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Role of school administrators and other stakeholders in fire disaster preparedness in secondary schools in Kenya

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ABSTRACT

Over the recent years, lives and property worth millions of shillings have been destroyed in fire disasters. This study assessed the role of administrators and other stakeholders in fire disaster preparedness in secondary schools in Vihiga County, Kenya. The study assessed the role of administrators and other stakeholders in fire disaster preparedness in secondary schools in the study area. An evaluation research design was used. Stratified simple random sampling was used to select the schools and respondents. Study population was composed of secondary school principals, teachers, laboratory technicians, students and the District Quality Assurance and Standards Officers (DQASOs). Data was collected by use of structured questionnaires, in-depth interviews and an observation checklist. Statistical Package for Social Sciences version 17 was used in the analysis of data with Chi-square being used to test independence and variation of responses. A Spearman's rank order correlation was run to determine the relationship between teachers' and students' responses. The study established that most of the general requirements for fire disaster preparedness were not in place; most of the schools did not have trained personnel in handling fire disasters and limited funds was a strong barrier to fire disaster preparedness in secondary schools. It was concluded that: most of the administrators and even teachers were not trained in fire fighting skills; stakeholders had a role to play in fire disasters preparedness in secondary schools. The findings of the study are to empower schools to reduce their vulnerability to fire disasters.

Introduction

Fire disasters in schools have become a source of concern in all parts of the world. They cause enormous losses of lives, property, development initiatives and threaten students' safety. The United States Fire Administration National Data Centre (US FANDC) in the USA reported that Africa, Asia and South America have recorded large death tolls related to school fires because of their lack of inspection units (US FANDC, 2007). In the USA it is estimated that 4,000 Americans die and 20, 000 more get injured in fire disasters each year (USFA, 2006). In 1998 a kerosene lantern overturned in a dormitory in Nigeria causing a fire disaster which killed 23 girls and injured scores of others (The Independent, 2001). In April 2008, a fire ripped through a dormitory of Budo junior boarding school in Uganda killing 19 girls and 2 adults in suspected arson (Muzungu, 2008).

The role of the school administrators in fire disaster preparedness is very significant. The head teacher is the leader in a school, the pivot around which many aspects of the schools revolve, and the person in charge of every detail of the running of the school (Sushila, 2004). Providing a safe environment for staff and students to learn should be a primary concern of the school administration and community at large (Akali et al, 2011). In Scotland Fire code regulations place overall responsibility for Fire safety at the highest level with the Board as the employer. The Fire Safety Adviser provides technical support in the interpretation and application of the provisions of statutory and The main objective of this study was to assess the role of stakeholders in fire disaster preparedness in secondary schools in Kenya.

Role of other stakeholders in fire disaster preparedness in secondary schools

FEMA (2001) suggests that teachers can incorporate disaster preparedness into lessons of science, geography, art and reading and other subjects. Statistics for US schools reveal that there were no reported school related fire deaths for the year 2006-2007. Canada and European schools have similar statistics. This is because of the government enforced fire safety standards that are strictly monitored. Fire drills are required at least once a month. Fire evacuation routes have to be posted. In most schools there is a required sprinkler system or fire escape (NFDC, 2007).

The Government of Kenya has heavily invested in education, given its role in spurring national development. The money spent on education has continued to go up over the years to match the increased school enrolment at all levels. In an effort to realize the Millennium Development Goals (MDGs) and Education for All (EFA) objectives by 2015, the government adopted the Kenya Education Sector Support Programme (KESSP) in 2005 (GOK, 2005). In this programme, a number of steps were taken, including the Fire Safety measuresThe main objective of this study was to assess the role of stakeholders in fire disaster preparedness in secondary schools in Kenya.

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To protect schools from arson cases, the school compound should be fully fenced with a perimeter fence. The school gate should be fully manned with a register to record human and vehicular traffic. The compound should be neat especially near the living quarters, kitchen and dining hall. This will minimize on unnecessary fire outbreaks from waste papers. Environmental consciousness should be evident through care of trees and tendering of flowers, rubbish bins and pits should be available (GOK, 2001). In handling fire disaster preparedness FEMA (2001) observes that it is important to have a school-based emergency plan that includes an incident commander, search and rescue team, hazardous materials security, utilities, assembly area, first aider, reunion gate for students and fire suppression team. In Uganda the minister of education directed education officials to arrest head teachers and schools managers, whose schools do not meet the required safety standards (The New Vision, 2012). This was after over 30 schools, including Merryland High, Hamdan Girls High School in Mbale and Uringi Secondary school in Nebbi, were gutted with fire since 2008. According to the minister, this has left parents in constant fear over the security of their children.

According to GOK (2008), education stakeholders must ensure student's safety through Disaster Risk Reduction (DRR). The school management should create mechanisms and procedures that ensure stakeholders are conversant with measures needed to prevent occurrence of disasters and steps required to reduce their impact. Ngaroga, (2005) asserts that, administrators should establish avenues for dialogue with students so that they can listen to their grievances and explain to them the limitation of the school administration in meeting their demands. The school administrators therefore have a role to play in averting students' unrest. The safety standards manual states that every school management should ensure that schools are safe from natural and human made disasters by observing the safety of their environment.

The safety of the school depends to a large extent on measures taken to organize and manage such safety. In this respect school management, the head teachers, teachers, students, learners, parents and other stakeholders have important roles to play in facilitating and enhancing safety in schools. There should be a school safety committee which should constitute the chair person, secretary and eight members (GOK, 2008). There is need to have a fire disaster risk strategy if the effects of disasters are to be minimized. This calls for the establishment of a disaster crisis response team with the mandate to prevent, mitigate and effectively prepare against potential disaster hazards (GOK 2011). Whether schools have adhered to having safety committees has not been documented.

According to Otieno (2010), it is mandatory for schools to conduct fire drills to ensure safety and test the preparedness of an institution in case of a fire disaster. The school managers are to be trained on how to handle disaster management equipment such as fire extinguishers and first aid kits. Students are supposed to use the first two days of a term to conduct emergency drills to ensure they are prepared to handle disaster. Wakahiu (2009) observes that although schools and institutions are equipped with fire extinguisher cylinders, they had no trained personnel to handle them in the events of a disaster. According GOK (2008), education stakeholders must provide within a school, physical and social cultural environment that supports effective learning and full development of the learners. Such an outcome is better promoted if the relationship between the various stakeholders is cordial and reinforcing. The school managers are to organize such that First Aid is taught as a subject to impart upon students emergency management skills. While making decisions the managers are supposed to make sure that students are part and parcel of decision-making to ensure their interests are adopted in the administration of school (Otieno, 2010).

The study assessed the role of school administrators and other stakeholders in fire disaster preparedness. According to Achoka and Mayo (2008), disaster risk reduction has not so far received serious attention as a facet of development, despite the increasing seriousness of disaster impacts on our education sector and general development. There is an urgent need therefore for all educational stakeholders to seek strategies to solve the pandemic.

The GOK recommends that all buildings used by students should be well ventilated and lit to avoid dark rooms (GOK, 2008). All doors and windows should open outwards and the chalk board should be well visible and painted in black. Rooms should not be congested to allow all students to each have appropriate sitting facilities(desk and chair) as well as ample space for escape in case of a disaster (GOK, 2000). **Study area and population**

The study was undertaken in Vihiga County in Kenya. The county lies between longitude 34º 30'E and 35º 0'E East and Latitude 0º1'S and 0º15'N (Figure 3.1). It is on the southernmost tip of western province. It was curved out of Kakamega County in 1991. It occupies an area of 563sq km within the Lake Victoria basin. The county is located in western province bordering Kakamega in the north, Kisumu in the south, Siaya in the west and Nandi in the east. It is divided into four sub counties. These are Emuhaya, Vihiga, Sabatia and Hamisi.

The county has 116 secondary schools headed by 116 principals with an estimated population of 40,000 students, 2,300 teachers and 120 laboratory technicians and 4 DQASO of the four districts (GOK, 2011). This gives a total of 42,540 individuals as the study population. Each of the schools is expected to fall into one of the following categories: BBS, GBS, MDS and MDBS. All these categories were proportionately represented in the sample.

Research design

The study adopted an evaluation research design. The study mainly carried out assessment on frequency and severity of fire disasters in secondary schools. The researcher prepared instruments for data collection to assess the frequency and severity of fire disasters.

Sampling strategy

To realize the right sample population, more than one approach was used. A combination of stratified simple random sampling and purposive sampling techniques were used. The researcher grouped the population into four strata and took a simple random sample in each subgroup (Kombo and Tromp, 2006). The four strata were the four sub-counties i.e. Emuhaya, Vihiga, Sabatia and Hamisi. This was to help minimize differences among sampling units within the strata and maximize difference among the strata (Gupta, 2002). Thus, purposive sampling enabled the researcher to sample out schools which had experienced fire disasters, teachers who had stayed in the sampled schools longest and the DQASOs.

Sample size

30% of the 116 schools were sampled giving a sample size of 35 schools. The sampled schools had 350 teachers 10% of teachers from the sampled schools were sampled giving a sample size of 35 teachers (Mugenda, 2008). The sample size for the lab technicians was determined by taking 30% of the 120 lab technicians giving a sample size of 36 lab technicians. The sample size for students was calculated using the formula as recommended by Mbwesa (2006). Since the proportion of the study population having the requisite characteristics is estimated at 50% (p = 0.5)

Instruments of data collection

Tools for data collection were based on the indicators to be assessed, the objectives of evaluation and the evaluation questions. Such tools included Questionnaires, Interview schedules and Observation checklist. The study relied on both primary and secondary sources of data.

Findings

The study sought to establish the role played by school administrators in fire disaster preparedness. In part the study sought to establish the level of support by school administrators. Table 1 below shows the results.

Table 1: Role of School Administrators in Fire Disaster Preparedness

Requirements	% Achievement by school administration
Safety standards manual	85
First Aid kits	64
Administrators training	24
Teachers trained in fire fighting	24
Fire drills	3

A chi-square test to evaluate any deviation that could arise in the role of administrators providing different requirements gave $X^2_{4,\ 0.05} = 0.800$. This value is below the expected value of 9.49 implying a tendency to have most of the requirements provided at the same time since they are significantly different. Table 1 shows that the school administrators have on average availed the first Aid kits 64%. The high percentage noted in the availability of safety standards manual is an achievement clearly out of the government provision of the same (GOK, 2008). The irony is that 24% of the schools studied had trained principals and teachers in fire fighting skills which contrasts sharply with the number of schools that practice fire drills 3%. These findings agree with (Wakahiu, 2009) who found that although institutions are equipped with fire extinguishers, they have no trained personnel to handle them in case of a disaster.

The study sought to establish major possible barriers that prevent implementation of fire disaster preparedness in the county. The pie chart figure 4.4 below shows the results. It shows the percentage ranking in order as a hindering factor.

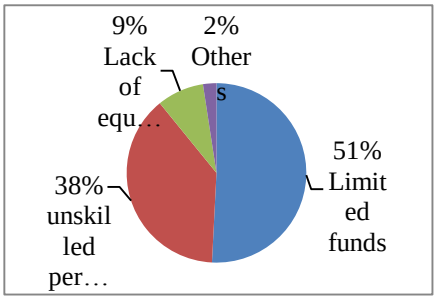

Fig 1. Barriers to Fire Disaster Preparedness in Secondary Schools

A chi-square test of deviation done to establish the influence of barriers on each school gave $X^2_{3,\ 0.05} = 0.000$. It was established that at p = 0.05, 3 degree of freedom the chi-square value obtained was much below the expected value of 7.81 implying that the barriers though statistically insignificant are viewed as of equal importance. It was however noted that limited funds were found to be a strong factor that hinders fire disaster preparedness in Vihiga County. Limited funds dictate resource allocation interest and prioritization in the needs of any institution. Lacking equipment (9%) is not considered as a really barrier to fire disaster preparedness. This can be tailored to limited funds (51%). This result agrees with (Akali et al, 2011), who found that many public schools run on a shoe-string budget and cannot afford the luxury of firefighting equipment. Limited funds were also cited by DQASOs as a reason for School inspectors hardly performing regular safety assessment during routine checks in schools. Omolo and Simatwa (2010) also cited limited funds as a factor influencing implementation of safety policy in schools.

There was need to establish the role of DQASOs in fire disaster preparedness in the county. The study established from other stakeholders what their role was in disaster preparedness in secondary schools in the county. Table 2 shows the ranking for each stakeholder from top to bottom.

Table 2. Role of other Stakeholders in Fire Disaster Preparedness in Order of Priority

Stake-holder	DQASO	NGOs	Sponsor	PTA
	Funding	Funding	Awareness	Funding
Roles	Awareness w/shops	Awareness w/shops	Counselling	Conduct training
	Conduct training	Provide equipment	Peer counselling	Equipment
	Syllabus adjustment	Conduct fire drills	Do awareness	Do renovations
	Provide materials	Provide materials	Provide equipment	Provide equipment

Funding was a priority needed by all schools visited. This tailors well with limited funds (Figure 4.1) as one of the major barriers to fire disaster preparedness. It was also clear that awareness is a key need which should be run by all stakeholders. Provision of equipment and training are other roles that were identified by the DQASOs. DQASO and PTA/BOG roles are dominant compared to NGO and sponsor roles. This is in line with GOK (2008) which stresses that, successful implementation of measures in the standards manual will require partnerships with various stakeholders, among them learners, schools, parents, local communities, NGOs, religious organizations and other community based organizations (CBOs). The manual appeals to all stakeholders work together with focus and commitment to ensure adequate safety of the students.

Fire disaster preparedness in Secondary Schools in school environment

The environmental settings were assessed in relation to the preparedness. Table 3 shows the results.

Table 3. Percentage of Schools in which Safety Environmental Requirements were operational

Requirements	% operational	% non-operational
Notice boards	19	81
School perimeter fence	29	71
Dustbins	45	55
Marked fire assembly point	28	72
Waste pits protected	28	72

A chi-square test of independence between variables gives $X^2_{1,0.05}$= 0.317.This was below the expected value of 3.84 meaning that there was no relationship between the answers given as operational of safety environmental requirements and non-operational. Non-operational of one requirement did not influence the operational status of another.

Apart from dustbins that had been embraced by 45% of the schools under the study, most of the general requirements were not in place in most schools. Key among those ignored is non-marking of fire assembly point. Only 28% of the schools had marked the fire assembly point. This in part correlates well with the low number of schools that had experienced fire disasters as in Table 4.4. However the much lower percentage indicates that even those that had suffered had not put these requirements in place.

The importance of notice boards as a centre of disseminating information on fire disasters is only done in 19% of the schools. The presence of perimeter fence around the schools was only in 29% of those involved in the study. So despite arson, being projected as a key source of fire disasters in the county (Table 4.4) by teachers, prevention has not been embraced. This can partly be explained by the fact that most schools are either partial or full day schools (Table 4.1) and therefore the need for proper fencing has not been seen.

Waste burning was strongly supported by teachers (Table 4.3) as a potential source of fire in secondary schools, though practically 33% and 32% of teachers and students respectively acknowledged it as a source in the previous experiences where there has been fire disaster (Table 4.4). Despite these results, only 28% of the schools had protected their waste disposal areas.

Fire disaster preparedness in Secondary Schools in terms of personnel

In this case the study sought to establish how prepared the personnel were in case of a fire disaster in their schools. This was done by assessing the safety committees, trained personnel and if fire disaster preparedness is included in the syllabus. Table 4 shows the results.

Table 4. Percentage of Schools in which Personnel Requirements for School Safety were Operational

Requirement	% operational	% non- operational
Safety committees	6	94
Trained personnel	25	75
Fire disaster lessons	17	83

A chi-square test of independence between the different requirements being in operational and non operational gave $X^2_{3, 0.05}$ = 0.317. This value was well above the critical value of 0.05. This allows acceptance of assumption that a requirement operating in an institution did not influence non functionality of other requirements in the same institution.

Safety committees were operational in only 6% of the schools involved in the study. This could be explained by either the ignorance about their functionality or non expected disaster. Teachers and staff who are trained in fire fighting skills were found in 25% of the schools and were mainly patrons of scouts or girl guides. The inclusion of fire disaster lessons in the syllabus was only done in 17% of the schools studied. These results conform to a study carried out on 'Safety awareness and preparedness in secondary schools in Kenya: A case of Turkana district' by Ndiang'ui (2006) which found that there were no awareness programs of school safety needs in Turkana District. Teachers and students were poorly prepared to respond to fire outbreak and destructive violence in their school.

The high number of schools without safety committees which is a requirement by the MOE shows how unprepared schools are in case of a fire disaster or any other situation posing insecurity challenge. Most of the schools 75% did not have trained personnel in handling fire disaster outbreak or advice on prevention. The minimal inclusion of fire disaster matters (17%) in lessons signifies how unprepared schools in the country are in case of fire disaster. In the few schools where fire disaster matters are included in the lessons, it was found that this was done by the scouts and girl guides. It has been thought that once scouts and girl guides are in place then all is well.

Summary of the research findings

The study revealed that most of the schools did not have trained personnel in handling fire disasters or advice on prevention. The minimal inclusion of fire disaster matters in lessons signifies how unprepared schools in the country are, in case of fire disaster. Most of the teachers had not been trained in fire fighting skills.The findings revealed that school administrators have on average availed the first aid kits and the safety standards manual. This may be an achievement clearly out of the government provision of the same. The irony is that this differs sharply with the number of schools that practice fire drills. Limited funds were cited by principals as a strong barrier to fire disaster preparedness in secondary schools. It was also clear that awareness is a key need which should be run by all stakeholders. Provision of equipment and training are other roles that were identified for other stakeholders in education. Government and PTA roles are dominant compared to NGO and sponsor roles.

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