenya.

In 2015, arsonists, who are suspected to be students, torched a dormitory at Stephjoy Boys High School in Limuru, by throwing an inflammable substance into the dormitory. Some of the witnesses claimed that a security guard near the affected dormitory minutes before the fire broke out. "Two students died, eight injured, and dormitory burnt down destroying property worth thousands of shillings". The guard confronted them demanding to know what they were doing outside the dormitory at that time of the night. Unfortunately, they rudely replied to him why he suspected they were up to no good. Afterward, "the guard ordered them to go and sleep", said former Juja MP Stephen Ndichu, who was among the first parents to arrive at the school during the incident. Therefore, this serves as a caution that schools ought to

provide fenced grounds, well demarcated with a safe and secure gate with clear signs to avoid incidences as it happened in 2015. Other security consideration includes storied buildings, and the stairways, which must be large enough hand located at both ends of the building and must clear of any obstacles at all times (Singleton, Straits, & Strait, 2013).

The teachers and students have a huge role to play to ensure that safety is conventional to assure that schools running smoothly Gathoni (2013). Through the Ministry of Education Safety Standards Manual, the government of Kenya has committed itself to enhancing the education standards at all levels (Republic of Kenya, 2008). In Kenya, issues of safety in schools were developed in accordance to Children's Act (2001) after the post-election violence (2008), when the school's infrastructure were heavily destroyed (Ministry of Education, 2008). In any country, for the realization of quality education the safety of the learner is paramount. Nderitu (2009) argued that schools require basic first-aid equipment for safety purposes. Elsewhere, Wanyama (2011) emphasized to ensure personal and student safety during and after an emergency, an alarm system, evacuation plans and emergency drills, classrooms must be installed with first-aid kits and a written emergency program. Schools' safety policies outline actions be taken to generally improve the safety and protection of school students emphasizing safe environment and buildings, and teachers are usually part of safety programs (Donmez & Guven, 2012).

Issues of safety in public secondary schools in Nyeri have become an area of concern especially during the second term. In 2016, cases of fire outbreaks in schools and destruction of property recorded an upsurge in the county. A police report indicates that students in 122 schools went on rampage between January 2015 and July 2016,

leading to massive destruction of property worth millions of shillings. (*Daily Nation*, 4th August, 2015). Some of the affected secondary schools are Giakaibe Secondary, Watuka Boys, Wamagana Girls, and Mwiyo Girls. Property worth of money was destroyed by fire. The situation was aggravated by the evident unavailability of firefighting equipment. This study was impelled by lots of disasters that have distressed schools in Nyeri County exclusively fire disasters, hence the necessity to determine the preparedness of schools in handling disasters. It is under this background that the researcher developed an interest to research on the principals' administrative strategies affecting disaster management in public secondary schools in Nyeri County, Kenya.

1.2 Statement of the Problem

There is a rising attention on Health and Safety in Kenya following endorsement of the Occupational Health and Safety Act. It is applicable to all work areas where any individual working, be it temporary or permanently. The Act pursues to protect the security, health and welfare of individuals at work. In the Act the employer has an obligation to conform with any safety and health rules, protocols and procedures in the act by undertaking all essential precautions to guarantee own safety and health and of any persons in his work place and always use suitable safe systems of work, precautionary and control measures. The employee at work place has a responsibility to safeguard his own safety and health and that of other persons who may be affected by his deeds or blunders at place of work and to observe with the given safety and health procedures, requirements and instructions. The distress caused by such accidents and illnesses to workers and their families is immense. Economically, the ILO has projected that 4% of the world's yearly GDP is lost as a result of work-

related diseases and accidents. Most of these disasters are avoidable by execution of sound prevention, reporting and inspection practices. (Engineers against poverty report, 2008).

Disasters in schools can interrupt education and eventually root psychological trauma. Under the UN convention on the rights of the child (CRC) children have an unchallengeable right under all situations including disasters. Kenyan government is trying to put safety and security situation in schools under control by providing safety and security guidelines. Furthermore, it has conveyed a National Policy on Disaster Management to institutionalize mechanisms for addressing disasters; however, the objective has not been achieved. In various legislative documents the National Disaster Management Policy Legal Framework of 2004 is available. Despite formation of several educational committees, task forces, and commissions to address multiple challenges affecting our education sector and specifically those that are related to safety at schools, students and teachers are still exposed to work related injuries and poor working conditions that emanate from unsafe conditions.

In Kenya, following the unprecedented levels of school fire breakouts and unrest witnessed in the country frequently, the issue of students' safety and security has received great attention. In 2012, about 48 cases of fire outbreaks in schools lead to deaths of 14 students and 3 teachers, while in 2008 about three cases resulting to deaths of students were associated with student's unrest in various learning institutions. This was witnessed at a time when the country had just suffered damaging post-election violence (PEV). Afterward, various schools have continued to experience property destruction as well as loss of lives. For instance, in 2012, the following schools suffered incidences of fire disasters, school property destruction

and some lost lives. Malindi High School in Malindi District, fire caught deputy principal's house at night claiming his life, wife, and 6 children, Emmanuel High School in Uasin Gishu County, the boys' dormitory caught fire at night, Kathigiriri Girls Mixed Boarding School in Meru County, a dormitory caught fire which destroyed school and pupil's properties. In August 2012, fire broke out in a dormitory in Asumbi Boarding Primary School in Homa Bay County, leading to 8 deaths, and only one pupil survived. This incidence was attributed to an electric fault.

Secondary schools in the Nyeri County are striving in safeguarding security and safety their students as per the Government regulations. The fire tragedy in 2009 at Nyeri High School that left four students dead has not been a lesson to school administrators to ensure safety strategies are implemented to avert the disasters. Previous studies done by (Gichuhi 2013 & Ng'ang'a 2016) on fire disasters and safety compliance respectively have pointed out the need for implementing safety strategies in but what is yet to be established is why the strategies have not been applied by the school principals. Herein, the researcher aimed to uncover the principal's administrative safety strategies influencing disaster management in public secondary schools in Nyeri County, Kenya.

1.3 Purpose of the Study

The aim of this study was to investigate principals' administrative safety strategies influencing disaster management in public secondary schools in Nyeri County, Kenya.

1.4 Objectives of the Study

The objectives of this study were:

- i. To determine the influence of principals' involvement in staff awareness of safety strategies on disaster management in public secondary schools in Nyeri County, Kenya.
- ii. To establish the influence of principals' involvement in the adherence to infrastructure standards on disaster management in public secondary schools in Nyeri County, Kenya.
- iii. To find out the extent of the influence of principals' involvement in staff training on safety strategies on disaster management in public secondary schools in Nyeri County, Kenya.
- iv. To examine the influence of principals' involvement in safety policy implementation on disaster management in public secondary schools in Nyeri County, Kenya.
- v. To establish the extent of influence of principals' involvement in monitoring and evaluation of safety standards on disaster management in public secondary schools in Nyeri County, Kenya.

1.5 Hypotheses of the Study

This study was led by these null hypotheses:

- HO₁ There is no statistically substantial connection between principals' involvement in staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya.
- HO₂ There is no statistically significant relationship between principals' adherence to infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya.

HO₃ There is no statistically significant relationship between principals' involvement in staff training on safety strategies and disaster management in public secondary schools in Nyeri County, Kenya.

HO₄ There is no statistically significant relationship between principals' safety policy implementation and disaster management in public secondary schools in Nyeri County, Kenya.

HO₅ There is no statistically significant relationship between principals' monitoring and evaluation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya.

1.6 Significance of the Study

Safety of learners at all times in school cannot be over emphasized. The provisions of the safety standards manual to schools give emphasis to the government's commitment to overall welfare as well as the safety of learners. Over past years, there had been an outcry from the public over the state of safety in Kenyan schools. This had been caused by the alarming rate of insecurities manifested in the many reported cases of school disasters all over the country. This trend had to be checked otherwise cases of student deaths would continue rising making the attainment of school safety a distant dream.

The outcomes from this work might provide a data base for future workers who would find the research on disaster management instructive. The study will reveal to what extent the Ministry of Education set disaster management policies are implemented in public secondary schools. The study will also establish why, despite the existence of the policies, disasters are on the increase. The findings and recommendations will provide a basis for in-service courses to staff on disaster management. The findings

may enlighten organizations like UNESCO, UNICEF and other NGOs that have interest in improving the quality of education by providing information on school disaster management. The study sensitizes the school communities and makes them realize the need to invest in disaster management programs.

1.7 Limitations of the Study

According to Orodho (2005) limitations of a study are the features of design or methodology that impacted or influenced the interpretation of the findings from one's study. The limitations of the study were that:

- i. There are many conditions that form variables under which disaster management programmes are adhered to in schools in Nyeri County. However, in this study only 5 (five) of those were considered.
- ii. The authenticity of the data was likely to be compromised since some respondents were likely to be reluctant to divulge all the information required, given the topic sensitivity. However, the researcher convinced the respondents to give accurate information as per the research questions, assuring them that the study was for learning purposes only.
- iii. Some Principals were hesitant to give accurate and reliable information, posing a potential negative effect on the study. This was however overcome after assuring them of anonymity and confidentiality. They were further assured that the information provided would be solely used to achieve the objective of this study.

1.8 Delimitations of the Study

Delimitations are defined as the term to identify boundaries. In this instance, the delimitations in social research refer to the various boundaries used in the study such as the participants, apparatus or instruments used, and the geographical placement

(Theofanidis & Fountouki, 2018). This study was delimited to principals and heads of departments in public secondary schools in Nyeri County, Kenya. By the time of the study, there were 208 public secondary schools and 208 Principals of the schools. Respondents of the study also included all Heads of Departments (HoDs) in these schools in Nyeri County, Kenya. The study used questionnaires, interviews and checklist to collect data.

1.9 Assumptions of the Study

The assumptions of this study were:

- i. That the principals understood disaster management issues in public secondary schools in Nyeri County, Kenya;
- ii. That the school management used the right disaster management strategies in public secondary schools in Nyeri County, Kenya;
- iii. The principals faced challenges in disaster management in public secondary schools in Nyeri County, Kenya;
- iv. The respondents would be honest while responding to the items in the questionnaires and interview schedule.

1.10 Operational Definition of Terms

Adherence to infrastructure standards refers to school buildings that have been built in accordance with the guidelines of the Ministry of Education.

Administrative safety Strategies refers to the principles of management which include planning, organizing directing, coordinating, controlling and evaluating both human and non-human resources in secondary schools by principals to manage disasters.

Awareness refers to being informed on disaster management.

Disaster refers to a serious disruption on the functions of the school which encompasses human, animal, economic or environmental losses. The damages associated with disaster include property destruction, losses to human lives and health.

Disaster management refers to a set of activities that principals use to control on disaster situations for helping the persons who are at risk to avoid disaster or recover from the disaster impact. Disaster management helps the people before, during and post disaster event.

Monitoring and Evaluation refers to the activities which principals do to ensure that all the rules and regulations and guidelines on safety are effectively adhered to.

Policy implementation- This is where the guidelines set by the government on safety of students are fully enacted in school.

Physical infrastructure refers to any built facility that facilitates the provision of services in the school.

Public secondary schools refer to schools that receive government funds in Kenya.

Safety Standards refers to guidelines set by the government to ensure students are free from any harm in school.

Safety policy refers to statements or guidelines of the Ministry of Education fundamental approach to achieve acceptable or tolerable safety.

School Safety refers to strategies undertaken by the students, staff, parents and other stakeholders to either minimize or eliminate threat conditions that may initiate accidents, bodily injury as well as emotional and psychological distress.

Staff Awareness refers to activities that the principal and teachers in a school do to ensure the school community is informed about disaster management.

School as a Safe Zone refers to a legally demarcated and identifiable physical space around the school for children's safety with favorable environment conditions.

School Stakeholders refers people who ensure there is effective running of the school through setting rules and guidelines and financial support.

Standard refers to the quality achievement levels concerning School Safety component.

Training refers to the courses teachers undergo in school for capacity building.

Waste disposal refers to a technique used in dumping or destroying items regarded as waste or no longer useful around the school compounds.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter comprises of the literature review which is organized as per the following subtitles; concept of school disaster management, staff awareness of safety strategies, adherence to infrastructure standards, staff training on safety strategies, safety policy implementation, monitoring and assessment of safety levels on disaster management in public secondary schools in Nyeri County, Kenya, summary of literature review, theoretical and the conceptual frameworks of this work.

2.1 Concept of Disaster Management

School safety is a significant human concern that each school and community should take seriously and target to achieve based on the National Clearing House of Education facilities. Moreover, it is a moral concern and schools can be held responsible in case they do not make a substantial effort in provision of a safe and secure school enrolment (Copsey, 2010). Overall, disaster or emergency management entails all activities, measures and programmes which can be applied before, during and after a disaster with an aim of avoiding, reducing the impact or recovering from disaster losses (Chepkonga, 2014). Lindell (2013) described emergency management as the range of activities intended to maintain and overcome disaster and emergency situations. Also, to provide a framework especially for helping those who are at risk to avoid or recover from the impact of the disaster.

Additionally, disaster management involves dealing with all humanitarian aspects of emergencies by managing numerous responsibilities and resources. This may include rebuilding and supporting society through preparedness before disaster, response and

recovery (Alexander, 2015). The purpose of this is to reduce the overall effects of disasters.

In addressing emergency management in schools, the school-building safety and disaster education plays an integral role in the development of school safety (Shiwaku & Fernandez, 2011). In particular, school-building safety provides disaster reduction in the short-term. On the other hand, disaster education provides a disaster reduction culture in the long-term. The critical role of disaster education in students' works is well recognized at the school level. Another study by Shaw and Kobayashi (2011) noted that schools exhibited a significant role in creating awareness between teachers, students and parents.

According to (UNISDR, 2007a) children are one of the most vulnerable population group during disasters and emergencies. Therefore, disaster risk education may empower children and helps them build greater awareness of the issue in the society (UNISDR, 2007b). Besides lives losses, the incidence and economic impacts of climate related disasters followed the onward trend in the past years (World Meteorological Organization, Co-operative Program on Water and Climate et al., 2006). In particular, economic losses are tremendous when critical infrastructure is hit. For example, in 2005, 700 schools were closed in the US because of hurricane Katrina. Specifically, in Louisiana 40 schools were demolished while 875 were damaged. Also, in Mississippi 16 schools were devastated whereas 287 were damaged. In response, the Congress allocated approximately US\$ 645 million to cover for 372,000 displaced school children education costs for the school year (2006-2006) (UNCRD, 2009).

Elsewhere, in 2005 about 8,000 school buildings were destroyed and 18,000 children died from the Kashmir earthquake (Swiss Re, 2009). In Vietnam, an estimated 5,120 schools were damaged, leading a total loss amounting 300 million USD and these losses were caused by Typhoon Xangsane (2006) (CCSFC 2010). In 2008, Cyclone Nargis lead to damages of properties worth billions of dollars plus loss of lives (approximately 140,000 lives) in Myanmar. Besides, it was noted that roughly 600,000 children were affected and more than 4,000 schools destroyed (UNICEF, 2009). Recently, nearly 6,284 public schools and 733 school students and teacher died or are missing due to Tohoku Earthquake and Tsunami in 2011 based on the information from the Japan Ministry of Education, Culture, Sports, Science and Technology (Shaw et. al., 2011).

Over the past years, there was a dramatic shift in disaster management towards a more comprehensive understanding of the reduction of disaster risks and towards the “development forward-looking and longer -term strategy anticipating and managing risk” (Thomalla et al. 2006). The previous background will be summarized through a brief history of international efforts on the development of DRR. On December 11, 1987, the United Nations General Assembly declared the 1990s as “The International Decade for Natural Disaster Risk Reduction (IDNDR)”. Here, the aim was to make DRR agenda significant through technical and scientific buy-in contributions. The World Conference Disaster Reduction (WCDR) in 1994 has been regarded as “one of the first international blueprint for DRR”, which focus primarily on social and community development. According to Yokohama Strategy and Plan of Action principle 6 for a Safer World state that “Preventive measures are the most effective when they involve participation at all levels, from community to the regional and international level”.

UNISDR (2004) designed and developed the first frameworks for DRR on the basis of reducing risks (Figure 2.2), which characterizes the main activities as well the general context of disaster risk management (UNISDR 2004). Subsequently, the framework is considered as a comprehensive DRR framework because it comprises of several elements necessary for an effective DRR strategy. Moench (2007) has described DRR as “part of a continuous disaster management cycle of activities that move from disaster events through recovery and risk reduction phases until the next event occurs”. Furthermore, this cycle consists of various elements namely; strengthening of resilience, insurance and early development of warning information, land-use and other planning, which must overcome vulnerability during the next event (Moench 2007).

The 4 stages of the disaster risk management cycle were described by Schipper and Pelling (2006) as “Disaster risk management includes both pre-impact DRR - prevention, preparedness, and mitigation- as well as 'response and recovery' post-impact crisis management activities” Preparedness is characterized as "activities and measures taken in advance to ensure effective response to the impact of hazards." On the other hand, mitigation is denoted as "structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technologic hazards. "From the review of these related studies there is need for this study in the chosen location.

The UNISDR campaign “Disaster risk reduction begins at school” purposed to enhance the incorporation of DRR into government plans for school curricula in 2006. This was proposed to safeguard school buildings against the effects from natural hazards (UNISDR, 2006; Wisner 2006). In addition, activists together with non-

governmental organizations, research and academic institutions have worked hard to ensure that this priority is achieved at both grassroots and policy levels. The Second Asian Ministerial Conference on Disaster Risk Reduction (2007, India) urged governments “to make school safety as well as the integration of disaster risk reduction into school curricula a priority on the national agenda” (UN/ISDR, 2007a). Then the Third Asian Ministerial Conference on Disaster Risk Reduction (2008, Malaysia) identified education as “an essential contribution to effective implementation of disaster risk reduction and concrete impact in terms of shifts in behaviours are the local level, where communities are most vulnerable to disasters” (UN/ISDR, 2008). Lastly, the UNESCO Education for Sustainable Development (ESD) program stated that “Education is the primary agent of transformation towards sustainable development, increasing people’s capacities to transform their visions for society into reality” (UNESCO, 2005).

The steps for that are good governance, developing effective early warning systems using risk knowledge, raising awareness through education, reducing the risks by changing practices and conditions they may exacerbate disasters, and eventually preparing for disasters through various ways such as simulation exercises contingency plans, and emergency funds. In respect to creating awareness and education, the HFA addresses the following strategies as important and relevant to accomplish its goal using its Priority 3: Inclusion of DRR knowledge in the school curricula at all levels is important as well as the use of other formal and informal channels to reach children and youth with relevant information; Execution of disaster preparedness programs and local risk assessment in schools and institutions of higher learning; and Incorporation of programs and activities in schools for learning how to alleviate and mitigate the effects of hazards.

As indicated in the MOE Safety Standard Manual, sources of threats to school safety can originate externally from the wider community or internally within the school vicinities (Republic of Kenya, 2008). Generally, the primary causes of accidents among many schools are anthropogenic, resulting from multiple activities such as “carelessness, inattentiveness, ignorance, irresponsibility or negligence on the part of the learners, staff or other stakeholders”. Specifically, accidental injuries can occur due to slippery surfaces, scattered floor, poorly arranged furniture including desks, benches and tables, weak railings, poor lighting, sitting carelessly on desks for example with feet blocking walking paths, sharp instruments or poor ventilation.

2.2 Staff Awareness of Safety Strategies and Disaster Management

In the context of disaster risk management, disaster awareness of staff involves categorizing activities to be undertaken for successful management of emergencies. For instance, schools with proper disaster awareness controls the disaster risks very efficiently (Solinska-Nowak, et al., 2018). Based on information from (UNICEF 2009), nearly 4,000 schools were devastated and also roughly 600,000 children were significantly affected. In Vietnam, the Ministry of Education and Training (MOET) (2011) has noted that in case of climate change, education sector is highly vulnerable because it contains huge masses of people, that is, accounting for nearly one quarter of the country's population.

An estimated 5,120 schools, most of them located in Central Vietnam were destroyed by Typhoon Xangsane (2006) (CCFSC 2010). The devastated school property, facilities and equipment are the most important assets to children for access to education. More important, mal-function of disaster management and lack of awareness as well as appropriate knowledge on disaster risk reduction even bring

more damages to the school students. For example, during Tsunami 2004, it is reported that the number of fatalities is more than 60,000 children and tremendous economic losses.

According to SEEDS India (2008) this number of deaths and losses was mainly due to the failure of ineffective management on disaster preparedness and risk reduction measures. Disaster awareness is defined as “having relevant knowledge and skills on disaster management which can help one identifies and mitigates disaster occurrences”. According to Wanjala and Onyango (2018), disaster awareness can be integrated in schools and institutions through various approaches including clearly posting safety rules, installation of firefighting apparatus, creation of evacuation exits and well buildings maintenance (Wanjala & Onyango, 2018). It can also be enhanced through several mediums such as songs, print and electronic media, intervention learning as well as incorporation of disaster risk education in science subjects. Recently, a body of knowledge regarding effective school safety practice is growing significantly Shaw (2012). Additionally, a research on international experiences and actions in enhancing safety in school have been published. Also, tools have been designed and developed for effective practice based on the data collected, while some training materials such as manuals and guides have been written (Bryman, 2014).

According to WHO (2008) for the management to reach their target audience and promote safety patterns in schools, wide dissemination of safety policies is paramount. The distribution of the safety policies information can be done through formal or informal mediums to all relevant stakeholders. For instance, an official memo containing policy can be sent to all schools. Furthermore, critical information on policy can also be distributed via multiple channels such as print and electronic

media, regional or local events, and influential individuals including role models, famous or popular individuals, and advocates, among others.

Omari (2011) posits that safety awareness will always come from staff and students in schools. If they are trained to look for trouble spots, irregularities, and to report them, then, because of their daily familiarity with their holdings, systems and environment, they will be the first to notice anything unusual, problematic or suspicious (Fraser, 2007). Staff and students should be given responsibilities for specific areas and encouraged to work as a team to protect them. Opondo (2008) state that staff should be trained in all the areas and drilled at regular intervals. Specifically, staff and student awareness programs should include the following: the formation of departmental or section teams, with appointed team leader; visits and talks with fire prevention officers as well as other officers; training and drills in following the plan, using fire extinguishers and administering first aid using some kits; a certain amount of internal publicity to keep awareness high, for example, posters placed in strategic areas such as dining areas, elevators and given as handouts to new employees and students, articles of publications, and refresher training programmes; and teaching safety awareness as part of the curriculum in schools right from primary school level.

2.3 Adherence to Infrastructure Standards and Disaster Management

At local, regional and global level, strategies have been developed to address the issue of security. Globally, governments have signed treaties at international conventions that safeguards human beings rights for instance, “World Conference in Education For All (1990), the UN Convention on the Rights of the child (CRC) (1989) and the United Nation International Strategy on Disaster Reduction (UNISDR) 1999” whose primary areas of work includes disaster risk reduction (DRR) applied to climate

change adoption, building strong cities, schools and hospitals, increasing investment for DRR, and strengthening DRR international systems. In US, information from a source indicator of school crime and violence demonstrated that youths are among most victimized members of the population. In 2003, around 1000,000 victims of crimes while at school was reported (World Bank, 2014).

The integral part of disaster planning and school safety involves how schools are secured, built and maintained. Based on design, students, surrounding community and location, each school buildup is unique. Given this background, its thus important that when mitigating hazards in school facilities should be carried out by those who have best knowledge about the school and the community. A number of tools to help with facilities assessment are available. However, it's imperative to tailor the various tools to meet school needs. According to Soomeren (2012) proactive measures have been taken by the New Jersey Department of Education to safeguard the safety and security of all staffs and students. On other hand, in New Jersey, all school districts must have a school safety and security plan. Particularly, each plan should be developed locally with the involvement of various key stakeholders namely law enforcement, public health officials, and emergency management among others.

All plans must be reexamined and updated on a yearly basis. These plans encompass protocols on how to respond to critical incidents such fires, bomb threats, gas leaks and even an active shooter situation. "The effectiveness of a school safety plan is measured in the precious lives of children, teachers and administrators that are left unharmed following an incident of school-based violence, an accident, a natural disaster or other hazards" (School safety and security manual best practices guidelines – New Jersey). Apart from developing plan and procedures to respond to disaster

circumstances in schools, a plan must also be developed to support staff as well as students recovers from the physical, emotional or psychological trauma associated with tragic events. This plan must provide clearly immediate help and referral procedures to staff, students, and parents who may be suffering significantly from the crisis.

Disaster protection systems are key elements within the school. However, according to a study by Nderitu (2009), noted that numerous schools lacked adequate firefighting equipment as well as reliable alarm systems. In preparation for disasters in schools and other public places, safety equipment must be readily available. This equipment comprises of “fire blanket, alarms, fire extinguishers, sand, water points and hoses”. A study by Mwangi (2008) opined that if the resources for disasters are readily available, they play a crucial role in ensuring timely and efficient delivery of disaster response efforts. The Kenyan government has disbursed funds to all provincial boarding secondary schools to purchase fire-fighting equipment in its efforts to assist schools prepare for disasters. Other equipment such as smoke detectors may save lives by sensing and warning people in cases of fires.

In another study by Ng’ang’a (2013) revealed that students’ population violated compliance with safety standards based on poor spacing of beds in dormitory and lockers in classrooms. In addition, according to Otieno et al. (2010), the Principal Kisumu girls’ high school with a student capacity of about 1,045, was quoted saying that “the school has fire extinguishers which are not enough and even the few which are available are expensive to maintain”. Recently, Kenyan government was forced to disburse 810 million shillings to schools in purchase of fire equipment due to the increasing incidents of fire outbreaks. During the disbursement of this money, the

Director of Higher Education by then Mr. David Siele was quoted to have said that “there have been many incidents of fire outbreaks in schools and that they should ensure these situations come to an end” (The *Standard* 2nd August, 2006). Consequently, 810 million shillings were disbursed to all 717 provincial boarding schools by the Ministry of Education Science and Technology (MOEST) to purchase fire equipment. These categories of schools were selected on the basis of boarding facilities and high enrolment. On the other hand, District schools were left out because in most cases they are day schools, whereas the National schools were left out because they had previously received similar funds. Lastly, other places in the schools that requires firefighting equipment includes offices, laboratories, dormitories, classrooms, workshops and kitchen.

Elsewhere, it was recommended that in each school building should have at least have one fully stocked and conveniently located first aid cabinet (Anderson & Creswell,1980). In addition to at least one complete cabinet in the building; each classroom may have a first aid kit. This kit should be regarded primarily as a health education aid and secondly as a device for first aid. A responsible person should be in charge of first aid cabinet, kits, and supplies and adequate supplies should be at hand all times.

Buildings should be as per the recommended standards, that is, adequate entrances and open outwards be for emergency purposes, and must never be locked from outside at any time when learners are inside. Additionally, windows should be easy to open and without grills. This may have prevented the death cost by fire at Stephjoy Boys High School in Limuru (Leftie, 2016). A student from the school, Denis Baiya said, “I was awoken by screams from fellow students and realized the dormitory was

on fire. The students were running helter-skelter, trying to force open the door, which was locked from inside. Realizing that there could be a stampede at the door with everybody trying to force his way out, I rushed to the window and screamed for help. That is when students from the other dormitories came to our rescue.”

Furthermore, all school buildings and facilities must have special passages for learners with special needs for easier access. All rooms must well-lit, with cleaned leveled floors and good ventilations. Each block should be installed with electrical sockets and working fire extinguishers, and should be out of bound from the students. School dormitory safety can be greatly enhanced by creating emergency exits and installing fire-fighting equipment (Therstrom, 2010). The lack of emergency exits along with fire- fighting equipment led to deaths during the Stephjoy Secondary School fire incidence of 2015. It is reported that the students took approximately 1 hour to extinguish the fire using water because the school has no fire extinguishers. Also, it remains elusive whether there was any member of staff in the school compound during the time of incidence. Two boys lost their lives in a disaster that could have been avoided by implementing building safety codes.

A study by Kirui et al., (2011) revealed that about (89.9%) of schools had a guidance and counseling department. However, more than 40% of these departments were run by teachers without skills on guidance and counseling. Moreover, the study noted that measures employed by secondary school principals in security management were: “66% of schools had suggestion boxes, 33% of schools have crisis management policy plan, 22% organized for lectures from law enforcers in sensitizing the students on the need for maintaining security and development of disaster preparedness plan”.

School administrators must assess the school surrounding on a daily basis, and also have in place feedback mechanisms so as to ensure processes and policies are effective. They must provide multiple ways in which students can communicate to teachers and also critically determine any prevention and management programs to ensure that they are theoretically sound, unbiased and evidence based in terms of content, pedagogy and delivery. It was stated that “effective leadership should make school safety and overall wellbeing of students a top priority. It should work harmoniously with teaching staff to develop and implement strategies and a whole school behavior management plan that are embedded in school’s student code of conduct and focus on prevention and management”. The MOE Safety Standards Manual for Schools recommends that every school must create school safety committee whose primary function will be to ensure safety in schools (Republic of Kenya, 2008). Armstrong (2006) emphasized that duties and roles of safety committees and other representatives must be well summarized. Mainly, the roles ought to comprise safety examination, audit and avoidance of accident.

2.4 Staff training on safety strategies and Disaster Management

Training increases efficiency, but as Gori (2015) notes many institutions finds it difficult to do it due to financial implications on organizations. Interestingly, safety training and policy are important determinants in enhancing safety performance. Law et al. (2010) defined safety training as “knowledge of safety given to employees in order for them to work safely and with no danger to their wellbeing”. On the other hand, Lin and Mills (2001) enumerated that safety training and policy statements played a central role in minimizing the rates of accident. Studies by Huang, Verma, Chang, Courtney, Lombardi, Brennan and Perry (2006) discovered that there is a relationship between safety training and increased safety. They further argued that,

effective training can help workers to be more accountable for safety in their workplace and also to have a sense of belonging.

In addition, inadequate communication may hinder employee involvement, and thus a company aim along with communication of the aim to all workers is a vital feature for effectual safety management (Vassie & Lucas, 2001). Research by Lin and Mills (2001) associated high rates of injury and accidents in most places of work with unsatisfactory or non-existent of health and safety systems. In their investigation Vassie and Lucas (2001) on health and safety management in the manufacturing sectors, the findings demonstrated that empowered workers who played active health and safety roles, can result in the improvements of health and safety performance although the empowerment was insignificant. Finally, the accountability and responsibility in the safety and health must originate from senior management as required by the health and safety legislation, though employee participation as well as involvement is imperative (Vassie & Lucas, 2001).

In the United Kingdom (UK), a project was initiated by the Royal Society for the Prevention of Accidents (RoSPA) purposed at producing training resource for schools which can assist them address their responsibilities dubbed “Together Safely: Developing a whole School Approach to Health and Safety, which urges the development of ethos that enhances health and safety in schools” (Aucott, 2008). Globally, according to Arkansas School Facility Manual, the Arkansas Department of Education (ADE) is responsible for overseeing the design, development, and construction of school facilities. Additionally, this Manual contains important information for school districts and professionals on creation of new generation of schools in Arkansas. The values and strategies encompassed in the manual are the

culmination of standards, accepted procedures, statutory requirements, and experience of experts and authorities across the US and create an even level of quality of all public-school buildings.

According to Otieno (2010), former Kenya Education Permanent Secretary (P.S) James Ole Kiyiapi was quoted to have said that “it will be mandatory for head teachers and their deputies to undergo refresher courses in administration to equip them with public relation skills to ensure harmonious relation between the administration, students and the wider community. In addition, students will be involved in decision-making within the school and the system well defined”. According to Ole Kiyiapi, “private firms will conduct training of principals on how to handle disaster management equipment such as fire extinguishers and first aid kits. It will also be mandatory for schools to conduct drills that will ensure safety and test the preparedness of an institution in case of a disaster. Students will use the first two days of a term to conduct emergency drills to ensure that they are prepared to handle disaster”. Kenya National Fire Brigade Association (Kenfiba) proposed that primary and secondary schools to include fire education into their curriculum. This move was prompted by deaths and injuries from a recent fire incident in schools. Further, this association expressed willingness to teach staffs and students on fire education.

Torrington, Hall and Taylor (2005), emphasized the importance of training by stating that “training increases awareness of the rules, improves self-confidence and self-discipline”. According to Trump (1996), “professional development training for school administrators, teachers, school safety officials, school support staff, parents, public safety and community agency partners helps participants learn how to prevent

and manage school violence, reduce security risks and liability, and improve school-community relations”.

Mayshark and Irwin (2008), note that safety should be integrated with other schools' subjects and activities. Some of the areas and topics that should be taught and explored at the level of secondary school are street and highway accidents, water safety, rail, road safety, home accidents, use of electricity appliances, use of gas and gas appliances, burns, falls, use of flammable materials, school accidents, fire prevention, safe use of laboratories, safety in aviation, safety in industry, forest conservation, first aid, danger of contaminated food, poisons, injurious plants and animals, alcohol and narcotics.

In adhering to safety instruction and standards, training of teachers is imperative. A study by Armstrong (2006) noted that teachers responsible for school safety will liaise with other teachers on matters relating to school safety, identifying the potential safety hazard in the school with a view to taking corrective measures either directly or through the committee, sensitizing students, staff, parents and community members frequently on matters associated with students' safety. Elsewhere, Abaya (2011) suggested that teachers should keep accurate and updated information on incidents related to school safety; ensuring that school safety measures agreed upon are implemented and briefing the principal regularly on status of school safety.

According to Wanyama (2011) and Mburu (2012) results demonstrated that majority of schools did not have safety committees and also many teachers were not trained. The researchers also noted that teachers were not involved in sensitizing the students on safety standards, where safety standards adherence has been implemented. Unfortunately, despite the government developing policy documents on compliance

with safety standards, the findings on implementation of this information in secondary schools is scarce. The training sessions should include: “Presentations, workshops and seminars, facilitated school safety and crisis preparedness plan team meetings and table top exercises among others”. Such trainings may assist school to prepare in case of any emergency. Preparedness includes emergency drills, such as crisis exercises, fire drills among others for teachers, emergency responders and students. Comolotti (1999) argued that school fire drills play a crucial role in preparing students psychologically in case of any disaster i.e. fire outbreak, thus allowing both staff and students to plan early for their escape. Trump (1996) added that the probability of responding appropriately during the crisis will be much higher if all players have practiced well the basic steps they will need to take. In San Diego, California, school district, for instance, staff recommends most of the crisis planning process should constitute of practice and training. In their recommendation, planning accounted for 20%, training (30%) and practice (50%) of the process. Although percentages are flexible, the most important aspect is drills and training.

Borland (2008) and Nderitu (2009) also examined the rationale for good communication arguing that effective communication may overcome emergency situations. Therefore, students and staff training must be focused on the following; prevention/mitigation, preparedness, response and recovery for effective management of disasters in school (Borland, 2008). Likewise, Nderitu (2009) suggested that various governments should provide disaster management training in all teacher training institutions and in-service courses for others in order to help school authorities to adequately prepare for school emergencies.

According to Makhanu (2009) schools should provide training on crisis response to all staffs once in a year. Also, schools should cover the crisis plans and procedures so as to sensitize all school personnel with it. To enhance preparedness all stakeholders and families should be given literature corresponding to the crisis plan. While actual training and drills are significant, it is also valuable to conduct activities such as brainstorming activities around a table even if it is informal. Many districts in the U.S.A are adopting table top exercises. Simpson (2007) stated that “table top exercises are informal and stress-free exercises intended to facilitate the testing, evaluation and practicing of a school facilities crisis response plan and promote group problem solving”. Further table top exercises are imperative in testing and practicing specified protocols in the crisis plan. They help schools gauge how these plans would work in a real emergency, when all school staffs are sitting around a table discussing the steps they would take to respond to a crisis.

According Makhamu (2009) life saving devices such as firefighting equipment among others must be displayed where they are visible. In this respect, students, teachers, and other staffs should be frequently reminded of such devices and how to use them. To ensure safety standards are maintained, periodic construction, installation and maintenance of safety equipment must be done. Subsequently, safety committees comprising of teachers should be formed with their duties and roles clearly defined and summarized. Overall, the functions these committees include inspection, audit and accidents prevention and teachers play central roles in the school operations.

In South Africa, safe schools project was launched to promotes safety at school, develops discipline and behavior codes that equip students with skills on school safety activities through an initiative by Education Department in 2000 (Rika, 2001).

Elsewhere, Gathoni (2013) opined that teacher lacked safety standards skills, while students were not informed on safety issues. For instance, where safety training is provided to students, indicators such a sense of ownership and low indiscipline incidences and active participation in school programmes are observed. Lastly, trainings including fire drills, first aid, fire marshals, and evacuation procedures during crisis are associated with prevention of or minimizing the impacts of a disaster.

Disaster preparedness is about staff training, that is, comprising of measures and strategies that enable different units of analysis to effectively respond as well as recover in case a disaster strike. These units include individuals, households, institutions, organizations, communities and societies. The objective of preparedness efforts is to ensure that the resources necessary for responding to disaster are available and that those responsible to respond know how to use them. According to Waugh (2000) “the activities that are commonly associated with disaster preparedness include developing planning processes to ensure readiness, formulating disaster plans, and stock-piling resources necessary for effective response”. Kirui (2011) demonstrated that only 37% of principals had attended any security management course, 40% of school security guards, and 21.4% of school Board of Management members. This implies that most B.O.M members and principals lacks important information regarding disaster management and may be approaching security issues ignorantly. Consequently, putting to many lives and property to a greater risk.

2.5. Safety policy implementation and Disaster Management

Occupational safety policies aim at protecting employees and other people affected by what the company produces and does against the hazards arising from their employment or their links with the company (Armstrong, 2009). According to the

Sage dictionary, “a safety policy is a plan of action or method of action that has been deliberately chosen to guide or influence the future decisions”. Armstrong (2009) defined a policy statement as the employer’s level commitment to safety. Written safety policies reveal that the management is concerned about the protection of the employees from threats or dangers at work. The policy should enumerate how the employee will be protected. According to Armstrong (2009), organizations should have policy statements which declare the employer’s intention to protect employee’s health and safety. Accordingly, the policy must emphasize these crucial points: “That safety of employees and the public is of paramount importance; that safety takes precedence over expediency; that every effort will be made to involve all managers, team leaders and employees in the development and implementation of health and safety procedures; that health and safety legislation will be complied with in the spirit as well as the letter of the law”.

Kularathna and Perera (2016) argue that employers and directors can be personally held responsible when these duties are breached. They further note that a major challenge exists to build the necessary capacity, not only for regulators, supervisory and advisory institutions but also for employers or workers to ensure that the regulations and safety policies are implemented. However, school safety policy should be developed based on the mandate drawn from the existing government laws and regulations. These laws are contained in such Acts like: occupational health and safety Act 2007, compensation for occupational injuries and disease Act 2003, child friendly schools (UNICEF) and Policy Framework for Education (2012). Effective corporate safety policy in its preparation, must involve senior management along with representatives. Furthermore, the policy should work in an efficient and predictable manner and be consistent with the aim of workplace. It must not be adopted from

another work place, and thus should be relevant to real needs of the workplace. It must be accepted as equal in importance to the workplace's other policy objectives. Therefore, the safety committee should come up with policies that aim at providing and maintaining schools, offices, systems and equipment that are safe and without risk to the worker and students. Policies that ensure that steps are taken to eliminate any hazards or potential hazard to safety or health of school workers and children, Policies that ensure that arrangements are made for the safety and reduction of risks to health associated with use, storage, handling, and transport of toxic materials (ILO, 2003).

Methods of establishing accountability should be designed to monitor the quality and adequacy of workplace procedures including accountability in the statement of policy, procedure for ensuring that safety performance is considered as part of performance appraisal, Inclusion of safety responsibilities and performance objectives in job descriptions, regular reporting requirement built into program elements (Page, 2014). There should be clear guidelines for maintaining and operating equipment and machinery at the same time clarifying individual responsibilities (Page, 2014; ILO, 2003). The policy should state what type of training programme will be provided by the school to ensure that workers meet their responsibilities. This could include first day orientation, on-the-job training and refresher courses. The policy should state the means of providing safety information to workers. There should be regular work site safety meetings at all levels of school and the policy should identify what issues will be discussed at these meetings, what can be communicated verbally and what should be in writing (*Daily Nation* September, 2014).

A report by School Survey on Crime and Safety (S.S.O.C. S) states that "in the 2006/2013 School years, 90% of the schools reported zero tolerance policies for

firearms” (United States Department of Education, 2014). During the same period, various strategies to enhance safety and security in schools were implemented. For example, 96% of schools required visitors to sign in before entering into the school plant, whereas 8% of the public schools had a closed school’s policy that prohibited students from leaving school premises except at specified times. Further 6% of schools had policemen or other law enforcement personnel stationed 30 hours per week or more at the school (United States Department of Education, 2014). In Paris, public schools are provided with policemen at the front to check any suspicious activities and maintain the traffic flow. Cavanagh (2014) findings on schools’ responses to terrorism treats states that “in the implementation of school safety and security policies in European countries has been greatly influenced by school tragedies and near misses. Further states that since the 2013 school hostage crisis in France City of Neuilly-Sur-Seine, police authorize 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 China, the 2001 school blast was attributed to selective implementation of safety policies, where a storied building collapsed on school children. Since then, a number of regulations governing school’s safety have been implemented. These include “the law on the protection of minors”, “the Law on Compulsory Education” and “the Teachers’ Law”. Additionally, some Chinese schools cancelled activities such as gymnastics to avoid death and injury related to physical education rigors. The Chinese government also gave the schools the mandate to safeguard students in their premises. For instance, schools were encouraged by the law to buy liability accident insurances in order to compensate death and injuries that occur within the school premises (Bryman, 2014).

Steps toward decline of disaster risk has been implemented as the main concern of United Nation, including “the International Decade for Natural Disaster Reduction (IDNDR)”, “the adoption of the International Framework for Action for the International Decade for Natural Disaster Reduction”, “the Yokohama Strategy and Plan of Action for a Safer World adopted by the 1st World Conference on Natural Disaster Reduction”, “the endorsement of the International Strategy for Disaster Reduction”, and “the adoption of the Hyogo Framework for Action at the 2nd World Conference on Disaster Reduction in 2005”. These milestones have provided background and updated frameworks for incorporation of disaster risk reduction activities into different sectors including education sector.

Yokohama Strategy highlighted that the prevention and preparedness of emergency must be considered as an important element of policy and planning development at all levels (UNISDR 2004). Moreover, the Hyogo Framework for Action emphasized that to alleviate the effects of natural disasters, education is key. Specifically, the concept of emergency risk reduction through education, knowledge, and innovation to build a culture of safety and increase resilience has been recognized (UNISDR 2005). Under the umbrella of “Hyogo Framework for Action”, research and actual implementation of education for disaster risk reduction have been promoted from international, national to local such as community and school levels.

Researches on disaster education has repeatedly reiterated two important points: (i) formal education play an inevitable role in the development of knowledge and (ii) participation of various stakeholders along with strengthening the relationship between school and surrounding community (Shaw & Kobayashi 2001, Shaw,

Shiwaku, Kobayashi, & Kobayashi, (2004). " Bonifacio 2010, Gwee et al. 2011, Shaw et al. 2011a, Shaw et al.2011b, Fernandez 2012, Goto & Aihara 2012, Gupta & Nikam 2014, Matsuura and Shaw 2014). In particular, the application of DRRE particularly where school education is often underdeveloped like in developing countries, plays a significant role, thus, reducing the capacity of children to endure natural threat or hazards (Petal, 2009).

In Vietnam, national initiatives have been implemented to popularize education on disaster risk management. From 2007, “the National Strategy for Natural Disaster Prevention, Response and Mitigation 2020” established and set up a component on incorporating disaster risk reduction into the school curriculum and training system (GoV, 2007). Toward this, the MoET has developed an Action Plan on implementing National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020 (MoET Vietnam 2011). In one way, this helps to put DRRE as the main policy, assignment of necessary resources, implementation of its strategies, and facilitate participation by all relevant stakeholders. In another way, such forceful announcements at national level have urged local authorities to incorporate DRRE into local development planning in general and into educational development planning in particular.

However, specific guidance on how to plan for DRRE and to integrate DRRE into overall planning at local level has not yet developed and localized. In consequence, despite those strong commitments at national level, the execution of DRRE strategies at local level is still in its infancy stage. Within this context, the research is an attempt to contribute to the promotion of DRRE in Vietnam through development of assessment tool for DRRE planning as well as innovative model for the

synchronization of DRR with learning and training activities in schools. Increasing awareness has been paid on the fundamental roles of school and school education to provide the suitable channels for students to acquire knowledge regarding natural disasters (Reyes et al., 2011), to equip students with needed skills to respond properly to the natural hazards that they face (Fernandez, 2012), and to link students to their locality in a way that community resilience can be built in a sustained way (Shaw et al., 2011b). Additionally, importance of school education is viewed as advantageous over different types of community or family education on disaster risk reduction for such factors as: (i) school education is the unique system that offers formal education, which provided students with systematic knowledge on emergency and management of disaster risks; (ii) school education ensures continuing and sustained disaster activities through formal or informal education; (iii) school is the centre of community, facilitating school DRRE therefore improve social capital through building connection between school, family and community. This is especially crucial for urban areas where schools gradually lose their roles as vehicle of community cohesion and bonding, one of the most important values of effective disaster risk reduction.

In South Africa, approximately 11% of gun related deaths are of school going children. In this respect, to counteract this problem, the fire Arm Control Act was passed in 2000. Consequently, this Act enabled to declare schools as “firearms free zones” by the Minister for Safety and Security. Therefore, this implies that anyone not adhering to the firearm’s free status will be prosecuted (Gun Control Alliance, 2000). Besides, Ogel (2013) revealed that many South African children were hit by cars near their schools almost every week. To address this carnage, installation of speed bumps near the city schools have been started by the Johannesburg Road agency. As a result,

bumps provided to the schools had costed around 1.7 million Rands between June and July 2003 (Shaw, 2012).

In Nigeria, the safety and health needs of learners in educational institution is provided by the labor Act. Using proactive approaches, the school management are responsible for the health and safety hazards in school surroundings by ensuring efficient and effective measures are undertaken (Cecilia, 2009). According to Nderitu (2009) some schools cannot afford firefighting equipment like fire extinguishers because they are poor. Additionally, DEO from Homabay District once said that “it was expensive to purchase firefighting gears and their maintenance was high, and thus schools have relied on untrained watchmen since they cannot afford the trained ones”. Therefore, the study suggested that it is critical for government to finance safety in schools. In general, schools require resources to be able to buy safety equipment, “train on management of disasters and crisis”, “conduct fire drills and give talks”, “demonstrations to students on safety management in schools” Aziz (2012) studied the effect of factors affecting community participation in CDF (constituency development fund) project in Lang’ata constituency, Nairobi. Findings from this study elucidated low community participation in CDF projects, massive political influence on the decisions making concerning funds management and weak institutional and regulatory framework for promotion of community participation in the project. Therefore, the work suggested the detachment of politics from the management of CDF funds so that community members can make right decisions on the management of these projects. For instance, the funds can be used to enhance schools’ safety standards.

The above findings concur with the results of Ng'ang'a (2012), where the author noted that 72% of the principals argued that higher population of the students affected compliance with safety standards. For example, congestion in schools hindered compliance with safety standards. Thus, the author urged the Ministry of Finance to build new schools as well as expand the existing ones. Elsewhere, it has been recorded that only a few funds are allocated in secondary schools in response to enhancing safety standards (Coady & Parker, 2012). In boarding schools, higher number of students in dormitories has led strain to the school facilities. A study by Omolo and Simatwa (2010) in Kisumu East and West Districts in Kenya stated that "inadequate funds made implementation of safety standards hard and schools could not purchase expensive safety equipment, develop the capacity of the workers or even modify the existing buildings". However, where funds were available enabled safe environment for students. Pudo (1998) emphasized the importance of leisure and recreational activities so that students can avoid boredom and idleness. Furthermore, encouragement of co-curricular activities including drama, sports, music, church activities, reading books and magazines among the young pupils in schools and community to avoid being lured into drugs.

Lulua (2008) notes that "Uganda has implemented the safe school's contract (S.C.C) as one of the identified interventions which strengthen the roles of teachers, pupils, parents and their involvement in children's education to enhance quality learning". In addition, Ugandan Ministry of Education and Sports in conjunction with USAID introduced > 200 schools to S.S.C. by 2008 to improve schools' safety. "School administrators bear the primary responsibility for working with teachers and other partners to create an environment in which individual students and adults are treated fairly, equitably, and with dignity and respect". "Leading schools as in any great

organization requires principals with courage and capacity to build new cultures based on trusting relationships and a culture of disciplined inquiry and action” (Baxters, 2010). Therefore, school administrators need to come up with suitable measures, tools and resources to address specific challenges. The primary objective of safe school strategy and caring aims to encourage school practices that enumerates socially responsible and respectful behaviors so that learning can occur in a secure and favorable environment.

A study by Omolo (2010) revealed that the following approaches were developed by principals namely: “integrating safety activities into daily school routine, regular inspection of school plant, training staff on emergency preparedness, purchasing the required safety equipment, and conducting regular emergency drills”. Moreover, (QASOs) Quality Assurance and Standards Officers had developed multiple strategies including: “recommending compliant head teachers for promotion”, “facilitating the provision of funds for purchase of safety equipment”, “providing communication between stakeholders and going for regular in-service courses on safety implementation”. Leandri (2011) explored the measures on security and safety at high schools in Tswane South Africa, and revealed that security and emergency plans, policies and procedures at a school was an important element of security as a whole. “The policies and procedures may be cheap security asset and not highly sophisticated technological or physical security but needs to be utilized often”.

Further Leandri (2011) recorded that 13% of the scholars and (43.4%) educators were not familiar with the written security plan while majority of the schools had no suitable emergency plans. Hence the study recommended for the development and implementation of policies and procedures that outlines procedures and instructions

of how things should be managed in the specific organizations. Notably, all schools must develop and execute “a code of conduct, a code of ethics, a security plan as well as emergency preparedness plans”. In order to make these policies and procedures more effective, they must be developed jointly by involvement of principal, teachers, researchers, parents and other relevant stakeholders. The results also showed an absolute lack of awareness and knowledge of plans available at the schools, which were never or were hardly practiced. Furthermore, the study enumerated that high school in the Tshwane area needed to enhance disaster preparedness as well as their crisis. Another study by Ntheya (2011) in Kenya in selected public high schools revealed that only 20% of the schools had established safety sub-committee, and 80% of principals and deputy principals served as secretary or members of the sub-committee.

Elsewhere, Nyakundi (2012) suggested that “policy makers should follow up, monitor and evaluate safety situations in all school”. Also, the author outlined the significance of complying with safety standard and guidelines and those stakeholders must have approaches and strategies to maintain safety in schools. In another study by Mburu (2012) in public secondary schools in Limuru District, Kiambu County revealed that 63% of teachers and 37% of students had training on safety programmes. Generally, principals applauded and recognized the importance of safety in school (Omolo & Simatwa, 2010). According to Wanyama (2011) all school heads should be trained on school safety and health. It is critical to sensitize the students on the benefits of “courtesy, politeness, hygiene, safety and health standards required and also the significance of keeping their school premises clean and free from health hazards”. Leftie (2016) says that “as the socio-economic challenges of society have increased, the role of principals has become difficult and complex”. There is raised expectations

of what they should achieve (Crow, 2006) thus making the responsibility of the principal of high schools one of the most complex and difficult assignments in the public education system (Crooks et al., 2012). Based on the study by (Lyons, 1991), a high school principal “is an instructional leader with key responsibilities like; provision of a safe and positive school environment, fostering good teaching and learning, promoting good school-community relations, hiring and developing a strong staff and monitoring student progress. “Nevertheless, these provisions can only achieve in a favorable and stable environment.

Multiple factors have been identified as consistently related to successful and sustainable implementation of safe schools’ programs and strategies. While many factors facilitate sustainable safe schools programming research has found out that commitment, enthusiasm and leadership from all partners in education, and from both staff and school administrators are critical elements in sustainable change, Crooks et al (2008). The support from the staff and administration in the implementing strategies of safe schools is important. Fullan (1991), says that “educational change depends on what teachers do and think”, according to him, getting the school staff on board is essential in implementing and sustaining change for they will support it fully. Furlong et al. (2006), echoes the same that readiness and willingness of school centers and the teachers to undertake a new invention is very important. It is essential to obtain the principals’ support for the program because it particularly determines how well teacher’ efforts in program implementation will be supported.

In addition, various educational administrators recommend that to manage school safety programs, it is significant for staffs to receive professional training and development. School staff must also be provided with resources and suitable training

for safety school management, Crooks et al. (2008). Recently, the ongoing training and professional development may help create a proactive environment towards school safety programs among the staffs. Furlong et al. (2008), say that “well trained staff is needed in all administrative roles in our school system and safety program is not an exception and the provision of technical support and training involving principals and teachers dramatically improves the nature of implementation and help them address challenges of school safety”. Consequently, the absence of ongoing professional training and development, may lower enthusiasm and motivation among staff and in turn also affect safety programs.

Good communication is the back bone of ensuring an ongoing success of any program, in the school the initial messages and measures of the safety program come from the top and trickle down. By regularly communicating the safety messages the school principal ensures that the safety program is ongoing and has the commitment of the various members of the school safety team, Redican et al. (1996). According to Crooks et al. (2008), school safety programs need to exist at all levels; board, learners, teachers, parents, surrounding society and the school should think how to pass the safety messages by using policy statement and motto to address the challenge of implementing and sustaining safe school environment. Luneburg (2006), conveys that school administrators have a lot of information on school safety to give to staff and need to ensure that everyone hears, sees and understand the same thing so they can work as a team.

Crooks et al. (2008) state that support from various key stakeholders including the ministry and school board plays a significant function in the successful execution of school safety program. Furlong et al. (2006) argued that “once the ministry and the

school board make school safety program their priority, they will put effort to provide and organize the funding; staffing; training and professional development and resources required for the implementation of school safety programs. “Besides, Creswell (2013) says that “such support may be obtained from other organizations such as educators, recreational organizations and community to support and finance the school safety program implementation and sustainability.”

The inclusion of safety studies in school curriculum will help students develop skills, knowledge, provide opportunity to put the skills into practice and provide feedback. Incorporating planning and step by step implementation into a safe school program is a sixth way to help sustainability, for this process ensures consistency. Moreover, it’s significant to ensure that the development of school safety programme goals is appropriate and reasonable to the specific school and not merely a copy of another, Creswell (2013). Crooks (2006), notes that school safety programme implementation needs to be evaluated and monitored so as to know if the programme is a success, since successful implementation motivates people both in the school and the community.

“A positive school climate is where which individuals are trusted, respected and involved, where there is collaboration, high expectation, mutual trust, care, and support for all individuals whereby they work cooperatively intolerance does not exist nor a student harassed or threatened students feel that adults care for them as group and as individuals”. For a student to succeed both academically and socially, a high expectation exists. Previous studies have reported a clear relationship between success in school and school environment, where students are taking up their studies and as they are more motivated and likely to achieve their full potential. “The term school

culture generally encompasses such things as school climate, mood, the degree to which people get a long, respect for differences, motivation, pride and vision. The presence of a positive school climate is the existence of collaborative and optimistic working relationships between and among all member of school community” (Kirimi, 2014).

A study by Berry (2012) on Healthy School Environment and Enhanced educational performance in Charles School, Washington DC, USA, states that “school facility safety determines the environment quality in school; quality then shapes the attitudes of the learners and teachers; attitudes then affect teaching and learning behaviour; Behaviour then determines the individual child’s level of participation and performance in activities 38 while in the outdoors”. Further Francis, (1999) argued that “playgrounds should comprise of high-quality spaces that offer children concrete learning environments to compliment the formal curricular offered indoors as well as provide children with experiences that will enhance their physical, emotional, social, and intellectual development”. These playgrounds must be situated in sites with good proper drainage to avoid soil erosion or wash off of loose fill materials in the use zones.

Additionally, they should be marked clearly and well levelled to indicate different play zones that will attract to children. Finally, they must be located away from accessible dangers or risks such as “roads, ponds, dump sites and mining areas”. Based on the findings by INEE (2014) minimum standards for education in emergences states that “access and learning environment should be sure and promote the protection of mental and emotional wellbeing of the learners and that education’s environment be conducive to the physical wellbeing of learners, the learning structure

and site should be accessible to all regardless of physical ability, free of dangers that may cause harm to learners and be appropriate for the situation.”

According to Murithi, (2005), learning environment is very critical and there is a clear association between the school environment and success in school. Additionally, students tend to perform better and exploit their full potential particularly in schools, which advocates for a positive school culture and also in environment which is safe and supportive. Subsequently, these constitute school grounds and premises. The nature of these facilities and infrastructure is described by SSM. Ronoh Kyalo (2009) argue that “a school environment that does not accommodate the welfare of its learners or neglects the needs of its learners, especially girls, children with disabilities, orphans and other children with special needs, reflects a non-caring school”. Moreover, good teaching and learning processes is linked to good interpersonal relationships in schools. Further “school can create an environment that reduces the risk of the attack by addressing certain conditions (such as bullying) that have frequently been associated with the attackers’ decision to embark on path of violence”.

Cohen et al. (2010) urged schools to “cultivate a school climate or culture that facilitates positive relationship between adults and students, and encourages the sharing or reporting of this pre-incident indicators by any and all who observe them”. Also, “there should be distribution of knowledge of common “sign posts” or pre-incident indicators that enable the members of school community to identify behaviours on the part of individuals that may be considering or planning in act of violence; identifying and gathering key personnel and developing procedures to consistently and effectively respond to the reports and observations”. In order for

student to learn and develop their potential, the Kenya ministry of Education argued that secure environment and individualized support is indispensable (Baxters, 2010).

Recently, the MoE has strived to help schools achieve this requirement by formulation of various initiatives. Participating in and controlling to a safe respectful and positive learning environment is both the right and responsibility of the children and youth, their parents/ caregivers, school personnel and all community members schools, acting in partnership with their communities can create and maintain these environments that foster a sense of belonging, enhance the joy of learning, honour diversity and promote respectful, responsible and caring relationships (Positive learning environments in schools, 2000).The association between school and community encompasses on how student and teachers interacts with the surrounding communities within the area in which schools are situated. For instance, “members of the society include parents/guardians with children enrolled in the schools or other community members who may not have children enrolled in the catchment schools”.

The Education Act (CAP. 211) Part III provides for school community collaboration in the management of schools in Kenya through school committees”. It is noted that schools must set high targets for both their teachers and students. “Safe and effective schools clearly communicate to all members of the school community that everybody has the right to feel physically and psychologically safe at school”. It is worth noting that teachers have an obligation to create school environment that embraces all kinds of diversity. Cheyne et al. (2012) stated that “for learners, school staff, parents and other members of the local communities to share the same vision regarding the role of the school, certain attitudes and behaviors are expected from each other”. For instance; “school management should develop linkages with communities around

schools, learners and school staff should have positive attitudes towards members of the local communities, learners and school staff should behave with respect towards members of the local communities and their culture, schools should organize regular joint meetings on academic matters with parents or guardians and learners, schools should organize regular joint co-curricular and cultural activities with members of local communities, members of local communities should be encouraged to participate actively in schools' development efforts". In addition, "communities should be encouraged to use their administrative structures and authority to resolve school community conflicts, parents should be wary of the hazards their children are likely to encounter from school and school authorities should sensitize the communities about catering for the educational needs of children with special needs" (Copsey, 2010).

A case study in Brazil noted that "promotion of a cultural change related to participatory citizenship, with the overall security of the population and the reduction of disasters, depends on the active collaboration of systems, both formal and informal existing". "It is also considered important that the school systems participate in projects that have compelling reflections on the quality of life and the growth of life expectancy of the population". Therefore, it's crucial that the content associated with overall security of the population, disaster reduction, and particularly with the reduction of vulnerability scenarios and populations at risk are included in the school curriculum of the first and second grades and in activities of informal education. Of note, school safety is an important component of the learning and teaching process. Unfortunately, no studies can take place in unsafe and insecure environment for both teachers and students. Thus "it's critical for all educational stakeholders to develop a

favorable school environment to facilitate increased learner enrolment, retention and completion, in order to attain quality education” (Safety Standards Manual, 2008).

2.6 Monitoring and Evaluation of Safety Strategies and Disaster Management

According to Mitchison and Papadakis (2009) safety levels in an organization can be enhanced by effective safety management, leading to a reduction in damages and harm associated with accidents. “Safety management refers to the tangible practices, responsibility and performance related to safety” (Whitaker & Flin, 2003). It is further elucidated that some major themes of safety management practices include “management commitment to safety, safety communication, health and safety objectives, training needs, rewarding performance, and worker involvement are essential in work places (Mearns, Whitaker & Flin, 2003). On the other hand, Marsh, et al. (2005) argues that “management commitment plays a vital role in all aspects of safety intervention; and that management commitment to safety indicates the extent to which the organization’s top management demonstrates positive and supportive safety attitudes towards their employees’ safety” (Yule, Flin & Murdy, 2007). Also a study by Yule, et al. (2007) based on “employees’ perception of dedicated management’s action to safety” revealed that it had resulted in accident reduction.

Redican et al. (2016) posits that the school administration should establish a student safety committee, whose responsibility will be to report immediately any danger, risk, safety violations or any other situations that may pose risk to the well-being of the students. Consequently, the prevention of accidents according to Redican et al., (2010), relies upon a comprehensive safety program that is strong and critical, hence it’s crucial to involve the school safety committee in the development of the program philosophy of the school safety, and helps establish school safety policies. Redican et

al. (2010) summarizes that an effective school safety programme encompasses many areas within the school system. First, there should be alive to a constant awareness to potential hazards of new products being introduced into the school environment. Secondly, there should be specialized training and drills for school personnel. Thirdly, school safety concerns should be integrated into appropriate school curriculum designs. Finally, there should be safety education conducted to teach students safety skills. It is, therefore, imperative for educational administrators to ensure that they maintain Safety Programme in their schools.

Otula (2007) opined that emergency management consists of any actions providing adequate measures in combating any catastrophe or mishap. The primary objective of preparing for disaster is to put in place suitable infrastructure and systems for response in case disaster or emergency strikes. This includes laying down essential tools and procedures aimed at ensuring operational readiness to combat calamities. Measures should also be put in place to combat future disaster outbreaks as well as communicated and understood by all. “Disaster preparedness minimizes the adverse effects of a disaster by ensuring a realistic level of pre-incident take up of risk reduction strategies as well as ensuring speed and timeliness in handling emergencies or disaster so as to minimize devastating effects”. Timeliness in arriving at the scene and counteracting the emergency or disaster as soon as possible can save lives along with properties. Therefore, school management must be alert to avoid incidences that may arise from the acts of hooliganism at all the times.

Armstrong (2009) adds that it is the responsibility of the management to develop safety policies, implement them, and also ensure that protocols for conducting safety audits and inspections, and assessments of risk are executed. He further argues that it

is the responsibility of the management to evaluate and monitor safety performance and implement necessary actions. Many safety programmes of companies only address the symptomatic or direct causes of accidents and never really identify the root causes. It is management policies, procedures, practices and priorities that control the 75% of workplace accidents (Mearns, et al., 2003). “Supervisors also play a critical role in ensuring safety in the workplace and employees conform to safety rules and procedures when they perceive that the action of their supervisor was fair” (Yule, et al., 2007). Previous studies have observed that “supervisors who demanded more work from their workers demonstrated negative influence on safe atmosphere, whereas the supervisors who delegated job tasks motivated employees to acknowledge their safety accountability” (Yule et al., 2007).

However, to ensure effective implementation of workplace safety programmes, management should set up committees at different levels responsible for coordination of such programmes. Armstrong (2009) asserts that safety committees should constitute health and safety advisors to advice on safe working methods as well as on procedures and policies. Consequently, assess the risks and safety audits at the same time investigate the managers, accidents and safety representatives. Furthermore, health and safety representatives who are members of the safety committee are responsible for handling safety matters in their surroundings.

The MOE Safety Standards Manual for Schools recommend that “each school must establish school safety committees whose duty shall be overseeing school safety and enhance safety in schools” (Republic of Kenya, 2008). Dinker et al. (2009), noted that “public schools use a variety of practices and procedures intended to promote safety of students and staff”. For instance, various measures include monitored or locked

doors/gates purposed to restrict access to schools, while others use tools i.e., security cameras, drug sweeps and metal detectors aimed at restricting behaviors of students and visitors within the campus. Lastly other security and safety practices constitutes: “schools require visitors to sign in or check in, controlling access to school buildings, by walking or monitoring doors during school hours, students to wear badges or picture identity cards, uniform, faculty required to wear badges or picture identity cards, provision of codes student conduct, locker checks, security guards’ badges and locked entrance or exit door during the day are required that visitors sign in”.

Based on the National Clearing House of Education facilities, “school safety is a human concern that every school and community must take seriously and strive continuously to achieve”. Failure to adhere to it, schools can be held legally responsible. Each school must establish a standing committee on disaster management and mitigation, whose duty is to develop a good mitigation plan. “The responsibility of safety representatives and committees must be defined and summarized” Armstrong (2006). Basically, the roles should include safety inspection, audit and prevention of accident. Nonetheless, despite labelling schools as “Safe Zone”, it is the responsibility taken by all stakeholders including students, teachers, parents, and so on that will lead to a safe environment within schools. Recent literature indicates that “risks or threats to school Safety can emanate internally- within the school environment–or externally, –from the wider community”. In general, all these depend will depend on the characteristics of the surrounding society, students and school.

All members of the school should go round their duties uninterrupted, hence it is very important to maintain school safety program to take care of emergencies and disasters that occur in school, and ensure activities in school go on uninterrupted. All schools

according to Creswell et al. (2001) should have written plan of procedure, together with facilities needed in the event of an emergency. School safety programs financially speaking are not costly, they do demand a vision, organization, leadership and cooperation, they should be enacted and not exist just on paper, Creswell et al. (2013). It has been observed by Okumbe (2001) and MOE (2008) that, the best way of maintaining safety programs in school organization is to conduct monitoring and evaluation on the school safety program.

A well-planned program begins with an evaluation of the school conditions and practices related to the school's safety and accidental prevention program, Creswell et al. (2013). MOE (2008) emphasized the importance of assessment and monitoring in school safety. Evaluation according to Redican, (2010) is appraising something according to a set of values or criteria. "In school there should be a process of determining the progress the school is making towards achieving the predetermined objectives which rate school safety, while the evaluation should be done in terms of technical and human causes of accidents." The technical accidents causes are usually due to poorly designed plant and equipment, on the other hand human caused accidents occur due to, lack of proper training on the use of various equipment, boredom, negative attitudes, fatigue among others, Creswell Jr et al. (2013) concurred that, for school to effectively deal and mitigate disaster situations, they require to have well trained personnel. Monitoring and evaluation must be a continuous process of safety programs in schools

MOE (2008). In particular, it should involve evaluation of several safety programme components through various ways such observation, planned and organized efforts of data collection using tools i.e. checklists and questionnaire. It is worth noting that a

good and conclusive assessment must include all the elements of the school set programmes. MOE (2008) offered three main techniques of monitoring and evaluating school safety programmes. First, that observation done by the head teacher or teachers responsible for school safety, Redican (2010) notes that, observation may be formal or informal but key is the fact that teachers should make observations of students within more “natural” surroundings while engaged in school activities. The teacher therefore should continually evaluate on a daily basis the school safety programme components by the use of observation checklists design for the rationale, MOE (2008). The study was trying to establish if this was being done in public secondary schools of Borabu district.

Furthermore, the second technique identified by MOE (2008) is that one of using monitoring instruments specifically designed to cover all components of the school safety programmes. Finally, the assessment can be undertaken by designated or educational officers and the Quality Assurance Standard Officers (QASOs). Evaluation on the school safety programmes enable the school administration to come up with mechanisms which go a long way towards treating the actual causes of disasters in schools. A study by Nderitu (2009) in Kiambu secondary schools revealed that, “100% of the principals interviewed acknowledged awareness of MOE Safety Standards; however, the same 28 principals admitted to have only partially implemented the safety policies in their schools”.

All principals confirmed that the inspection visits by the quality assurance officers were rare which was in the same position held by the teachers to the fact that officer’s visits to the school sampled were very rare (Kirui, 2011) the principals further confirmed that they adhered to the recommendations made for implementation by the

quality standards officers. The study made the following recommendations: - The quality assurance officers should be empowered in terms of capacity and aided to visit all schools in their areas of operations. Staffing shortfalls in the quality assurance department should be checked as a matter of urgency to see to it that the officers fully discharge their obligations.

2.7 Theoretical Framework

The work was driven by two theories namely “the Maslow Hierarchy of Needs Theory and the Chaos Theory and Disaster Response Management”.

2.7.1 Maslow’s Theory

This study is based on “Maslow hierarchy of needs based on a hierarchical model with basic needs at the bottom and higher needs at the top” (see Fig. 2.1). This theory involves psychology and was developed in 1943 by Abraham Maslow in his paper entitled “A Theory of Human Motivation.” Afterward, Abraham extended the study to integrate his observations of “humans' innate curiosity”. This theory corroborated with findings of multiple previous studies on psychology development in human. In his theory, Maslow applied words such as "physiological", "safety", "belonging and love", "esteem", "self-actualization", and "self-transcendence" to denote trends of human motivations. The theory purposed to achieve sixth level/stage: self-actualization needs. The Maslow's hierarchy of needs is represented as a pyramid with the largest, most fundamental needs at the base and the need for self-actualization and self-transcendence at the top.

“The most fundamental and basic four layers of the pyramid contain what Maslow called “deficiency needs” or “d-needs”: esteem, friendship and love, security, and

physical needs”. “If these deficiency needs are not met – with the exception of the most fundamental (physiological) need – there may not be a physical indication, but the individual will feel anxious and tense”. “Maslow's theory suggests that the most basic level of needs must be met before the individual will strongly desire (or focus motivation upon) the secondary or higher-level needs”. In addition, Maslow came up with the word "meta motivation, to describe the motivation of people who go beyond the scope of the basic needs and strive for constant betterment”.

“The human brain is a complex system and has parallel processes running at the same time, thus many different motivations from various levels of Maslow's hierarchy can occur at the same time”. Maslow described these levels as well as their satisfaction using words including "relative", "general", and "primarily". Furthermore, Maslow stated that “a certain need "dominates" the human organism”. “Therefore, Maslow acknowledged the likelihood that the different levels of motivation can occur at any time in the human mind, but he focused on identifying the basic types of motivation and the order in which they would tend to be met.” “Maslow studied what he called the master race of people such as Albert Einstein, Jane Addams, Eleanor Roosevelt, and Frederick Douglass rather than mentally ill or neurotic people, writing that "the study of crippled, stunted, immature, and unhealthy specimens can yield only a cripple psychology and a cripple philosophy." Finally, he also studied 1% of healthy student population.

Maslow's theory is completely uncovered in his book of 1954 “Motivation and Personality”. Notably, this theory predominates various fields including sociology research, management training, and secondary and higher psychology instruction. Okumbe, (2007) noted that “these are physiological needs, safety needs, categorized

as basic needs whereas love needs, esteem needs and self-actualization needs are categorized as secondary or higher needs”. Based on the study by Armstrong (2006:257), “Maslow’s theory of motivation states that when a lower need is satisfied, the next highest becomes dominant and the individual’s attention is turned to satisfying this highest need.” This Hierarchy of Needs can be referred to as physical or psychological conditions that improve the well-being of human beings and one can become less motivated when they are lacking”. Consequently, “Maslow’s theory provides a theoretical base for the study because it explained safety needs as being paramount to the well-being of human beings and his achievements (education included).”

A study by Creswell Jr. et al. (2013) stated that “students learn more effectively when their basic emotional and physical needs are met, those includes their physiological needs for food, the emotional and psychological needs for safety and emotional safety. “Elsewhere, Cornacchia et al. (2014) noted that students were motivated by serene learning environment, which also reduced stress in schools. Therefore, educational Managers must note that motivated students learn more readily compared to insecure students. Additionally, Creswell Jr. et al. (2013) stated that, “students may feel less threatened by or be motivated when they are protected against a potential safety threat, and like all human beings when students suffer illness or injury, their pain and discomfort make them seek relief instead of learning.”

2.7.1.1 Illustration of Maslow’s Hierarchy of Needs

The diagram below is an illustration of the Maslow’s Hierarchy of Needs showing that safety is among the basic needs.

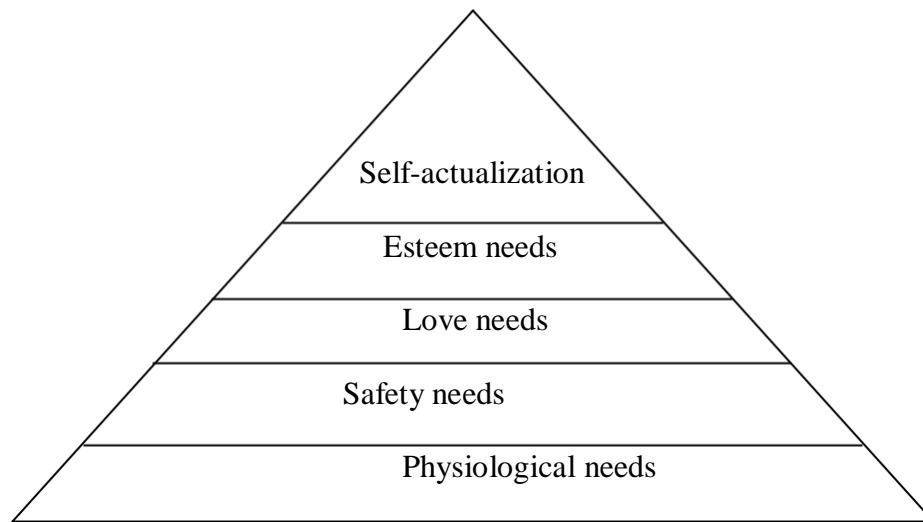


Figure 2.1 Maslow's hierarchy of needs

Source: Okumbe (2007)

“Psychological development takes place as people move up the hierarchy of needs, but this is not necessarily a straight forward progression.” Moreover, Armstrong (2006) opined that “the lower need still exists even if temporarily dormant as motivators, and individuals constantly return to previously satisfied needs. “Of note this theory provides a valuable base for the study since it characterizes safety needs as significant to the welfare of human beings. Subsequently, after obtaining physiological needs, then they need security and protection. The elements of safety needs in the theory, security, protection and freedom from chaos are suitable to this work and form a baseline of justification for this study. “It is, therefore, imperative that educational stakeholder fosters and secure environments to facilitate increased students’ enrolment, retention, completion and hence attainment of quality education”.

Additionally, this theory forms an important base for this work since it characterizes “safety need as motivators to all human being”. Remarkably, safety need occupies a

central position in human lives. Thus, students in schools without safety will not learn as required and hence the goals of national millennium will not be realized. Studies have that demonstrated for a school achieves its vision and mission, security is indispensable. Lastly, the theory applied here enumerates that “once the security and safety needs of the school have been addressed, then the learners’ teachers, administrators can move on to address to each issue that affect learners’ esteem and hence help them to self-actualize and, in this case, learn as anticipated.”

2.7.2 Chaos Theory and Disaster Response Management

The work was conducted according to the Chaos Theory propounded by Kiel (2003). According to the theory, “chaos is one possible result of the dynamics of nonlinear systems.” In this study, the school is a nonlinear system where issues of safety are characterized by uncertainty, unpredictability and thus the need for safety measures and preparedness for such eventualities. According to Nonaka (2008), “chaos widens the spectrum of opinion and forces the organization to seek new points of view.” The many incidents of insecurity in schools have forced the MOE to provide guidelines on safety measures that should be implemented in schools to enhance safety. In case of disasters or emergencies, it is important to note that stability can only be restored by devising suitable approaches to counteract these situations.

According to Ott, Grebogi, and Yorke, (2010), there are three fundamental methods for controlling chaos. One of the methods is to interfere with the system aspects. That is, reducing the extent of the behavior available to a system by reducing its degrees of freedom. Relating to this study, specific strategies need to be set, in order to alter the behavior of learners and limit their freedom thus enhance stability in the school. The measures that may be put in place include fencing of the school compound, inspection

of students' lockers and wearing of school uniforms among others. A second method changes the behavior back to more predictable and smoother functioning using disturbances during chaotic episodes to change. In schools, some of the ways of controlling chaotic situations include the issue of punishments, suspensions, expulsion and counseling. The third method aims at "altering the orbit of a chaotic system to a more desirable orbit on its attractor" (Ditto & Pecora, 2003). The approach aims to identify behavior changes in the systems that occur over time using continuous tracking.

Public managers (including school administrators) work within an environment of considerable constraints. The response and levels of agency services is determined by budget constraints. Many school administrators, despite being aware of the need for safety equipment in their schools are not able to provide these requirements because of financial constraints. The theory emphasizes the need for workplace rules such as policies and work processes. Safety policies are very important because they help to give direction on what should be done to mitigate and respond to a crisis in schools. Nutt and Backoff (2012) said that "strategy developed for public managers clearly must include recognition of the different stakeholders, and therefore managers (Principals included) should know that any effective strategy must consider all relevant stakeholders impacted by the strategic plan."

2.8 Conceptual Framework

A conceptual framework is a graphical representation of how study variables relate with each other. The figure below (Figure 2.2), illustrates the relationship in this study.

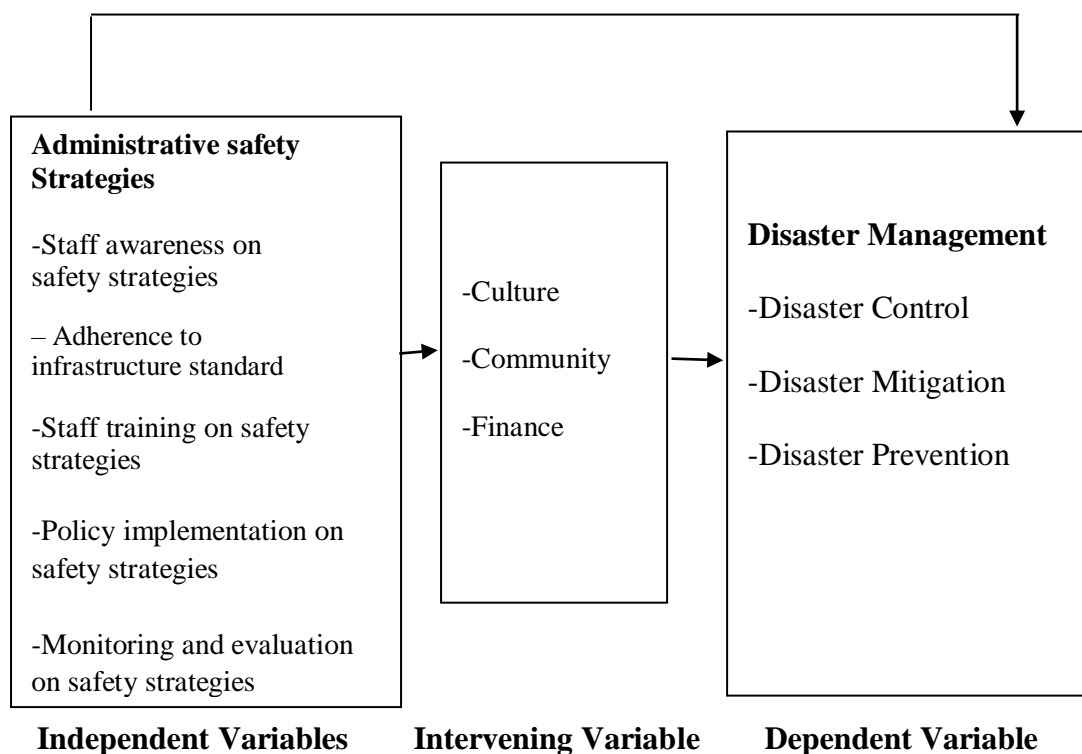


Figure 2.2 Interrelationship between principals' administrative safety Strategies and Disaster Management

Figure 2.2 shows the conceptual framework developed for this study. Principals' administrative safety strategies influencing disaster management has been of concern in public secondary schools in Nyeri County. Principals in Nyeri as well as in the whole country have a responsibility of seeing that the administrative safety strategies influencing disaster are adhered to. The areas of concern in this study include whether: Staff are aware of safety strategies as prescribed by the MOEST; whether the policy documents are available, whether training of staff and students is conducted; whether policies are implemented accordingly and whether there is

periodic monitoring and evaluation by the principals. It is imperative that educational stakeholder foster safe and secure environments to facilitate increased learners' enrolment, retention, completion and hence attainment of quality education". Figure 3 has the working variables that helped to check whether safety and security at schools in Nyeri public secondary schools was adhered to for the realization of this phenomena. The five independent variables if well implemented, it can lead to compliance in to safety and security standards. However, the implementation can be affected by the "intervening variables" (Figure 2.2).

2.9 Summary of Literature Review

This literature discussed the aspects of principal's administrative safety strategies influencing disaster management and related literature from different parts of the world. The literature includes both empirical and secondary sources. The chapter opens with information on concepts of disaster management followed by: principals' involvement of staff awareness of safety strategies and disaster management, principal's adherence to infrastructure standards and disaster management, staff training on safety strategies and disaster management, safety policy implementation and disaster management and monitoring and evaluation of safety strategies and disaster management in secondary schools in Nyeri County. The literature was drawn from different parts of the US, UK, Turkey, China SA, Uganda as well as Kenya and specifically Nyeri.

Previous studies have not elucidated why schools' management have not been implemented safety guidelines and standards in all schools. Multiple studies have been performed under various research topics on school safety in Kenya. However, no studies on public secondary schools in Nyeri County have explored the

implementation of safety standards and guidelines as stipulated in the Safety Standards Manual. Therefore, this creates a research gap on why safety standards and guidelines in public secondary schools in Nyeri County have not been implemented, thus requiring further investigation. In this regard, this work addressed this gap and gave recommendations on what should be done to manage disaster so as to safeguard students and teachers' safety.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the research methodology used to carry out the study. It covers the following areas: research design, target population, determination of sample size and sampling designs, research instruments, collection of data, pilot testing and data analysis techniques and ethical considerations.

3.1 Research Design

Research design shapes and determines the success of the study. The researcher applied the descriptive survey research design in this work. Bryman (2012) defines descriptive survey research design as that “which entails the collection of data on more than one respondent (usually quite a lot more than one) and at a single point at a time in order to collect a body of quantitative and qualitative data. Descriptive survey research design is parallel with data collection at a single point (Nyeri County) within a period of time. Conversely, this design allowed the interviewing of principals alongside using a checklist. The design allows the examination of relationships between different variables. This is so because the data on them was collected more or less simultaneously and the researcher could not manipulate the variables (Gay, Mills & Airasian, 2006; Bryman, 2016).

3.2 Location of the Study

The study was carried out in Nyeri County, Kenya because disasters were reported in the main stream media and MoE reports as rampant despite the policies and guidelines provided by the MoE. The researcher was inspired to research on the relationship between the principal’s management strategies disaster management in Nyeri County.

Nyeri County is located in the central region of Kenya and is situated between longitudes 36⁰38' East and 37⁰20' East and between the equator. Its capital and largest town is Nyeri. It has a population of 759,164 and an area of 2361 km². The County comprises eight administrative Sub-Counties.

3.3 Target Population

Bryman (2014) defines population as the universe of units from which the sample is to be selected. On the other hand, Mugenda and Mugenda (2003) referred to target population as “the population which the researcher wants to generalize results of a study.” Target population refers to all members of a real hypothetical set of subjects or people or events for which a researcher wishes to generalize the results of the study (Borg & Gall, 2007; Glass 1996). The study targeted 208 public secondary schools which comprised of 208 principals and 1040 heads of departments in public secondary schools in Nyeri County, Kenya as at December 2015 (CDE, Nyeri, 2015).

3.4 Sample Size and Sampling Procedures

Sampling is a method of selecting part of a group to represent the total population (Bryman, 2016). Additionally, Mugenda and Mugenda (2003) refer to a sample as a small group retrieved from the studied population. Mulusa (1999), states that “one third of the target population is representative enough to make estimate of characteristics being investigated.” The researcher used stratified sampling where the population was characterized into 8 strata based on the number of sub-counties in Nyeri County so as to ensure equal representation. From each stratum, 30% of the schools were chosen through systematic random sampling. This was because some sub-counties had more schools than others and equal representation was necessary. By use of systematic random sampling, every 3rd school was sampled to get 62 Schools.

This method ensured that there was an equal opportunity for any member of the population to be studied (Gay, Mills & Airasian, 2006). This ensures validity of the data. The researcher further used 30% of the target population of the HoDs (1040) for study. Using 30% of the HoDs the researcher sampled 310 HoDs as respondents for this work. The researcher selected 21 principals for interviewing in this study who formed 10% of the target population. Based on a study by Mugenda and Mugenda (2003), a sample size of 10% of the target population is considered adequate for descriptive study. Sampling saves on time, money and allows generalization to be made for the entire population. Table 1 shows the sample according to the strata.

Table 1: Sample of the Study

Sub-counties	Schools	Sampled				HoDs	HoDs 30 % of 1040
		Schools 30 %	Principals 10 %	Checklist 10 %	HoDs		
Nyeri South	33	10	3	3	165	50	
Mathira West	17	5	2	2	85	25	
Kieni East	27	8	3	3	135	40	
Kieni West	27	8	3	3	135	40	
Mathira East	23	7	2	2	115	34	
Tetu	30	9	3	3	150	45	
Mukurweini	30	9	3	3	150	45	
Nyeri Central	21	6	2	2	105	31	
Total	208	62	21	21	1040	310	
		Stratified systematic sampling	Stratified systematic sampling	Stratified systematic sampling		Purposive sampling	

Out of 208 principals, the researcher sampled 21 principals and 310 HODs. The researcher observed and used observation checklists in the schools where the principals were interviewed.

3.5 Data Collection Instruments

The researcher used different tools in data collection. These tools were: “structured interview schedules for Principals, Questionnaires for HODs and observation checklist for schools”. The criteria for selecting these tools were determined by the nature of the data to be collected, objectives to the study, the time and the nature of respondents.

3.5.1 HODS’ Questionnaire

A questionnaire is an instrument for collecting data used to collect standardized information that can be expressed numerically or through short answers. According to Mugenda and Mugenda (2010), questionnaire refers to a “research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents”. Best and Kahn (1999) indicated that a questionnaire enables the researchers to explain the objective of the study and give meaning of items that may not be clear. HoDs’ Questionnaire was employed to collect data from 310 HODs as respondents because of their large number. The questionnaire items were derived from the research hypotheses. The items were based on the independent variables and one dependent variable (see Appendix 1).

Other than grouping of questions according to study variables, the researcher considered other factors that made a suitable questionnaire. These factors included: The use of rating scales when giving answers to the questions. This was considered an advantage in that the numbers were used for the sake of uniformity of answers and

when analyzing the data. This also builds a degree of sensitivity and differentiation of responses (Cohen, et al., 2000). The researcher avoided ambiguous, double-barreled, biased, and leading questions that would be too specific. The reason for this was that these limit the potential for reliable responses. The questionnaire has benefits because “the cost of sampling respondents over a wide geographical area always turns out to be lower, even as the time required to collect the data is typically much less.” Lastly, uniformity of answers from respondents (HODs) was guaranteed with the use of questionnaires. Respondents answered questions in privacy thus giving the correct information, which could not have been divulged. The questionnaires were based on Likert Scale Standard.

3.5.2 Principals’ Interview Schedule

Interview schedule used scripts and questions. It involved asking questions and hearing the participants’ point of view. As Gay et al. (2006) note, “using a structured interview format allows the qualitative researcher to ask all the participants the same series of questions”. The structured questions were devised and developed by the researcher with the guidance of the supervisors to ensure validity, see (Appendix 2). The advantages of using structured interviews on the principals are: It is easy to collect deep and free responses; the researcher can glimpse into respondents’ tone, gestures hence probing and follow up for clarification. It is also flexible and adaptable hence acquiring valuable information that the researchers may not have thought about. In the course of the interview, the researcher can record some of the valuable information outside the question’s demand. On the other hand, collection of information from the sampled interviewees was 100% unlike questionnaires where some people always have the tendency to fail to return the filled questionnaires. This is because the researcher filled and kept the records from all the interviewees. This

dictates that its application is viable to a small number of respondents (see Appendix II: Principals Structured Interviews)

3.5.3 Observation Checklist

When used in scientific research, observation includes the full range of monitoring behaviour and non-behavioral activities. It includes record analysis, physical conditions and process analysis, non-verbal, linguistic and spatial analysis. Observed information is sought by way of researchers watching people, programs, events communication among other things and recording. Observation schedules were used to verify the information obtained from interview schedules and questionnaires in the 21 schools that the principals were interviewed. It involves the five senses. It provides information about real-life situation and circumstances. A list of what will be observed is shown in Appendix 3. Kothari (2008) argues that “the main advantage of this method is that subjective bias is eliminated, if observation is done accurately.”

The information obtained under this method relates to what is currently happening; it is not complicated by either the past behaviour or future intentions or attitudes. This method is independent of respondents’ willingness to respond and as such is relatively less demanding of active cooperation on the part of the respondents as happens to be the case in the interview or the questionnaire method. This method is particularly suitable in studies which deal with subjects that are respondents who are not capable of giving verbal reports of their feelings for one reason or the other.

3.6 Piloting of the Instruments

Pre-testing of the instruments before the actual study is done is essential. The researcher sampled 10% (21) schools out of the 208 target schools which were not part of the sample of the main study for pilot study. This was to prevent respondent

pollution. This was essential for the establishment of the items' reliability before they were used in the actual study. The questionnaire items were subjected to analysis using Statistical Package for Social Sciences (SPSS) software for the establishment of Cronbach's alpha index which was 0.7, which is considered to be good enough for an actual study (Cortina, 1993). According to Mugenda and Mugenda, (2003), piloting can be used to show questionnaire deficiencies. Therefore, this ensured classification and improvement of content in the instruments administered for the study. This also enhanced the ability of the researcher to achieve a good art of conducting interviews.

3.7 Reliability of Instruments

Reliability according to Fraenkel and Wallen (2011) is the level of internal consistency or stability over time, of a measuring instrument. (Kothari, 2011). The reliability of the instruments was determined using test-retest technique. The Pearson's product-moment correlation (r) coefficient formula was used to compute the reliability coefficient (Best & Kahn, 2011).

$$r = \frac{\sum (x-x)(y-y)}{\sqrt{[\sum(x-x)^2] [\sum(y-y)^2]}}$$

x=the score of the independent variable

Y=the score of dependent variables

X=the mean score for independent

Y=the mean score for dependent variable

Source: Elifson, Runyon and Haber (1990)

The researcher employed Cronbach's alpha index to assess the questions' reliability. According to Bryman (2014) and Gay, Mills, and Airasian (2006), calculation of correlation yields a figure called coefficient that varies between 0 (no correlation and therefore no internal consistency) and 1 (perfect correlation and therefore complete

internal consistency). Then a result of ≥ 0.80 reflects acceptable level of internal reliability although many writers work with a lower figure that goes to .70. The figure that was arrived at after testing the questions based on Cronbach's Alpha gave the degree to which the questions were reliable. The reliability coefficient/index finding was 0.78, greater than 0.7, which is universally accepted as reliable; otherwise, the instruments would have needed to be revised (Cortina, 1993; Kothari, 2011). Reliability of interview schedules was checked by highly restructuring interview questions at the time of design and consistently (using same language and gestures) using similar questions to different interviewees.

3.8 Validity of Instruments

Orodho (2010) defines validity as the success of a scale in measuring what it is set to measure so that differences in scores can be taken as representing the true differences in the characteristics under study. On the other hand, Polit (2009) defined validity as the range to which an instrument measures what it is intended to measure. Therefore, "validity therefore checks if the research instruments are doing what they are intended to do." Herein, research instruments were validated using content validity procedures. Tyler (1971) said that "this is a judgment made better by a team of professionals and in this connection the researcher established content validity by seeking expert judgment from his supervisors while developing and revising the research instruments." "This was done by holding discussions, making relevant comments and suggestions that were synchronized with a view of either reviewing them or adopting them for pilot study. "This was guaranteed by discussions with the research supervisors and peers, in addition to ensuring that all the items were related to the set research objectives.

Validation was done by subject experts. Pilot study results were also used to detect any other weaknesses. The instruments were then modified accordingly. Again, in order to ensure validity of questionnaires, interview and observation, the instruments were designed as per the aim of the work in order to capture the required information. According to Polit (2009), validity is a matter of degree rather than an absolute state. The researcher employed face validity in determining the extent to which the items measured or capture the content of the concept to be studied. Thus, the researcher requested her supervisors, departmental lecturers and professionals in this field from the ministry of education to act as judges to help in the determination of the extent to which each item in the questionnaire would measure the variable it was designed to before they were administered. Their recommendations helped to enhance the quality, structures and content of the instruments.

3.9 Operational Definition of Variables

The researcher used five variables in this study. The operational definition of variables is essential in this study because this acted as a compass in this research. Bryman (2014) defines an operational definition as “a concept in terms of the operations to be carried out when measuring it”.

Table 2: Operational Definition of Variables and their Procedures

Variable	Operational definition	Measuring items
Staff awareness of safety strategies	Awareness and sensitization	1-8 (Questionnaire) observation
Adherence to Infrastructure on disaster management	Availability of SSPP document	1-2 (Interview)
	Availability of safety documents	9-16 (Questionnaire) observation
	Infrastructure and equipment	3-4 (Interview) observation
Staff training	Training on safety	17-24 (Questionnaire)
	Frequency of training	24-6 (Interview)
Implementation of safety policy implementation	Guideline's adherence	25-32 (Questionnaire)
	Implementation committees	7-8 (Interview)
Monitoring and Evaluation of safety standards	Actual involvement of teachers	33-40 (Questionnaire)
	Monitoring and evaluation guidelines	9-10 (Interview)

In this study the 5 variables were measured by using three different tools that is questionnaires and interviews and a check list to show the availability of the safety items. Table 2 shows the 5 variables and the operational definitions for each variable and the questionnaire items and Research Questions (RQ) that measured the operational definitions.

3.10 Data Collection Procedures

An introduction letter was obtained from the School of Education postgraduate Maasai Mara University for approval to proceed to NACOSTI. The researcher proceeded to National Commission for Science Technology and Innovation

(NACOSTI) to get research authorization permit. After getting a research permit, the researcher proceeded to the Nyeri County Director of Education, to request for acceptance to perform our work in public secondary schools. Thereafter, the researcher went to the sampled schools where she interviewed the principals and made observations in the schools to establish the extent of implementation and administer the questionnaires to HODs. The researcher left the questionnaires with the respondents after one week she went back to collect filled questionnaires from the HODs.

3.11 Data Analysis

Data from questionnaires were analyzed using descriptive and inferential statistics. Descriptive analysis involved the use percentages, means and standard deviations to show the relationships between the independent and dependent variables of the study. Data was analyzed using the responses from principals and Heads of departments. Questionnaires were arranged in order, from one to the last respondent according to the number that was returned from the filled questionnaires. All the items (questions) were given value based on numbers 1-4 which stand for strongly agree to strongly disagree. All the values (numbers 1-4) for each question in a questionnaire were prepared and entered into SPSS software for analysis. For nominal or categorical data (gender), for example, female or male and school category, the researcher coded them by numbers 1 or 2.

The researcher used the Pearson's Correlation analysis method to explore relationship between the dependent and independent variables as stated in the research hypotheses. This involved the use of means and standard deviations, .05 alpha levels, and degrees of freedom (df). Alpha (.05) is the probability of making type 1 error and this means

that there is 5% chance of being wrong if the null is rejected. The p-value for the Pearson Moment Correlation was considered statistically significant at 0.05 level.

Qualitative data was analyzed thematically. The analysis focused on all the individuals' responses to each question. The data was organized by question across all respondents and their answers. Once this was done, the researcher looked for consistencies, similarities and differences for the drawing of generalizations and conclusions. Like quantitatively analyzed data, results were presented using tables. Qualitative data was gathered after interviewing the principals and recording their verbatim from the 10 interview question items (See Appendix 11). Data was analyzed by comparing responses got from different interviewees' verbatim. Using this method, the researcher had all the answers given by each respondent for each question then comparison was done to get out similarities and differences. Data from observation checklist was analyzed by looking at the percentages of disaster management strategies in relation to the number of schools that were observed.

3.12 Ethical Considerations

Bryman (2014), Gall, et al. (2003), Zeni (2001) and Gay, et al. (2006) have indicated that it is important to adhere to ethical issues in research and have shown that researchers should strictly understand and comply with the ethical considerations related to their studies. Bell (2009) and Kumar (2009) have warned that, care has to be taken to consult, to establish guidelines and to make no promises that cannot be fulfilled. No data or new information was suppressed. The researcher did not ignore exceptions and just try to explain to self the reason for the exception. Finding nothing of significance was just as important as finding something of significance.

The researcher assured the participants that their identity would be strictly confidential. This was to ensure that their rights were not violated and that the data provided would only be applied for this work purposes but not to incriminate anyone. The researcher sought informed consent from the participants in the work, promising confidentiality of the information they provided. Since information on school safety and disaster has the potential of eliciting strong emotions, the researcher debriefed the participants accordingly. The researcher got an introductory letter from Maasai Mara University and went to the Ministry of Education to seek a research permit from National Commission of Science, Technology and Innovation that enabled her to collect data from public secondary schools in Nyeri County.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter summarizes the results and discussions of this study. This chapter introduces the data analysis section which comprises the instrument return rate, data analysis, and interpretation. The results are presented according to objectives which include; to determine the principals involvement in staff awareness of safety strategies on disaster management in public secondary schools, to establish the adherence of infrastructure standards on disaster management in public secondary schools, to investigate the extent of staff training on disaster management in public secondary schools, to find out the extent of safety policy implementation on disaster management in public secondary schools and to find out the extent of monitoring and evaluation of safety standards on disaster management in public secondary schools in Nyeri County, Kenya.

4.1 Instruments Return Rate

Instruments return rate was the proportion of the research instruments that were returned after they had been administered to the respondents. In this case, questionnaires were administered to the HODs while interviews were administered to the principal. The return rate is given in Table 3

Table 3: Instrument return rate

Type of instrument	Number administered	Number returned	% Return rate
HOD questionnaires	310	290	93.5%
Interview guide for principals	21	21	100%
Checklist	21	21	100%

The findings in table 3 show that the questionnaire return rate of HODs was 290 (93.5%) while the interview guide for principals and Checklist were 21 (100%). Response rate remains a critical concern for scholars who seek dependable, valid and reliable results (Rowley, 2014) and therefore higher response rates tend toward findings that have greater credibility among the stakeholders (Morton S., Bandara K.D., Robinson M.E., & Carr-Atatoa P., 2012; Batty et al, 2020).

In this research, questionnaires were administered to 290 participants to react to items which were measuring various variables involved in the main theme of the relationship between principals' administrative safety strategies influencing disaster management in public secondary schools in Nyeri County, Kenya. The data collected were scored, coded and analysis done using the SPSS statistical data-analysis package. Reliability of questionnaire items that were used was estimated using Cronbach's alpha and found to be .860. Analysis of data collected quantitatively was done by carrying out Pearson's correlation analysis. The hypotheses were tested at an alpha level of .05, *df* of 288 (290-2) while *p* value, and *r* value were used for the establishment of relationships among variables that were used in this study. Study variables, means, standard deviations, and *df* are shown in Table 5. Interviewing of 21 principals was also done using 8 structured questions and data collected was analyzed using focus by question analysis method. Reliability of interviews was ascertained by

highly structuring of the interview with the same format and sequence of words and questions for each interviewee. Results from Pearson’s correlation analysis and thematic were presented using tables before interpretation of results was done. Study variables, means, standard deviations, and *df* are shown in Table 4.

Table 4: Principals’ Administrative Safety Strategies Influencing Disaster Management in Public Secondary Schools in Nyeri County, Kenya

Statement	Mean	Std deviation
Principals’ awareness of staff safety strategies	1.61	0.37
Principals’ adherence to infrastructure standards	1.81	0.33
Principals training on staff safety strategies	1.57	0.53
Principals’ policy implementation of safety strategies	1.56	0.46
Principals’ monitoring and evaluation of safety standards	1.63	0.41
Disaster management	1.65	0.29

The findings in Table 4 show that Principals’ involvement in staff awareness of safety strategies (M=1.61, SD=0.37), Principals’ adherence to infrastructure standards (M=1.81, SD=0.33), Principals staff training on safety strategies (M=1.57, SD=0.53), Principals’ policy implementation of safety strategies (M=1.56, SD=0.46) Principals’ monitoring and evaluation of safety standards (M=1.63, SD=0.41) influence the disaster management in secondary school (M=1.65, SD=0.29) respectively.

4.2. Principals’ involvement in Staff Awareness on Safety Strategies and Disaster Management

The first objective of this study was to investigate whether there was a relationship between principals’ involvement in staff awareness of safety strategies and disaster

management in public secondary schools in Nyeri County. Table 5 shows the Heads of Department responses on principals' staff awareness safety strategies.

Table 5: Heads of departments responses on principals' involvement in staff awareness of safety strategies and disaster management

Statement	Strongly Agree		Agree		Disagree		Strongly Disagree		Total	
	F	%	F	%	F	%	F	%	F	%
I am not aware of the safety security policy and procedures found in this school.	79	27.3	13	34.0	35	12.1	14	5	289	100
New teachers and students are inducted on the safety security policy procedures in school	55	19.0	83	28.7	102	35.3	17	7.3	289	100
Training increases my safety awareness	82	28.4	73	25.3	55	19.0	0	0	289	100
Teachers and students have no idea on how safety equipment works	71	24.6	66	22.8	74	25.6	78	27.0	289	100
I am not aware of the Ministry of Education's safety standards.	66	22.8	62	21.5	77	26.6	84	29.1	289	100
My school has a copy of the Ministry of Education standards manual.	80	27.7	51	17.6	77	26.6	81	28.0	289	100
My school has a safety committee	68	23.5	68	23.5	67	23.2	86	29.8	289	100
My school conducts students' roll calls regularly	86	29.8	74	25.6	56	19.4	73	25.3	289	100

The findings in Table 5 shows that on principals' staff awareness safety strategies a majority 133 (46%) agree they are not aware of safety standards while 79 (27.3%) strongly agree. On new teachers and students' induction on safety standards, the majority 102 (35.3%) disagree that new teachers and students are inducted while 83 (28.7%) agree. On training on safety issues increases my safety awareness majority 82

(28.4%) strongly agree while 79 (27.3%) strongly disagree. Teachers have no idea on how safety equipment works majority 78 (27%) strongly disagree while 74 (25.6%). On awareness of the Ministry of Education, safety standards majority 84 (29.1%) strongly disagree while 77 (26.6%) disagree. Only one school had a copy of the Ministry of Education safety standards manual majority 81 (28%) strongly disagree while 80 (27.7%) strongly agree. '

Regarding whether school has a safety committee' majority 29.8% strongly disagree while 23.5% strongly agree and agree respectively. 'On whether my school conducts students' roll calls regularly' 86 (29.8%) strongly agree while 74 (25.6%) agree. According to the observation checklist the researcher made, it was observed that 17 (80%) of safety documents were available (see Table 23). The researcher concluded that there is a positive association between availability of documents of safety and disaster management in public secondary schools in Nyeri County. According to Ng'ang'a (2013) Nyeri County elucidated low levels of awareness of safety standards among the teachers in public high schools. Just as they found in their studies, this study found that even though there was an apparent safety standards' adherence in some schools, the teachers were not incorporated in raising awareness to the students about safety standards. The study noted that some Heads of Departments had never heard or even seen the manual based on the data collected. With this lack of awareness among teachers, the trend is worrying because they are the personnel expected to enforce the safety standards and to create awareness among the students. The findings are in tandem with the results of Muigai (2011) and Ng'ang'a (2013) that "the knowledge of the Ministry of Education safety guidelines among the institutional teacher was poor."

To test the relationship, a Pearson r Product Moment correlation analysis was done to determine staff awareness of safety strategies ($M=1.61$, $SD=0.37$) and disaster management ($M=1.65$, $SD=0.29$) as indicated in Table 8. The findings from correlation analysis are displayed in Table 6 which shows the correlation matrix for staff awareness of safety strategies and disaster management. The computation produced a p -value of .000 and an r -value of .400 at a df of 287 at an alpha level of .05. The results of the computation are shown in Table 10. With a Pearson's correlation value of .400, it means that the relationship was moderate but significant.

The results also indicated that a p -value of .000 was less than the chosen alpha level of .05 that was used to determine the rejection or retention of the null hypothesis in this study. This means that the null hypothesis was rejected and the Alternate hypothesis accepted thus "There is a statistically significant relationship between principals' staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County. There is a strong and statistically significant relationship between principals' staff awareness of safety strategies and disaster management ($r(289) = .400, p < .05$). The two variables were moderately correlated. There is no statistically significant relationship between principals' staff awareness of safety strategies and disaster management. This means principals' staff awareness of safety strategies influences disaster management. The fact that the relationship was found to be positive meant that the more principals' staff awareness of safety strategies is done in secondary schools, the better the disaster management.

Table 6: Correlation matrix between principals' staff awareness of safety strategies and disaster management

Variables		Principals' involvement in staff awareness of safety strategies	Disaster management
Principals' involvement in staff awareness of safety strategies	Pearson Correlation	1	.400*
	Sig. (2-tailed)		.000
	N		290
Disaster management	Pearson Correlation	.400*	1
	Sig. (2-tailed)	.000	
	N	290	

*. $p < .05$ (2-tailed); $df = 288$; $\alpha = 0.05$

The results from this study show that the principals had a very strong opinion that staff awareness of safety strategies was useful in ensuring disaster management in secondary schools. The principals noticed significant changes of decrease in disasters since staff awareness of safety strategies were conducted in their respective secondary schools. In the immediate discussion, respondents attested those disasters before introduction staff awareness of safety strategies were higher compared to after introduction of the same, hence it can further be explained that the difference was significant, and that the introduction of staff awareness of safety strategies were responsible for the observed difference. It further indicates that reduction in disasters in secondary schools were positively supported by presence of staff awareness of safety strategies since schools had security policy awareness, students roll cards, and school has a safety committee, teachers' idea on safety equipment works, awareness on the Ministry of Education safety standards respectively. Principals' involvement in staff awareness of safety strategies are among the main indicators of disaster

management in secondary schools, though it can be explained that there existed other factors that influenced disaster management.

The null hypothesis H_0 which states that there is no statistically significant relationship between principals' involvement in staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County was rejected at $p < 0.05$. This signifies that the less safety training takes place the more disaster is done. These results concur with studies carried out by (Wafaa A. El-Hosany¹, Nadia Mohamed EL-Sayed Ghonem, 2017) who found out that Employees and teaching staff had significantly higher knowledge about evacuation process, fire protection, and safe floors, classrooms and laboratories in the faculty compared to students ($p < 0.05$) The students had significantly higher knowledge about CPR and first aids and public system to make emergency announcements during disaster management in the faculty compared to employees and teaching staff.

The results of the study were concurrent with the findings of Wanjala and Onyango (2018) who also sought to find out the extent of planning for disaster awareness in secondary schools in the county. They found out that 62.4% of the principals indicated that disaster awareness and preparedness workshops and seminars have been organized for school managers and teachers. However, 81.4% of the teachers indicated that they have never attended these workshops and seminars on disaster awareness and preparedness and the few who attended have only done so on rare occasions. This means that disaster awareness and preparedness workshops and seminars have not been given priority or that the dissemination of information on these workshops and seminars to schools is inadequate. It also means that the level of disaster awareness and preparedness among the teachers in these schools is

inadequate and they may not be able to effectively cope with those disasters that may affect their schools. Also, 66.75% of the principals indicated that there is no provision of in-service or refresher courses on safety assessment for both principals and teachers in Homa Bay County. This is a further indication that levels of disaster awareness and preparedness among principals and teachers might be inadequate due to the lack of adequate sensitization and brainstorming. Finally, the research also sought to establish whether students have been sensitized at all to the dangers of man-made disasters such as fires 81.05% of the students were aware of the dangers of fire.

On the same variable, the principals were interviewed on principals' involvement in staff awareness of safety strategies and disaster management and their responses were as follows:

Principal No. 1:

"Upon arrival at the school, I was oriented and introduced to safety strategies that can effectively prevent disasters in school such as where to assemble in case of fire outbreak, how to use fire extinguishers and where they are placed in each block and where the safety exits are located."

Principal No 2, 4, 5:

"I was never introduced to any safety strategies of preventing or handling disasters in school. My school does not have any policies to induct new principals on disaster management and moreover there are no fire extinguishers, rams and appropriate stairs for the physically challenged students"

Principal No 3:

"When I reported to this school, I was introduced to safety strategies however the appliances were not in good condition hence not usable."

Principal No 16:

"During briefings and staff meetings teachers are made aware of safety strategies on disaster management and specifically how to prevent and control disasters in school"

The responses from the principals on the variable principals' safety awareness strategies and disaster management indicated that 67.5% of the principals agreed that there is provision of in-service or refresher courses on safety assessment for both principals and teachers in Nyeri County. These results concur with the Ministry of Education safety manual 2008 which stipulates that staff awareness should be conducted on safety issues.

4.3 Principals' Adherence to Infrastructure Standards on Safety Strategies and Disaster Management

The second objective of the study was to explore the principals' adherence to infrastructure standards on safety strategies and disaster management in public secondary schools in Nyeri County, Kenya. On this second variable HoDs were asked to respond to items related to principals' involvement in adherence to infrastructure standards on safety strategies and disaster management. The responses of heads of departments on the adherence of infrastructure standards are depicted in Table 7.

Table 7: Head of department responses on the adherence of infrastructure standards

Statements	Strongly agree		Agree		Disagree		Strongly disagree		Total	
	F	%	F	%	F	%	F	%	F	%
School has institution Policy	63	21.0	78	27.0	73	25.3	75	26.0	289	100
School adheres to safety strategies	73	25.3	80	27.7	66	22.8	70	24.2	289	100
School infrastructure on safety strategies	79	27.3	92	31.8	54	18.7	64	22.1	289	100
School has institutional Security	63	21.8	73	25.3	77	26.6	76	27.3	289	100
School has information safety procedures	68	23.5	81	28.0	61	21.1	79	27.3	289	100
School has built an emergency exit	64	22.1	79	27.3	78	27.0	68	23.5	289	100
School has fire Extinguishers	61	21.1	79	27.3	55	19.0	94	32.5	289	100
The school has an evacuation centre	60	20.8	60	20.8	92	31.8	77	26.6	289	100

The findings in Table 7 shows on school has institutional policy majority 27.0% agree while 26.0% strongly disagree. This is supported by the Kenyan government on National Policy and Disaster Management which is provided for enactment by Parliament for a legislative provision for effective Disaster Management by the establishment of an institutional framework that is legally recognized and embedded within the Government structures. Innovative ways of mobilizing resources, managing them and accounting for them properly have also been provided for, together with a rigorous monitoring and evaluation framework not only to monitor the progress in the implementation of this policy but also to undertake regular disaster risk profiling and monitoring to be more prepared for disasters. On School adheres to safety strategies majority 27.7% agree while 25.3% strongly agree.

On School infrastructure on safety strategies majority, 31.8% agree while 27.3% strongly agree. On whether School has institutional security majority 26.6% disagree while 26.3% strongly disagree. On School has information safety procedures majority 28.0% agree while 27.3% strongly disagree. On School has built an emergency exit majority 27.3% agree while 27.0% disagree. On School has fire extinguishers majority 32.5% strongly disagree while 27.3% agree. The school has an evacuation centre majority 31.8% disagree while 26.6% strongly disagree. Table 12 shows the mean on the adherence of infrastructure standards. The findings from the HODs were complimented by the observation schedules where majority 18(85%) of the schools observed had emergency exits which were not usable. These exits were either permanently welded or secured with a padlock. In cases where padlocks were used, the occupants of such rooms were ignorant of the keys' location. Again, most windows had grills. This shows that they were not useful in case of a disaster.

The principals were interviewed on adherence to infrastructure standards and disaster management and their responses were as follows:

Principal No 11:

“My school has the disaster management manual that is in operation however, teachers are reluctant to familiarize themselves with the contents and have to be pushed to read the contents.”

Principal No 5, 8, 15 had similar response:

“We do not have all the required safety and security infrastructure and equipment in this school due to financial constraints.”

Principal No 10:

“Since the required safety and security infrastructure and equipment are very expensive, we are in the process of soliciting for funds to buy them although we have a few and insufficient”

Principal No 1:

“We have sufficient and security infrastructure and equipment in this school since the government and other stakeholders have adequately funded this school.”

To test the relationship, a Pearson r Product Moment correlation analysis was done to determine adherence of infrastructure standards (M=1.81, SD=0.33) and disaster management (M=1.65, SD=0.29) as indicated in Table 8.

HO₂. There is no statistically significant relationship between adherence of infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya

The researcher having analyzed the data using descriptive statistics went further to use Pearson r Product Moment so as to triangulate with the verbatim responses from principals and results from observation checklist. The aim of this information was to establish Correlation analysis and assess the association between the adherence to infrastructure standards and emergency/disaster management. The correlation findings

are summarized in Table 8 which shows the correlation matrix for adherence to infrastructure strategies and disaster management.

Table 8: Correlation matrix between principals' adherence to infrastructure standards and disaster management

		Adherence to Infrastructure safety Standards	Disaster management
Adherence to infrastructure Safety Standards	Pearson Correlation	1	.624*
	Sig. (2-tailed)		.000
	N		290
Disaster management	Pearson Correlation	.624*	1
	Sig. (2-tailed)	.000	
	N	290	

*. $p < .05$ (2-tailed); $df = 288$; $\alpha = 0.05$

With 290 degrees of freedom (df) at an alpha level of 0.05, the computation between principal's adherence to infrastructure safety standards and disaster management produced an r of .624 and a p -value of .000. From results displayed on table 8, p -value of .000 is less than the chosen alpha (.05). The results displayed in Table 13 indicate that there is a positive correlation between principals' adherence to infrastructure safety standards and disaster management in public secondary schools in Nyeri County. The two variables were moderately correlated ($r(289) = .624, p < .05$).

From the results of the analysis done to test Hypothesis 2, it was found that there is a statistically significant relationship between principals' adherence to safety standards and disaster management in public secondary schools in Nyeri County. With a Pearson's correlation value of .624, it means that the relationship was statistically significant. The results also indicated that the p -value of .000 was less than .05 that

was used to determine the rejection or retention of the null hypothesis in this study. This means that null hypothesis 2 was rejected and could now read “There is a statistically significant relationship between principals’ adherence to safety standards and disaster management in public secondary schools in Nyeri County”.

This means that the fewer adherences of infrastructure standards take place the more disaster is done. These results concur with studies carried out by Mwangi (2008), resources for disasters, once they are ready, play a critical role in ensuring timely and efficient delivery of disaster response efforts. According to Oguye (2012) in his study titled an assessment of the implementation of safety standards in public secondary schools in Borabu District, Nyamira County, Kenya he found out that majority of head teachers and teachers felt that their schools were in the process of ensuring safe physical infrastructure since they indicated the item as partly implemented.

Further a small percentage of teachers interviewed indicated that unsafe infrastructures existed in their schools and the observation schedule indicated lack of emergency exits in their buildings. Another study by Ayonga (2016) on an investigation of fire emergency preparedness in Kenyan schools: a case study of public secondary schools in Nairobi found out that most schools had no fire safety procedures and the ones which had, had only one concurred with the results found. According to the observation schedule on Ayonga (2016) study, most schools were not fully equipped to deal with fire disaster. This is in terms of Fire Fighting equipment, safety plans and skills. This implied that most schools in Nairobi County were not prepared in case of fire disasters.

4.4 Principals' involvement on Training of Staff on Safety Strategies and Disaster Management

The third objective was to find out the extent of the influence of principal's staff training on safety strategies on disaster management in public secondary schools in Nyeri County, Kenya. On this third variable HoDs were asked to respond to items related to principals' policy implementation of safety strategies and disaster management. The responses of heads of departments on staff training on safety strategies on disaster management are depicted in Table 9.

Table 9: Head of department responses on the staff training of safety strategies

Statement	Strongly agree		Agree		Disagree		Strongly disagree		Total	
	F	%	F	%	F	%	F	%	F	%
I have had Safety training in this school	67	23.2	65	22.5	52	18.0	105	36.3	289	100
Training on safety work is essential	43	14.9	72	24.9	107	37.0	67	23.2	289	100
Frequent participation on safety training in school	93	32.2	62	21.5	59	20.4	75	26.0	289	100
There are various trainings on safety of this school	77	26.6	78	27.0	65	22.5	69	23.9	289	100
Ability to handle disasters in school	85	29.4	73	25.3	59	20.4	72	24.9	289	100
Teacher training to conduct survey on safety	65	22.5	86	29.8	74	25.6	64	22.1	289	100
Teachers are trained on disaster management	67	23.2	76	26.3	60	20.8	85	29.4	289	100
Teachers are in- serviced on safety related issues	60	20.8	77	26.6	74	25.8	78	27.0	289	100

The findings in Table 9 shows that majority 23.2% strongly agree while 22.5% agree that they had Safety training in their schools. On whether Training on safety work is essential, majority 37.0% disagree while 24.9% agree. On Frequent participation on safety training in school majority 32.2% strongly agree while 26.0% strongly disagree. On various trainings on safety of this school majority 27.0% agree while 26.6% strongly agree. On Ability to handle disasters in school majority 29.4% strongly agree while 24.9% strongly disagree. On Teacher training to conduct survey on safety majority 29.8% agree while 25.6% disagree. On whether Teachers are trained on disaster management majority 29.4% strongly disagree while 26.3% agree. On Teachers are in-serviced on safety related issues majority 27.0% strongly disagree while 26.6% agree. Table 9 shows the mean on the training of safety strategies. According to the observation checklist the researcher made, it was observed that majority of the schools 17 (80%) had trained teachers on safety (see table 15).

The researcher concluded that there is a positive association between teachers training of safety and disaster management in public secondary schools in Nyeri County. The findings were in tandem with Gori (2015) who argued that training increases efficiency. As Gori (2015) noted, many institutions find it difficult to do it due to financial implications on organizations. This was a reason for the failure to conduct training that emerged from the study. Indeed, the situation becomes direr, especially when the readers' attention is brought to the realization that the results are congruent to the findings of Wanyama (2011) and Mburu (2012) who argued that many schools had not established safety committees, while most teachers were untrained.

To test the relationship, a Pearson r Product Moment correlation analysis was done to determine training of safety strategies ($M=1.57$, $SD=0.53$) and disaster management

(M=1.65, SD=0.29) as indicated in Table 8. The researcher further tested hypothesis three that read:

H03: There is no statistically significant relationship between training of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya

Hypothesis testing was done using Pearson Product Moment technique was done to determine the relationship between training of safety strategies and disaster management. The correlation results are presented in Table 10 which shows the correlation matrix for training on safety strategies and disaster management.

Table 10: Correlation matrix between principals' involvement in training of teachers on safety strategies and disaster management

		Principals' Training of Teachers on Safety Strategies	Disaster management
Principals' Training of Teachers on Safety Strategies	Pearson Correlation	1	.536*
	Sig. (2-tailed)		.000
	N		289
Disaster management	Pearson Correlation	.536*	1
	Sig. (2-tailed)	.000	
	N	289	

*. $p < .05$ (2-tailed); $df = 288$; $\text{Alpha} = 0.05$

The computation between principals' training of teachers on safety strategies and disaster management in public secondary schools in Nyeri County was done with the aid of SPSS. The results of this computation are given in Table 10. From results displayed in table 10, p -value of .000 is less than the chosen alpha (.05). The results displayed in Table 15 indicate that there is a positive correlation between principals'

involvement in training of teachers on safety strategies and disaster management in public secondary schools in Nyeri County. The two variables were moderately correlated ($r(289) = .536, p < .05$).

From the results of the analysis done to test Hypothesis 3 (see Table 10), it was found that there is a statistically significant relationship between principals' involvement in training of teachers on safety strategies and disaster management in public secondary schools in Nyeri County. With a Pearson's correlation value of .536, it means that the relationship was statistically significant. The results also indicated that the p -value of .000 was less than .05 that was used to determine the rejection or retention of the null hypothesis in this study. This implies that null hypothesis 3 was rejected and could now read "There is a statistically significant relationship between principals' involvement in training of teachers' on safety strategies and disaster management in public secondary schools in Nyeri County".

The null hypothesis which states that there is no statistically significant relationship between principals' involvement in training of teachers on safety strategies and disaster management in public secondary schools in Nyeri County was rejected. This means that the more safety training takes place the less disaster is done. These results concur with studies carried out by Janice (2011) more than 60 percent of principals indicated that they were never taught on evacuation measures, operating an emergency kit and firefighting techniques. In addition, they reported that their schools were not familiar with the persons to contact to give directions in case of an emergency. Over 80 percent of the teachers indicated that they were not trained in preventing disasters in schools, evacuation measures, servicing the gadgets and also the contact person to give directions.

The findings further support the findings of Wanyama (2011) who concluded that most schools had not fully complied with the safety guidelines and recommended training for all head teachers in school safety. They are also in line with Otieno (2010) who reported that most schools in Kenya had no capacity to handle emergencies and were yet to even implement the 2008 guidelines. Otieno (ibid) further reported that school management and some parents admit that some schools are sitting on a time bomb. This report came after two boys were burnt to death when the dormitory was torched. The said dormitory had grills fitted on the windows which is against the guidelines. He recommended training for all stakeholders.

Principals were interviewed on training of teachers on safety strategies and disaster management and their responses were as follows:

Principal No 7;

“We periodically receive some form of training but it cannot be said to be adequate.”

Principal No 8, 12, 21 had similar responses:

“We have never been trained on safety issues and it gets very hard to address security and safety issues.”

The researchers' checklist was in agreement with the responses of the principals on training of teachers on safety strategies and disaster management and it was identified that only five schools of the twenty-one schools were found to have teachers trained on safety while sixteen teachers had not been trained on safety strategies on disaster management. These responses concur with Fema (2009) which states that Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action.

4.5 Principals' involvement in Policy Implementation of Safety Strategies and Disaster Management

The fourth objective was to explore the relationship between principals' involvement in policy implementation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya. On this fourth variable HoDs were asked to respond to items related to principals' involvement in policy implementation of safety strategies and disaster management. The responses of heads of departments to principals' involvement in policy implementation of safety strategies and disaster management are depicted in Table 11

Table 11: Head of department responses on principal's involvement in Policy Implementation of safety strategies

Statement	Strongly agree		Agree		Not sure		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
My school has set guidelines on safety	81	28.0	84	29.1	64	32.1	60	20.8	289	100
My school adheres to set guidelines on safety	80	27.7	72	24.9	59	20.4	78	27.0	289	100
My school has safety security procedures committee	66	22.8	74	25.6	72	24.9	77	26.6	289	100
School committee guides management on safety	60	20.8	89	30.8	70	24.2	70	24.2	289	100
School has put facilities for special needs students	86	29.8	70	24.2	69	23.9	64	22.1	289	100
My school has challenges implementing on safety strategies	68	23.5	80	27.7	72	24.9	69	23.9	289	100
Implementers of safety strategies are not fully trained Not all safety policy procedures are implemented	64	22.9	85	29.4	64	22.9	76	26.3	289	100

The findings in Table 11 shows that my school has set guidelines on safety 29.1% agree while 28.0% strongly agree. On My school adheres to set guidelines on safety majority 27.7% strongly agree while 27.0% strongly disagree. On My school has

safety security procedures committee majority 26.6% strongly disagree while 25.6% agree. On School committee guides management on safety majority 30.8% agree while 24.2% disagree and strongly disagree respectively. On School has put facilities for special needs students' majority 29.8% strongly agree while 24.2% agree. On My school has a challenge on implementing safety strategies majority 27.7% agree while 24.9% disagree. On Implementers of safety strategies are not fully trained majority 29.4% agree while 26.3% strongly disagree. On Not all safety policy procedures are implemented majority 26.3% disagree while 26.0% agree. Table 15 shows the mean on policy implementation of safety strategies. According to the observation checklist the researcher observed that the majority of the schools 18 (85.7%) did not implement the policy on spacing in the classrooms and dormitories.

This result showed that most principals had not implemented the policy on spacing contrary to MoE directive on spacing of classrooms and dormitories. The principals ought to keep learners, parents and other stakeholders informed about school safety policies and implementation activities The researcher concluded that there is a positive association between principals' policy implementation and disaster management in public secondary schools in Nyeri County. The principals were interviewed on policy implementation of safety strategies and disaster management in public secondary schools and their responses were as follows:

Principal No 7:

“The students and teachers are not involved at different stages of implementation since its very involving and may use a lot of valuable study time.”

Principal No 13:

“We prefer not to involve the teachers at different stages of the implementation of safety standards in this school due to the time and finances it involves.”

Principal No 17:

“Students and teachers are sometimes involved at different stages of the implementation of safety awareness in disaster management in the school although it is not very practical”

The principals’ responses show that the policy implementation of safety strategies where teachers are to be involved from the beginning to the end is not effective. This study concurs with Omolo and Simatwa (2010) who investigated the implementation of safety policies in public schools in Kisumu East and West Districts, Kenya. The study established that some safety policies were implemented to lesser extent as evidenced by the following cases: there was a decreasing trend in conducting fire drills, fire extinguishers were found in only 26.6% of the schools, there was overcrowding in 70% of the schools. A study by Nyakundi (2012) also found out that “some schools did not have a copy of safety standards as required by the Ministry of Education. It also revealed that 71.4 percent of the respondents indicated that selective provision of fire equipment was a possible constraint in implementation of safety standards and guidelines in secondary schools.” The findings of this study concur with the findings of Oguye (2012) in his study titled an assessment of the implementation of safety standards in public secondary schools in Borabu District, Nyamira County, Kenya who found out that on the item ‘if the school had implemented safe grounds’, 55% of head teachers and 41% of teachers indicated that their schools had implemented the requirement of safe school grounds, 27% of the head teachers and 43% of the teachers interviewed indicated that their schools had not implemented the item of safe grounds in their schools. This was supported by the recorded observation by the researcher who had indicated in the observation schedule that only one schools’ compound was not fenced.

To test the relationship, a Pearson r Product Moment correlation analysis was done to determine policy implementation of safety strategies (M=1.56, SD=0.46) and disaster management (M=1.65, SD=0.29) as indicated in Table 8. The researcher further tested hypothesis four that read

H04: There is no statistically significant relationship between policy implementation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya

The researcher used Pearson Product Moment technique was done to determine the relationship between policy implementation of safety strategies and disaster management. The correlation results are presented in Table 12 which shows the correlation matrix for policy implementation of safety strategies and disaster management.

Table 12: Correlation matrix between principals' involvement in policy implementation on safety strategies and disaster management

		Principals' involvement in Policy	
		Implementation of Safety Strategies	Disaster Management
Principals' involvement in Policy	Pearson Correlation	1	.431*
	Sig. (2-tailed)		.000
	N	290	290
Implementation on Safety Strategies Disaster Management	Pearson Correlation	.431*	1
	Sig. (2-tailed)	.000	
	N	290	

*. p<.05(2-tailed); df=288; alpha=0.05

The analysis produced an *r* of .431 and a p-value of .000 which was less than the chosen alpha of .05 (see Table 12). Results of the computation as shown in Table 12 indicated that there was a statistically significant positive correlation between the two

variables ($r(290) = .431, p < .05$). With an observed r of .431, it meant that there is a statistically significant relationship between principals' policy implementation safety strategies and disaster management in public secondary schools in Nyeri County. With a p -value of .000 that was less than alpha (.05), the null hypothesis was rejected and it could now read there is a statistically significant relationship between principals' policy implementation safety strategies and disaster management in public secondary schools in Nyeri County.

This showed that the more principals' policy implementation safety strategies take place the less disaster is done. The null hypothesis which states that there is no statistically significant relationship between policy implementation of safety strategies and disaster management in public secondary schools in Nyeri County was therefore rejected. This means that policy implementation had an effect disaster management. This study concurs with reports by Otieno et al (2010) who reported inadequate funds as a constraint in implementation of safety standards and guidelines. Oguye (2012) also sought to find if the schools had implemented safe health and hygiene for students, the data from table 12 shows that 100% of the head teachers and 93% of the teachers interviewed either admitted that they have fully implemented the policy or are in the process since they indicated partly implemented. Of all the teachers interviewed 7% of them felt that their schools have not put the safe health and hygiene policy in place. Omollo et al (2010) suggested in his findings in the Kisumu East and West districts, that the high level of the implementation of the safety measures in the schools of the area should be replicated in all other schools in Kenya.

4.6 Principals' involvement in Monitoring and Evaluation of Safety strategies and disaster management

The fifth and last objective of this work was to establish the extent of influence of principals' involvement in monitoring and evaluation of safety standards on disaster management in public secondary schools in Nyeri County, Kenya. Table 20 shows head of department responses on the Monitoring and Evaluation of safety strategies. The findings in Table 13 shows majority 32.9% strongly disagree on Monitoring and evaluation of safety issues is not well done while 26.0% agree. On Monitoring and evaluation of safety issues is done by the principal 34.9% strongly disagree while 31.8% strongly agree. On No policy guidelines for monitoring and evaluation of policy safety issues majority 41.5% disagree while 30.8% agree. On Few teachers trained on M & E of safety policy issues majority 28.4% strongly disagree while 27.0% agree respectively. On Safety and security of students is monitored in school majority 27.0% strongly disagree while 25.6% strongly agree. On There is supervision of students and security while using physical structures majority 27.0% strongly disagree while 26.6% disagree.

Table 13: Head of department responses on Monitoring and Evaluation of safety strategies

Statement	Strongly agree		Agree		Disagree		Strongly disagree		TOTAL	
	F	%	F	%	F	%	F	%	F	%
Monitoring and evaluation of safety issues is not well done	62	21.5	75	36.0	57	19.7	95	32.9	289	100
Monitoring and evaluation of safety issues is done by the principal	92	31.8	55	19.0	41	14.2	101	34.9	289	100
No policy guidelines for monitoring and evaluation of policy safety issues	29	10.0	89	30.8	120	41.5	51	17.6	289	100
Few teachers trained on M & E of safety policy Issues	59	20.4	78	27.0	70	24.2	82	28.4	289	100
Safety and security of students is monitored in school	74	25.6	65	22.5	72	24.1	78	27.0	289	100
There is supervision of students and security while using physical structures	59	20.4	75	26.0	77	26.6	78	27.0	289	100
School controls access to school building at all times	46	15.9	75	26.0	99	34.3	69	23.9	289	100
School conducts safety evaluation regularly	55	19.0	90	31.1	74	25.6	70	24.2	289	100

On School controls access to school building at all times majority 34.3% disagree while 26.3% agree. On School conducts safety evaluation regularly majority 31.1% agree while 25.6% disagree. Table 13 shows the mean on the Monitoring and Evaluation of safety strategies. The researcher using the observation schedule made the following observations concerning the principals monitoring and evaluation of safety strategies. All the 21 (100%) sampled schools had committee meeting minutes (see Table 23). 10 (47%) of the schools had records of cases of trainings. 6 (28.5%)

had records of disaster occurrence. Of the schools observed by the researcher 9 (42.5%) had feedback mechanism on safety strategies.

To test the relationship, a Pearson r Product Moment correlation analysis was done to determine monitoring and evaluation of safety strategies (M=1.63, SD=0.41) and disaster management (M=1.65, SD=0.29) as indicated in Table 8. The researcher further tested hypothesis five that read

H05: There is no statistically significant relationship between monitoring and evaluation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya

Correlation analysis using the Pearson Product Moment technique was done to determine the relationship between monitoring and evaluation of safety strategies and disaster management. The correlation results are presented in Table 14 which shows the correlation matrix for monitoring and evaluation of safety strategies and disaster management.

Table 14: Correlation matrix between principals' monitoring and evaluation of safety strategies and disaster management

		Principals' involvement in Monitoring and Evaluation of Safety Strategies	Disaster Management
Principals' involvement in Monitoring and Evaluation of Safety Strategies	Pearson Correlation	1	.461 [*]
	Sig. (2-tailed)		.000
	N	290	290
Disaster Management	Pearson Correlation	.461 [*]	1
	Sig. (2-tailed)	.000	
	N	290	

*. p<.05(2-tailed); df=288; alpha=0.05

From results displayed in table 14, p -value of .000 is less than the chosen alpha (.05). Results of the analysis (see Table 14) indicated that there was a statistically significant positive correlation between the two variables ($r(290) = .461, p < .05$). This result means that the null hypothesis was rejected because p -value of .000 is less than the chosen alpha (.05). This therefore means that there is statistically significant relationship principals' monitoring and evaluation of safety strategies and disaster management in public secondary schools in Nyeri County.

This showed that the more monitoring and evaluation takes place the less disaster management is done. The null hypothesis which states that there is no statistically significant relationship between monitoring and evaluation of safety strategies and disaster management in public secondary schools in Nyeri County was therefore rejected. This means that monitoring and evaluation of safety strategies does not affect disaster management. These results concur with studies carried out by Fema (2009) which states that preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action.

The findings of this study are in agreement with the findings of Oguye (2012) in his study titled an assessment of the implementation of safety standards in public secondary schools in Borabu District, Nyamira County, Kenya which found out that 64% of head teachers and 25% of teachers agreed that QASO did conduct safety evaluations in their schools at least once per term. Otherwise, 36% of head teachers and 52% of teachers showed that QASO officials conducted safety evaluation in their schools only once a year, 23% of the teachers said that they had never seen QASO

officials conduct safety evaluation in their schools. These data therefore showed that QASO who have a very important role in evaluating school safety might have not frequented schools to access safety as they ought to since QASO is the official government agency supposed to conduct inspection schools and report findings, MOE (2008).

The principals were interviewed on Monitoring and Evaluation of safety strategies and disaster management in public secondary schools and their responses were as follows: Principal No 1:

“Monitoring and evaluation is not available since it is time consuming and also not practical”

Principal No 8:

“It is not possible to conduct monitoring and evaluation since it is time consuming”

Principal No 19:

“Monitoring and evaluation of safety standards is done once yearly since all things on safety tend to be ok”

The responses of the principal show that monitoring and evaluation is rarely conducted in schools especially on safety standards and has not been taken seriously. This study concurs with Nderitu (2009) who found out that rarely did MOE officials inspect schools to monitor and supervise implementation of safety policy because QASOs are overwhelmed by the large and increasing number of schools and colleges making it an immense task to inspect school frequently

Table 15: Observation checklist on principals' administrative practices on disaster management

Item(s)	Frequency	Percentage
Availability of safety documents	17	80
Emergency Exits and Fire alarm detectors	18	85
Training of Teachers on safety	17	80
Crowded classes and dormitories	18	85
Safety committee meetings minutes	21	100

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

In this chapter, the researcher presents conclusion and recommendations in line with the research hypotheses. The chapter focuses on the major aspects underlying this study. It can be stated that the researcher was able to address all the research hypotheses adequately and with clarity. In general, the hypotheses were based on establishing the relationship between the principals' administrative safety strategies influencing disaster management in public secondary schools in Nyeri County, Kenya. Moreover, all the hypotheses in chapter four were tested and concluded.

5.1 Summary of the Findings

The purpose of this study was to investigate the principals' administrative safety strategies influencing disaster management in public secondary schools in Nyeri County, Kenya. Specifically, the study examined the influence of principals' involvement in staff awareness on safety strategies, principals' adherence of infrastructure standards, principals' staff training, and principals' involvement in safety policy implementation, and principals' involvement in monitoring and evaluation of safety standards on disaster management in public secondary schools in Nyeri County, Kenya. The literature review focused on the concept of disaster management, principals' involvement in staff awareness of safety strategies, adherence to infrastructure standards, staff training, safety policy implementation, and monitoring and evaluation of safety standards on disaster management, theoretical framework, and conceptual framework.

Interview schedule, observation checklist and questionnaires were used as the main tools for data collection. The interview schedule was used to collect data from the principals while questionnaires were used to collect data from head of departments. Observation checklist was used to collect data on physical and available records. After data collection the data was cleaned by identifying incomplete or inaccurate responses which were corrected to improve the quality of the responses. After data cleaning, the data was coded and entered into computer for analysis using the Statistical Package for Social Sciences (SPSS). The quantitative data was analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviation while inferential statistics analyzed using Pearson correlation. The findings of the study showed that principals' administrative safety strategies had tremendous influence on disaster management in public secondary schools in Nyeri County. After the computation on Pearson r product moment was done, results that showed that the relationship was statistically significant.

The findings on principals' administrative safety strategies influencing disaster management show that out of 310 questionnaires administered to the heads of departments, 290 (93.5%) were returned and 21(100%) of the principals were interviewed. Both the response rate was above 70%. Creswell, (2014) asserts that a response rate of 70% and above is adequate to validate the findings of a study. Therefore, the researcher was able to validate the results. To find out if there was any relationship between principals' involvement in staff awareness of safety strategies and disaster management, the researcher used hypothesis "There is no statistically significant relationship between principals' staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya.

After testing Hypothesis one on the relationship between principals' involvement in staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya, using Pearson r the results showed that the P value was less than alpha value 0.05 which was used to determine the acceptance or rejection of the null hypothesis, $P < 0.05$ ($0.000 < 0.05$). Majority of the heads of departments 212 (73.1%) agreed that disasters in schools had lessened since the introduction of principals' staff awareness of safety strategies. After the principals were interviewed, their views and opinions concurred with the head of departments' views that there was a statistically significant relationship between principals' staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya.

For instance, principal 16 was asked to give his opinion on the interview question item 2 "*Are teachers periodically made aware of safety strategies in this school?*" The respondent gave a positive response that "*During briefings and staff meetings teachers are made aware of safety strategies on disaster management and specifically how to prevent and control disasters in school*". Findings from both the principals and heads of departments' teachers showed that there was a great association between principals' staff awareness of safety strategies and disaster management. Therefore, this led to the rejection of the null hypothesis and to the acceptance of the Alternative hypothesis. "There is a statistically significant relationship between principals' involvement in staff awareness of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya. The results were in tandem with the results from the observation checklist which showed that safety documents were available. This showed that the more principals are involved in staff awareness of safety strategies the less disaster occur.

The findings on principals' adherence of infrastructure standards influencing disaster management show that out of 310 questionnaires administered to the heads of departments, 290 (93.5%) were returned and 21(100%) of the principals were interviewed. Both the response rate was above 70%. The findings on observation schedules showed that most schools had emergency exits which were not usable. These exits were either permanently welded or secured with a padlock. In cases where padlocks were used, the occupants of such rooms were ignorant of the keys' location. Again, most windows had grills. To find out if there was any relationship between principals' adherence to infrastructure standards and disaster management, the researcher used hypothesis "There is no statistically significant relationship between principals' adherence to infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya

After testing Hypothesis two on the relationship between principals' adherence to infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya using Pearson r the results showed that the P value was less than alpha value 0.05 which was used to determine the acceptance or rejection of the null hypothesis, $P < 0.05$ ($0.000 < 0.05$). Majority of the heads of departments 171(69.1%) agreed that disasters in schools had lessened since the introduction of principals' adherence to infrastructure standards. The researcher's observation checklist also showed that; after the principals were interviewed, their views and opinions concurred with the head of departments' views that there was a statistically significant relationship between principals' adherence to infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya.

For instance, principal 10 was asked to give his opinion on the interview question item 4 “*Do you have the required safety infrastructure and equipment in this school?*” The respondent gave a positive response that “*We have sufficient safety infrastructure and equipment in this school since the government and other stakeholders have adequately funded this school*”. Findings from both the principals and heads of departments’ teachers showed that there was a great association between principals’ adherence of infrastructure standards and disaster management. Therefore, this led to the rejection of the null hypothesis and to the acceptance of the Alternative hypothesis. “There is a statistically significant relationship between principals’ adherence of infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya. This showed that the more principals are involved in adherence of infrastructure standards the less disaster is done.

On the relationship between principals’ involvement in policy implementation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya using Pearson r the results showed that the P value was less than alpha value 0.05 which was used to determine the acceptance or rejection of the null hypothesis, $P < 0.05$ ($0.000 < 0.05$). Majority of the heads of departments 132 (45.7%) agreed that disasters in schools had lessened since the introduction of principals’ training of teachers on safety strategies. The findings of the observation checklist show that the majority of the schools 18 (85.7%) did not implement the policy on spacing in the classrooms and dormitories.

Principals’ views and opinions concurred with those of the head of departments’ views that there was a statistically significant relationship between principals’ involvement in policy implementation of safety strategies and disaster management in

public secondary schools in Nyeri County, Kenya. For instance, principal 8 was asked to give his opinion on the interview question item 7 “*Are teachers and students involved at different stages of involvement in policy implementation of safety strategies in this school?*” The respondent gave a positive response that “*Students and teachers are sometimes involved at different stages of the implementation of safety awareness in disaster management in the school although it is not very practical*”.

Findings from both the principals and heads of departments’ teachers showed that there was a great association between principals’ policy implementation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya. Therefore, this led to the rejection of the null hypothesis and to the acceptance of the Alternative hypothesis. “There is a statistically significant relationship between principals’ policy implementation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya. This showed that the more principals are involved in policy implementation of safety strategies the less disaster is done.

After testing the fourth Hypothesis on the relationship between principals’ training of teachers on safety strategies and disaster management in public secondary schools in Nyeri County, Kenya using Pearson r the results showed that the P value was less than alpha value 0.05 which was used to determine the acceptance or rejection of the null hypothesis, $P < 0.05$ ($0.000 < 0.05$). Majority of the heads of departments 149 (51.5%) agreed that disasters in schools had lessened since the involvement of principals in staff training on safety strategies.

After the principals were interviewed, their views and opinions concurred with the head of departments’ views that there was a statistically significant relationship between principals’ involvement in training of teachers on safety strategies and

disaster management in public secondary schools in Nyeri County, Kenya. For instance, principal 17 was asked to give his opinion on the interview question item 5 “*Do teachers receive safety strategies and disaster management training issues in this school?*” The respondent gave a positive response that “*We have never been trained on safety issues and it gets very hard to address disaster management issues.*” Findings from both the principals and heads of departments’ teachers showed that there was a great association between principals’ adherence to infrastructure standards and disaster management. Therefore, this led to the rejection of the null hypothesis and to the acceptance of the Alternative hypothesis. “There is a statistically significant relationship between principals’ adherence of infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya. This showed that the more principals are involved in principals’ involvement in policy implementation of safety strategies the less disaster is done. After testing the fifth Hypothesis on the relationship between principals’ involvement in monitoring and evaluation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya using Pearson r the results showed that the P value was less than alpha value 0.05 which was used to determine the acceptance or rejection of the null hypothesis, $P < 0.05$ ($0.000 < 0.05$).

After the principals were interviewed, their views and opinions concurred with the head of departments’ views that there was a statistically significant relationship between principals’ involvement in monitoring and evaluation of safety strategies and disaster management in public secondary schools in Nyeri County, Kenya. For instance, principals No.1, 8, 19 were asked to give their s on the interview question item 10 “Is there a committee for monitoring of safety strategies in this school? The respondents gave the following responses: Principal No 1: *Monitoring and evaluation*

is not available since it is time consuming and also not practical” Principal No 8: *“It is not possible to conduct monitoring and evaluation since it is time consuming”* Principal No 19: *“Monitoring and evaluation of safety standards is done once yearly since all things on safety tend to be ok”* Findings from both the principals and heads of departments’ teachers showed that there was a great association between principals’ adherence to infrastructure safety standards and disaster management. Therefore, this led to the rejection of the null hypothesis and to the acceptance of the Alternative hypothesis. “There is a statistically significant relationship between principals’ adherence to infrastructure standards and disaster management in public secondary schools in Nyeri County, Kenya. This showed that the more principals are involved in policy implementation of safety strategies the less disaster is done.

5.3 Conclusion

Based on the findings of the study, it can be concluded that:

Principal involvement in staff awareness of safety strategies had an influence on disaster management. Inferentially the results showed that the relationship between involvement in staff awareness of safety strategies and disaster management was negative but statistically significant. It was evident by indicators of Security policy awareness, Students roll cards, School has a safety committee, Teacher’s idea on safety equipment works, Awareness of Ministry of Education safety standards respectively. This showed that the more principals get involved in staff safety awareness strategies the more they are able to minimize occurrence of disaster.

Principals’ adherence to infrastructure safety standards had an influence on the disaster management. This was further expressed inferentially where the correlation analysis showed that adherence to infrastructure has a strong positive and statistically

significant contribution to disaster management. The results showed that the schools have fire extinguishers, information safety procedures and infrastructure on safety strategies respectively. This implies that when principals adhere to infrastructure standards disasters are minimized in their schools.

The study further concluded that the principals' involvement in training on safety strategies had an influence on disaster management in secondary schools. The relationship was weak but positive and statistically significant. It was noted that schools had various trainings on safety of this school, teacher training to conduct survey on safety, teachers are in-serviced on safety related issues and that training on safety work is essential. This showed that the more schools carried out training on safety strategies the more they minimized the occurrence of disaster in the schools.

Principals' involvement in policy implementation of safety strategies had a positive and strong statistically significant contribution to disaster management. The study established that most schools have a safety security procedure committee, schools have challenges on implementing safety strategies, Teacher are trained to conduct survey on safety. This showed that the more the principals engage in policy implementation of safety strategies the more the schools are able to reduce the chances of disaster's happening.

Finally, the study concluded that Principals' involvement in monitoring and evaluation of safety strategies were not well carried out by the schools and this influenced disaster management in secondary schools. The influence was weak but positive and statistically significant. This implies that the more principals engaged in Monitoring and evaluation of safety issues in the school, they get involved in monitoring the safety and security of students, they control access to school building at all times, and ensure that teachers are

trained on M & E of safety policy issues in the schools, the more the schools are able to control the occurrence of disaster. This implies that the more principals are able to engage in monitoring and evaluation activities in the school the more they are able to minimize occurrence of disaster.

These conclusions indicate that there has been remarkably little attention devoted to disaster management in schools which exposes the school community members to disasters, some of which can be averted.

5.4 Recommendations

The recommendations made from the study are given in the following sections:

5.4.1 Recommendations for Policies

Based on the findings the study made the following recommendations:

- i. Disaster management courses should be introduced and made mandatory for each teacher to attend per term.
- ii. Sensitization on disaster management should be done more frequently to ensure teachers are well aware of the importance of preventing disasters in order to promote learning and save lives.

5.4.2 Recommendations for Management Practice

- i. The government through the Ministry of Education should ensure that both principals and teachers undertake induction and in-service courses on disaster management in schools.
- ii. The school management led by the principal should foster cooperation in terms of ensuring policies on disaster management are effectively implemented.

- iii. The Ministry of Education and Teachers Service Commission should ensure that principals are involved in monitoring and evaluation of the safety standards in schools to prevent disasters from happening.
- iv. The principals should foster staff awareness on disaster management with the teachers to promote prompt reaction in terms of mitigating disasters.
- v. Principals should ensure that all infrastructure in school adhere to the safety standards by ensuring all the necessary equipment are functional and available in school for instance emergency exit, windows have no grills, fire extinguishers and an assembly point.

5.5 Suggestion for further research

Based on the findings, the current study suggests as follows:

- i. There is need to carry out research on teachers' awareness on disaster management and its effectiveness to the development of teacher education and student performance.
- ii. The researcher suggests that research on teacher training on mitigating disasters should be carried out and its impact on achieving the development goals of education towards vision 2030.
- iii. More research should be conducted on policy implementation of special needs on disaster management in schools.

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APPENDICES

Appendix I: Heads of Department (HoDs) Questionnaire

This questionnaire is seeking information concerning an evaluation of principals' management of safety, security and policy procedures in public secondary schools in Nyeri County. You are requested to take part of your few minutes to answer the following questions in relation to the said phenomenon. Your answers will be treated confidentially and will only be used for the intended purpose (PhD study).

Section A: Demographic Information

Instructions: For items i-iv please answer by putting a tick (✓) or provide information as required.

- i. Type of your school: (a)Boys (b)Girls (c)Mixed
- ii. Status of your school:
(a)Boarding (b)Day (c)Mixed (boarding and day)
- iii. Your gender Male Female
- iv. Period served as a head of department in the present school
 - (a) 1 – 5 years
 - (b) 6 – 10 years
 - (c) 11 – 15 years
 - (d) 20 years and above

Section B: Questionnaire Items

For statements 1-40, please rate them by ticking numbers 1-4 against them. The numbers represent the following: 1 - Strongly agree 2 - Agree 3 - Disagree 4 - Strongly disagree.

	Statement				
i.	I am not aware of the safety security policy and procedures found in this school.				
ii.	New teachers and students are inducted on the safety security policy and procedures found in this school.				
iii.	Training on safety issues increases my safety awareness.				
iv.	Teachers and students have no idea on how safety equipment works				
v.	I am not aware of the Ministry of Education's safety standards.				
vi.	My school has a copy of the Ministry of Education safety standards				
vii.	My school has a safety committee.				
viii.	My school conducts students' roll calls regularly				
ix.	This institution has no policy on safety issues.				
x.	The school adheres to safety and security standards for learning environment				
xi.	This school has no infrastructure for staff and students with disabilities				
xii.	This institution's security and policy procedures are not followed.				
xiii.	Information on the safety security policy and procedures are available to all teachers and students in this school.				
xiv.	Buildings in this school have emergency exits.				

xv.	There are enough fire extinguishers in this school.				
xvi.	This school has evacuation maps and plans in case of a disaster.				
xvii.	I have had safety training in this school.				
xviii.	Training on safety at my work place is essential.				
xix.	I have frequently participated in training on safety and security in this school				
xx.	There are several trainings on safety and security issues in this school?				
xxi.	I have the ability to handle disasters in the school				
xxii.	Teachers are trained to conduct a survey to ascertain safety and security status periodically.				
xxiii.	Teachers are trained on disaster management skills.				
xxiv.	Teachers are in-serviced on safety and security related issues.				
xxv.	My school has set guidelines on safety, security, policy and procedures				
xxvi.	My school adheres to set guidelines on safety, security, policy and procedures				
xxvii.	My school has safety, security, policy and procedures committee				
xxviii.	My school has challenges in implementing safety standards manual.				
xxix.	Implementers of these schools' safety policy procedures are not fully trained.				
xxx.	Not all safety policy procedures are implemented in this school.				
xxxi.	Monitoring and evaluation of safety policy issues is not well done in this school				
xxxii.	My school conducts safety evaluation exercises regularly.				

Appendix II: Principals Structured Interviews

Date _____ Interviewee No. ____ Male ____ Female ____

1. Were you introduced to safety strategies when you first reported to this school?

2. Are teachers periodically made aware of safety strategies in this school?

3. Does your school have the safety strategies manual that is in operation?

4. Do you have the required safety strategies and security infrastructure and equipment in this school?

5. Do teachers receive safety strategies and disaster management training issues in this school?

6. How often do you receive safety strategies and security training issues in this school?

7. Are teachers and students involved at different stages of policy implementation of safety strategies in this school?

8. How do you manage safety strategies policy issues in this school?

9. Are there set guidelines for the implementation of safety strategies in this school?

10. Is there a committee for monitoring of safety strategies in this school?

Appendix III: Observation Check List

Safety Issues Check list in Nyeri County Public Secondary Schools

Sch documents	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Availability of safety																									
Training of Teachers																									
1st Aid Kits																									
Exits																									
Emergency																									
Fire-fighting equip																									
Safety instructions																									
Fire alarm detectors																									
Rumps																									
Crowded classes																									
Crowded dorms																									
Lightening arrestors																									
meetings minutes																									
Safety committee																									
Fencing																									
Grills																									
Exit points																									
Minutes																									
Safety mgt meeting																									

Appendix IV: Research Permit Letter



MAASAI MARA UNIVERSITY **(OFFICE OF THE DIRECTOR, POSTGRADUATE STUDIES)**

TEL. No.0722346 419
Email: graduatestudies@mmarau.ac.ke

P. O. Box 861-20500
NAROK, KENYA

Ref: Ref/MMU/AA0328/45/ VOL 1 (26)

Date: 4TH APRIL 2018

Council Secretary,
National Council for Science, Technology & Innovation
P.O. Box 30623-00100
NAIROBI-KENYA

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH PERMIT: REG. NO.DE01/0072/2011 –

HAWA OMARI

I wish to recommend the above candidate for a permit to enable him collect data for his research. He defended his proposal at the School of Education successfully and has made the necessary corrections. The title is: *An Evaluation Of Principals Management of Safety, Security And Policy Procedures In Public Secondary Schools In Kenya: A Case Of Nyeri County.*

He therefore qualifies for a permit to conduct research. Any assistance accorded to him will be highly appreciated.

MAASAI MARA UNIVERSITY
Box 861 - 20500
NAROK
05 APR 2018
Dr. Kodak O.R.
DIRECTOR
BOARD OF POSTGRADUATE STUDIES
AG. DIRECTOR POSTGRADUATE STUDIES

Appendix V: Authorization Letter



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: 020 400 7000,
0713 788787,0735404245
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/32329/22393**

Date: **24th April, 2018**

Hawa Wanjiru Omari
Maasai Mara University
P.O. Box 861 - 20500
NAROK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*An evaluation of principals' management of safety security and policy procedures in public secondary schools in Kenya. A case of Nyeri County*" I am pleased to inform you that you have been authorized to undertake research in **Nyeri County** for the period ending **23rd April, 2019**.

You are advised to report to **the County Commissioner and the County Director of Education, Nyeri County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nyeri County.

The County Director of Education
Nyeri County

APPENDIX VI: Research Permit

**THIS IS TO CERTIFY THAT:
MS. HAWA WANJIRU OMARI
of MAASAI MARA UNIVERSITY, 0-50100
Embu, has been permitted to conduct
research in Nyeri County**

**Permit No : NACOSTI/P/18/32329/22393
Date Of Issue : 24th April,2018
Fee Recieved :Ksh 2000**

**on the topic: AN EVALUATION OF
PRINCIPALS MANAGEMENT OF SAFETY
SECURITY AND POLICY PROCEDURES IN
PUBLIC SECONDARY SCHOOLS IN KENYA
A CASE OF NYERI COUNTY**



**for the period ending:
23rd April,2019**

.....
**Applicant's
Signature**


.....
**Director General
National Commission for Science,
Technology & Innovation**

APPENDIX V: Map of the study location

