Fire Ppreparedness in Ssecondary Sschools in Eldoret West Ssub-County, Uasin-Gishu County, Kenya

Abstract

Background: Fire incidents in schools are worldwide phenomena that primarily ranges from being highly localized to global in scope. Safety of sStudents and staff members pertaining tosafety from hazards, that can be created by unsafe behavior, disasters or emergencies in schools cannot be guaranteed.

Objectives: The current study examined the capacity of secondary schools capacity in coordination and communication ofin fire preparedness well as level of awareness and adaptive capacity.preparedness.

Methodology: The study employed a descriptive survey design. Proportionate sampling technique was adopted to select 16 out of the 80 secondary schools. Participants in the study constitutedwere the head teachers and other teaching staffers in charge of safety, laboratory assistants and the, chefhead cook. In addition,, 280 students who were selected through systematic random sampling from the 16 schools through random probabilistic sampling s well as, the DEO, 5 ZQAOs and 2 members of fire brigade team in the municipality within the district. Questionnaires and interview schedules were used to collect data.

Results: Sixty five per cent of the schools did not have disaster preparedness policies and plans. However, all head teachers acknowledged that it existed. 81% of schools did not have any alternative learning area neither emergency exits in the event of a disaster. Emergency iInstructions for safety in the event ofcase of a disaster occurrence whereas lacking in many schools as acknowledged by 63 % of respondents. Slightly more than half of the schools indicated evacuation drills and regular disaster preparedness meetings are never carried out. 63% of the teachers opinedindicated that their schools lackeddid not have laid-down procedures during in case of emergency periods.

Conclusion: Negligible percentage of schools had designated teachers, being in charge of safety. Students had no sufficient knowledge on what to do in case of fire outbreak. There wereis no adequate training on disaster preparedness and prevention amongf staff members and students. Findings show on how to prevent disasters hence compromising school safety. a lLarger percentage of teachers and students do not know how to use fire- fighting equipmentsequipment.

Recommendation: Therefore, the study recommends capacity buildingmore emphasis should be put on programs training among academic of school stakeholders on fire disaster preparedness and provision of fire safety support resources for combating fire disasters in all schools. The MoE should inspect and set ministerial regulations and guidelines on safety issues in all schools to ensure actualization ofthat school safety manuals is actualized both in letter and spirit.

Key words: Disaster, schools, fire, education, preparedness

Introduction

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Comment [N2]: If you are referring to the head cook in the school then **Chef** is the correct term which must be used.

Comment [N3]: Kindly clarify interview schedules. If you intend to say interview guide then it similarly within the context of questionnaires. IF you mean verbal interviews then state whether formal (recorded with excerpts) or informal (not recorded but could be transcribed).

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Kenya's disaster profile is dominated by droughts, fire-outbreaks, floods, technological accidents, diseases and epidemics that disrupt people's livelihoods, and interrupt economic activities and retards development(B.W. & W., 2013) . Since the attainment of independence in 1963, the Government of Kenya committed itself to improving the standards of education at all levels. This commitment has been driven by several reasons, including the need to provide education as a fundamental human right (Elder, 2015), education as a social vaccine in the fight against poverty as well as, and education beenas an integral and indispensable vehicle for achieving the goals of national development, policy and integration, and peace (Educativo Acao et al., 2014; Elder, 2015; The Inter-Agency Network for Education in Emergencies, 2004). It is for theseis reasons that the gGovernment has from time to time appointed various educational commissions, committees and task forces to address various challenges facing the educational sector.

The steady growth of disaster risk, including people's vulnerabilitythe increase of people and assets exposure, coupledmbined with the evidence and trends, drawn from lessons learned from past disasters, indicates the need to further strengthen disaster preparedness with appropriate and results-orientedfor responses., Robust action plans must be takentake action in anticipation of events in line with the, integration ofe disaster risk reduction in response preparedness inand ensuringe that realistic capacities are in place for effective response and recovery at all levels (Sendai Framework For Disaster Risk Reduction 2015-2030)(UN-General Assembly, 2015). The framework particularly singles out children and youth as agents of change. It further outlines and should be given the space and modalities to contribute to disaster risk reduction, in accordance with legislation, national practice and educational curricula(Munene, Swartling, & Thomalla, 2018).

From research studies by US Department of Education and US Department of Justice(Justice., 2000), it is clear that a combination of programs and strategies that include security checks, education in violence or arson prevention and counseling of students would be ideal. Arson prevention would include installation of fire extinguishers in school laboratories, offices, and other fire prone spots. In addition, it isIt would also be expected that fire drills and first aid, form part of the weekly activities and the fire equipment areis periodically checked for readiness in case of emergency.

Safety awareness and preparedness in schools are gaining weightbecoming major concern in the wave of violence and arson. In the recent past, there have been perpetual reports on violence and fire outbreaks across the schools in the country. These reports are evidence that schools are not immune to destructive violence. Apparently, there exists constant fear among the leaders and a growing need to address the issue of safety in depth(Parlor, 2009).

School Safety in schools isis an integral and indispensable component of the teaching and learning process. There is no Mmeaningful teaching and learning outcomes cannot be yielded in an unsafe or unsecured that can take place in an environment amongthat is unsafe and insecure to both learners and staff (Muricho & Changách Koskey, 2013). Introduction of universal free primary education in response to Mmillennium Ddevelopments Ggoals in 2003 by the Kenyan Government and subsequent waiving of tuition fees at the secondary level encouraged high transition from primary to secondary. The net effect is the high enrolment of pupils to secondary schools regardless of the bed capacity requirement stipulated by Ministry of Education, thus causing straining of limited resources in schools(Fautley & Savage, 2009). This high enrolment posed a great challenge toon the safety of the students, and this

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necessitating**ed** the drafting of **the** safety in schools **safety** standard manual in 2008 in**to** respons**ed** to higher cases of students' unrest**s** that had been witnessed. As such, academic**learning** institutions have not been immune to fire disasters**.**, F**f**or instance, the 1998 Bombolulu Girls secondary arson claimed 25 lives of**of students**students' threshold**.**, T**t**he 2003 Kyanguli mixed secondary fire-outbreak claimed 67 lives, with **and** several others sustaining various degrees of injuries**.**, The aforementioned **all these** disasters are among the most recent fire-outbreaks **disasters**, showing **that have shown that** institutions and government agencies are susceptible**not fully prepared to respond** to fire disasters due to low adaptive capacity(Muricho & Changách Koskey, 2013). The commission**s** of inquiry set out by the government noted that **the** physical infrastructure of the school could have contributed immensely to retention/trapping of the students in the dormitory. In the case of t**T**he Kyaguli arson **also** claiming**ed** 67 lives, **and the** concerns raised pointed out**was that the** dormitory doors **had** been locked from the outside.

Eldoret West district therefore is a semi-urban constituency; sixty percent of schools are located within the Municipality where incidences of industrial fires have been rampant. Uasin Gishu County is a cosmopolitan area, with a total population of 894,179 (KNBS, 2010), the age group between 14 to 17 years comprising of the secondary school going age was projected to increase from 77,291 in 2009 to 104,750 by 2017. As a consequence of the above gaps in the fire preparedness in our learning institutions, the researcher sought to assess the level of disaster preparedness amongst the school administration, students and other stakeholders that are responsible for the safety of the schools.

The concept is that **e**mergency preparedness plans have evolved over recent years to include not only intentional disasters but also unintentional public health emergencies such as natural disasters/calamities. In the United States of America, the state governments require specific disaster preparedness activities in their school systems. In California, schools are required to: have a disaster plan, have periodic "drop cover hold" practices in preparation for earthquakes, hold regular drills for staff and students, and hold educational and training programs for students and staff. In the United Kingdom, the Scotland School Estate, (2003) required the school principals to ensure that adequate systems are in place and that checks are carried out to minimize the disaster effects.

Materials and methods

The Study Area

The research was conducted in Eldoret West district, Uasin Gishu County, Kenya. According to the 1999 population census, the population for Soy and Turbo divisions which now constitute Eldoret West district was 271, 929. As per the 2009 census, the total population of the **is** district was 390, 953.

The study was conducted in 80 public and private secondary schools within Eldoret West district. According to the District Education Officer, there are 18 boarding schools and 62 day schools in the district.

Study Design and Population

The study population constituted**isted of all the** 80 head teachers, 80 teaching staff**ers** (**i**In charge of safety), 17689 students from **both the** 62 public and 18 private secondary schools in Eldoret West District. The District Education officer, **the** 7 Zonal Quality Assurance and Standards Officers (ZQASOs) and 2 fire brigade teams from Eldoret Municipality within the district **will also be targeted**. **Therefore the total population for the study will be 17859 subjects.**

Study Design

This study employed a descriptive survey research design.

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Sample Size Determination

From the 80 schools of the target population, simple random sampling was used to select 16 schools. This formed 20% of the target population. Schools were divided into two groups: boarding and day schools. Proportionate sampling was used to select schools. From a total of 18 boarding schools, a proportion of 20% was used to select 4 boarding schools and 12 days schools representing 80%.

Total no. schools 80

Gay recommends 20% for educational research 0.2(80) =16

Boarding schools 18/80*16=4

Day schools 62/80*16=12

A total of 16

Sample selection

Since the target population (**18351**) exceeded 10,000, fisher's et al (1998) formula applied

$n = z^2(p.q)/d^2$ where,

n = (sample size)

z=1.96 = (standard normal deviate at the required C.I)

p=0.5=probability assumed since prevalence of fire incidence is not known

q=0.5=compliment of p

d=0.05=sampling error

$n = 1.96^2[0.5(1-0.5)]/0.05^2$

n= 384

Criterion for Selection of the 384 Respondents

Teaching and Non-teaching staff

For every school picked, the head teacher, the teacher in charge of safety, teacher on duty, and Chef**head cook** were purposively selected making total of 64. Laboratory assistant, security officer and 5 ZQASOs were randomly selected. 2 officers in charge of municipal fire department were randomly selected, the only DEO was purposively selected making a total **104.**

Students

The number of respondents (students):

384-104=280, Hence, 280/16= **17** (students per school)

Random sampling was used to select 4 students per class and the head student was purposively selected.

Data collection tools

Questionnaires and interview schedules were designed to collect required information

Questionnaires

Q**The q**uestionnaires were used for data collection because it offers considerable advantages in the administration. It also presents an even stimulus potentially to large numbers of people simultaneously.

Questionnaires for Head Teachers/ Teachers

The questionnaire for head teachers collected the background information of head teachers related to the challenges faced in the effective implementation of school safety manual in relation to fire disaster preparedness, adequacy of physical facilities necessary for conducting fire drills, students' enrolment, adequacy of learning resources, and adequacy of school finances.

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Questionnaires for students

The questionnaire for students captured student's demography and information on knowledge to handle disasters within the institution, level of preparedness amongst the students, early warning systems and whether the students participated on drills as well as the frequency of the drills.

Interview Schedules

Interview schedules were used to guide interviews conducted with the DEO and ZQASOs on the challenges facing the effective implementation of school safety manual in relation to fire disasters. It contained items covering all the objectives of the study. The interview schedule gathered data on the challenges faced in the implementation safety manual in the schools in relation to management of physical facilities, students' enrolment, provision of teaching and learning resources in fire disasters, and allocation of funds to schools.

Data Collection Procedure

The researcher personally administered the questionnaire to the teachers and the head teachers and interviewed the DEO and ZQASOs. The selected head teachers were visited in their schools and the questionnaires administered to the respondents. The respondents were assured that strict confidentiality would be maintained in dealing with their responses. The head teachers and teachers filled in the questionnaires in the presence of the researcher so as to aid in case of any matter requiring clarification. Face-to-face interviews were then conducted with the DEO and ZQASOs.

Methods of Data Analysis

After data cleaning, the Ddata collected were coded **and entered in the computer** for analysis using the Statistical Package for Social Sciences (SPSS) version 22. **The research yielded both qualitative and quantitative data.** Qualitative data was analyzed **qualitatively** using content analysis based on response**analysis of meanings and implications emanating** from respondents **information** as well as**nd** documented or secondary data**.** **while** Qquantitative tools**data** were used to**as** analyze data**d** using various statistical tools**s** like: **including measures of** central tendency and dispersion. **Simple descriptive statistics was employed to analyze quantitative data**Descriptive and inferential statistics were used for results presentation.

Results

The study employed**recruited** 384 study participants comprising of; students, head teachers, teachers on duty, non-teaching staff and teachers in charge of school safety. Students comprised of 280 of the study participants where 161(57.5%) males and 119 (42.5%) females. There were 16 head teachers comprising 9 females (56.2%) and 7 males (43.8%).Non- teaching staff were 48; 34 (70.8%) were male and 14(29.2%) were female and finally the teachers in charge of safety/ on duty who were interviewed were 32, 15 males (46.9%) and 17 females (53.1%). Age of the students varied between 14-19 years.

T**All** the head teachers in selected schools **heads (100 percent)** asserted**indicated** that various **their** schools had disaster preparedness policy received from MoE on Health and Safety Standards (2001) as well as**nd** safety standard Manual (2008) policies were implemented**n place**. However, majority of the teachers (65% **percent**) differed from the assertions of**with** head teachers on this item.

The respondents Respondents were **further** asked to list the core highlights of the disaster management/ preparedness policy in their schools. Majority of head teachers representing **(**75% **percent** of**)** respondents cited equipping of fire prone areas with fire extinguishers as a major highlight in fire disaster preparedness policy in their schools. Another group of (69% **percent**) respondents highlighted ensuring doors are opened on the outwards **s** along with**nd** adequate emergency door exits**s**. However, usage of

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emergency exitsscape routes from buildings and methods of EWS were scored averagelyd at (50% percent) in the highlights. On the other hand, 37 percent of the teachers indicated that their schools had laid-down measures procedures laid in case of emergency while 63 percent indicated their schools did not have such oddthe plans.

The table below depicts opinions of hHead teachers Opinion on the cContents offound in the Emergency/Mass Casualty Plan/

Fire Emergency Fire Management Agency (2009). The plan highlightsidentified the following as being essential in disaster preparedness plans: Guide maps designating planned evacuation routes, assembly areas, utility shut-off valve, first aid stations and designated areas for prolonged staff and student care.

Table 1:. Response of school heads concerning contents found in the Disaster Emergency Plan

Adequacy of fire/ disaster emergency plan	Yes		No	
	Frequency	percentage	Frequency	Percentage
Disaster committee	4	25%	12	75%
Instructions in case of fire	6	37%	10	63%
Warning systems	9	56%	7	44%
Emergency exits	7	44%	9	56%
Evacuation routes	4	25%	12	75%
Assembly points	11	69%	5	31%
Alternative learning area	3	19%	13	81%
Telephone and who to contact	7	44%	9	56%

Majority (56%) of head teachers indicated that their schools had warning alarms and assembly points. However, (81% of the) schools neither haddid not have any alternative learning area nor emergency exits in the event of a disaster. Further disaster committee and evacuation routes were also missing in many schools (75%). Follow-up Instructions in case of a disaster though were lacking in many schools (63%).

Table 2:. Response of non-teaching staff on whether their schools carry out fire safety drills

		Frequency	Percentage	Cumulative percent
Valid	YES	10	20.8	20.8
	NO	38	79.2	100.0
Total		**48**	**100**	

The distribution above (table 2.0) had 79.2% of non-teaching staff have not participatinged in any fire safety drill, while a smaller percentage (20.8%) confirmed to have participated in the fire safety drills. Majority of the students (79.6%) admitted that their schools do not carry out fire safety drills while 26.3% of them stated that its conducted every term, and only a small percentage (20.4%) indicated that their schools carry out fire safety drills whilstere 73.7 % of them statediing that its carried out on annual basis. Out of the sampled s

Of the student populations (57) who confirmed that their schools carry out fire safety drills, a small percentage (26.3) opined that itsaid that it was conducted every term, while a larger percentage (73.7) said the drill was carried out once everyper year.

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Table 3:. Response of students on fire preparedness policies in their school

		Frequency	Percent
Valid	Yes	57	20.4
	No	223	79.6
	Total	280	100.0

Level of awareness of hazards and fire preparedness among the school community members

The study sought to find out the level of awareness of hazards and fire disaster preparedness among school community members. The students were asked whether they kneow **the** teachers in charge of safety in their schools. Seventy six percent (76.07%) of the students did not know **the** teachers in charge of safety in their schools, with (77.6%) male students being aware of who was in charge of safety in school. A small percentage (23.93) knew the teacher in charge of safety with 22.4 % of female students having known the in charge of school safety within specific schools.

Disaster Preparedness Levels

On the items on how they agreed or disagreed with disaster preparedness levels among **both** teaching and non- teaching staff (head teacher, teacher in charge of safety, teacher on duty, laboratory assistant, security officer and head cook) various**gave varied** responses were given as shown in Table 4

Table 4: Fire preparedness Levels in Schools

Statements	SA		A		D		SD		DK	
	F	%	F	%	F	%	f	%	F	%
The sSchool community undertakes evacuation drills	15	15.6	20	20.8	25	26.1	23	23.9	13	13.5
Evacuation drills are undertaken once a term	10	10.4	17	17.7	29	30.2	28	29.2	12	12.5
First aid education is provided to the school community	18	18.8	27	28.8	21	21.9	21	21.9	9	9.4
The school has sufficient first aid facilities	17	17.7	22	22.9	25	26.1	22	22.9	10	10.4
First aid kit is easily accessible to most people	11	11.5	23	23.9	30	31.3	21	21.9	11	11.5
The school holds regular disaster preparedness meetings with the school community members	8	8.3	19	19.8	26	27.1	30	31.3	13	13.5
There is adequate security lighting in the school	21	21.9	41	42.7	15	15.6	9	9.4	10	10.4
Mechanism for co-coordinating various fire disaster activities exist in the school	12	12.5	25	26.1	27	28.1	21	21.9	11	11.5

Key: Strongly agree (SA) Agree (A) Disagree (D) Strongly Disagree (SD) Don't Know (DK)

From the distribution above**It can be observed from** (table 4), it can be observed that 51.7 percent of **the** respondents agreed that first aid education and facilities were available in schools. On the other hand 59.4 percent respondents disagreed that evacuations drills are undertaken whilst**and** 58.4 percent of respondents **too** disagreed to**that** school disaster meetings being**are** held. This implies **that** schools did not have the capacity**were not adequately prepared** to handle fire-outbreaks or disasters.

Response by head teachers on attendance of in-service training on school safety

Findings show o**O**ut of **f** the 16 head teachers whom the **were served with** questionnaires were administered to, 43.7% had attended in-service training on school safety, with a larger percentage **of**

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(56.3%) **having** not attending**ed** any in-service training. For those head teachers who attended in service training, the researcher asked their responses on the topics covered during the training and their responses were as shown in table 5.

Table 5:. Response by head teachers on attendance of in-service training on school safety

		Frequency	**Percent**
Valid	Yes	7	43.7
	No	9	56.3
Total		**16**	**100.0**

~~Of the 16 head teachers who were served with questionnaires, 43.7% had attended in service training on school safety, with a larger percentage of 56.3% having not attended any in-service training. For those head teachers who attended in service training, the researcher asked their responses on the topics covered during the training and their responses were as shown in table 5.~~

Table 6: Training received in Fire Disaster Management

Training Areas	**Yes**		**No**	
	F	**%**	**F**	**%**
Preventing fire disasters in schools	4	57.1	3	42.9
Operating fire- fighting equipment**gadgets**	3	42.9	4	57.1
Contacting police or emergency numbers	2	28.5	5	71.5
Operating an emergency kit	1	14.3	6	85.7
Evacuation measures	1	14.3	6	85.7
Fire- fighting techniques	1	14.3	5	85.7
Servicing of **the** equipment **gadgets**	7	100	0	0.0
Contact person to give directions	1	14.3	6	85.7

All the head teachers who participated in the study indicated that servicing of **the** equipment**gadgets** were**as** the major topic revised during the training**.**, 57.1 percent of **the** respondents indicated that they covered prevention of fire disaster within the schools compound while 28.5 percent indicated **that** they were trained on the operation of fire equipment**gadgets** in case of a fire outbreak. On the contrary, 85.7 percent of head teachers indicated that they were never taught on evacuation measures, operating an emergency kit and fire- fighting techniques.

Students responses **in case of fire outbreak in schools**

Per the distribution below (Table 7), m**M**ajority of the students (33.2%) said they would escape outside in case of fire and 27.1% will shout fire but only (14.6%) would participate in putting off the fire.

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Table 7: Students responses in case of fire outbreak in schools

Incase	of fire	Frequency	Percent
	Shout fire	76	27.1
	Activate alarm	70	25.0
	Escape outside	93	33.2
	put off	41	14.6
	Total	**280**	**100.0**

~~Majority of the students (33.2%) said they would escape outside in case of fire and 27.1% will shout fire but only (14.6%) would participate in putting off the fire.~~

Knowledge onf the location of fire assembly points in case of fire disaster amongst non- teaching staff

Results gathered show o**O**nly 45.8% of **the** non-teaching staff did not know the location of **the** fire assembly point **as** opposed by 54.2% who could locate the fire assembly point. The study indicates that the current form of the student is associated with fire disaster preparedness. The respondents in form three were more knowledgeable on the location of the fire assembly point (χ^2=52.010, and p=0.000) as opposed to the opinions of other colleagues at different levels, thus**ir, counterparts in** form one, form two and form four.

On availability of Early Warning Systems (EWS), tThe study found out**that** 307 (81.65%) of respondents**the participants** confirming**ed** having bells and fire alarms as early warning systems in their schools. Of the 81.65% who responded to be having the EWS in their schools, 285 (92.8%) confirmed the knowledge of their location. **But only** 36% of **the** respondents out of the 285 had the ability to use them.

DEO and Zonal Quality Assurance office

Both the District Education Officer (DEO) and Zonal Quality Assurance and Standards Officer (ZQASOs) believed that the implementation of safety standards policy has helped reduce **on** expenditure and more so boosted security of **the** students and staff members.

According to the ZQASO, improvement of safety standards has positively impacted on**helped much in** boarding schools compared to day schools subsequent**which was** in agreement with the report given by the DEO. , Hhowever, ZQASO stated that in **the** recent past there has been no seminars nor capacity building or any other form of support **or training** from the DEOs office. Furthermore, the DEO stated that his office has facilitated seminar and workshop programs among**to** various school heads., Aa statement which was denied by ZQASO. In addition, both the DEOs and ZQASO offices emphasized**pointed out that they are** lack of**ing** funds for training, procuring of safety equipment**'s** and facilitating standard building codes.

Discussion

Per findings, **Majority** 65 percent of the teachers indicated that their schools did not have disaster preparedness policies, **however they acknowledged that they existed.** There seems to be a contradiction between teachers and their heads' responses. This could be due to the fact that there could be disaster emergency policies in schools but the teachers knew nothing about**of them**. According to (**The** World Bank Group, 2010), **notes that there should be** policies and, plans**s and guidelines** on disaster preparedness must be initiated with inputs from various stakeholders along with capacity building

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Comment [N21]: Training have been omitted because it is same as capacity building.

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Comment [N22]: If they claim it doesn't exist…they cannot acknowledge its existence. That is contradictory. Per your findings only the head teachers claimed disaster preparedness policies existed or were implemented. Hence, deletion of that sentence statingteachers acknowledged the existence of such policies.

programs. On the core highlights of the disaster preparedness policy, the study revealed **that** majority of **the** respondents highlighting**ed** fire extinguishers in fire prone areas as well as a clearly marked meeting/assembly point in case of **a** fire outbreak**disaster**. Others highlighted outward opening of doors **opening outwards** and emergency doors/exits. However, use of escape routes from buildings and methods of alertness in case of an emergency were disregarded by school authorities despite their importance in times of disasters. The respondents were in agreement on the importance of disaster emergency plans although many schools did not have them. This implies that most schools were not adequately prepared for emergencies.

The study revealed **that** majority of the schools had warning alarms and fire assembly grounds for all school personnel. These findings are in contradiction with the previous studies which indicated that most schools did not have reliable alarm systems(Boon, Pagliano, Brown, & Tsey, 2012). However, there were no disaster committees/ crisis team organized in the schools, no evacuation routes and alternative learning areas were lacking. It is therefore clear that the things expected to be included in the emergency plans were not applied in most schools. This is beside the fact that an inventory of all items that require attention would be essential for salvage (FEMA, 2006). This can be attributed to lack of awareness on disaster management policies, l**L**ack of funds or ignorance. Therefore, the findings confirmed that most schools are not prepared for disasters.

Level of awareness on hazards, trainings and drills among the school community members

The study findings revealed that the respondents were aware of various disasters that had been experienced in **the** schools. According to the study, **the** disasters mostly faced by**in** schools were fire-outbreaks**s** amongst others **disasters**. An alarming trend of **is that** deliberately set fires (arson) were generally set from the inside, thus, some parts of the**the** school compound. This increases**ing the** risk of**to the** occupants and other **the** properties**y**. Moreover strikes, negligence in the laboratory and the kitchen, electric **and electric** overload and, poor electrification had also led to fire disasters in schools (Repenning, 2001).

The study revealed that there were adequate security lighting in **the** schools which was**as** in conforms to **agreement**findings in **with** Nderitu (2009) study emphasizing a**that a well lit**well-lit school environment would provide easy escape to students in the occurrence of**case** disasters **strikes**; besides it would enable rescuers to work with ease in an attempt to salvage school property. However, evacuation drills and regular disaster preparedness meetings with the school community members were never carried out in majority of the schools, despite the fact that fire drills were a major safety requirement of MoE which has not been implemented probably due to the cost of hiring fire experts to conduct them(Nadzim & Taib, 2014). Destruction of property and school closure was identified as the biggest impact or **and** challenge encountered during**s of a** disasters. These findings suggest that destruction of**school** properties**y damage** and school closure often left **the** occupants out of school for long periods in the recovery period. Nderitu (2009) asserts, the degree of preparedness of a school's entire system makes the difference should a disaster occur.

Knowledge, capacity building, equipments and information in enhancing fire preparedness

The study revealed that in most schools there were fire extinguishers in case of a fire outbreak. This was in agreement with MOE (2001) Health and Safety Standards Policy that schools must**should** be adequately resourced**fitted** with fire- fighting **facilities and** equipment**s**. As (Kyeyune, 2004) notes, safety equipment**s** in schools and other public places should be mandatory in preparation against**for** disasters. It was imperative that schools acquire functional and up-to-date fire- fighting equipment**s** such

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as fire extinguishers. These facilities and equipment must be properly marked with **and** appropriate signs placed in conspicuous points of a building (Oliveira, Gehin, Delhomme, Dittmar, & McAdams, 2009). Additionally, findings from the study indicated that fire alarms, lightning arresters and smoke detectors were not available in most of the schools. This could probably be the case in this region because of few lightning episodes in case of lightning arresters. Furthermore, **the** findings revealed **that** most of the disaster preparedness facilities and equipment installed were not repaired or maintained at all. This implied the equipment was not cared for as often as it should, and may therefore not perform effectively as expected in times of emergencies. Majority of **the** respondents claimed**revealed that** their school compounds had adequate open escape routes. They further stated that**s and** their classrooms had adequate windows without grills with**with all** rooms and corridors well ventilated and **corridors** lit respectively. These findings are in agreement with MoE's Health and Safety Standards Guidelines (2001). However, **the** findings proved**showed that** majority of **the** schools had inadequate emergency exit doors and no wide stair ways. The study findings reviewed that although the MoE (2008) had recommended that all learning institutions should have adequate emergency exits **door ways** and wide stair ways at both opposite ends of the building, free from any obstructions, of which most schools had not adequately implemented this regulation. F**These f**indings however show **a** tendency to disregard these recommendations by school authorities.

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Measures put in place to enhance fire preparedness and hazards within schools.

The study revealed that most schools did not set aside funds for emergencies in the event of a fire disaster. It is worth noting that most schools suffer financial flow crisis thus cannot set aside funds for emergencies. Although the MoE is subsidizing secondary education, these funds proved to be insufficient aside late**besides being** disbursal**ed late**.

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Personnel who can handle and manage disasters had very little training, in fact teachers in charge of safety were**as** lacking **in** nearly in all fields**schools**. Moreover, servicing of **the** gadgets/equipment were**as** the major topic revised during **the** training exercises**s** which did not inculcate**concentrate on** topics such evacuation measures, how to operate an emergency kit and fire- fighting techniques. Previous studies established that no matter the **how much** efforts **had been** put into creating a**the** perfect disaster plan, it would largely be ineffective if the staff and students were not aware of it, or **if it** cannot be found during a disaster, (Rambau, Beukes, & Fraser, 2012). Nderitu (2009), while investigating the implementation of safety standard**s** g**G**uidelines in s**S**econdary schools, found out that head teachers and school community were not trained on disaster management **nor was the school community**. It therefore means that the school community members cannot be called upon in the event of a disaster. Training of the personnel comes at a huge cost**had financial implication** to the school, hence, **which can be** the main reason for**for lack of** training exercises not given much weight. However, the government should ensure that in-service training**courses** on disaster preparedness and management were offered to major players within the **the** school **community members**. **(**The World Bank Group **(,** 2010)noted that an enlightened community will have the knowledge and skills to prevent and **/or** mitigate the occurrence of fire disasters.

Conclusion

Based on research findings, it can be concluded that **:** limited number**Negligible percentage** of schools had designated teachers in charge of safety against fire-outbreaks. Students had insufficient knowledge on what to do in case of a fire outbreak. Schools had not conducted adequate training for**of** staff members and students on how to prevent disasters and thus hindering efforts to improve safety in schools. Despite

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the presence of fire- fighting equipments, a large percentage of teachers and students did not know how to use them effectively.

Ethical Considerations

Formal approval was sought from the Institutional Research and Ethics Committee (IREC) of Moi University and the Moi Teaching and Referral Hospital before commencing the main study. Participation by respondents wereas voluntary. and Nnone of the respondents withinat the schools wereas coerced to takeing part in the study. Written informed consent was sought from willing and eligible participants in respect to both teaching and non- teaching staff. Since students were considered to be a vulnerable group, permission was sought from the County Director of Education, District Education Officer and the school's a Administration. Students assent wereas sought for, children capable of assenting also expressed their willingness to participate because this study was considered a low risk. Information gathered was treated with utmost confidentiality and only for the purpose of the study. The rights and dignity of all respondents wereas respected and protected. There was no risk or physical harm incurred for participation in the study.

Consent for publication

Both authors in this work accepted to publish the work.

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