Level of Disaster Preparedness and Policy Implementation in Public Secondary Schools in Rhamu Town, Madera County, Kenya

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Abstract: *This study sought to examine the level of disaster preparedness and policy implementation in secondary schools in Rhamu Town, Mandera County. Descriptive research designs were used to conduct the study. Combinations of purposive and stratified random sampling techniques were used to draw 20 principals and 130 teachers yielding a total sample size of 150 subjects. Research instruments used for data collection included questionnaires, interview schedules and observation checklists. The study established that very few schools were aware of disaster response and preparedness mechanisms. Among the indicators of disaster preparedness reported in decreasing order of magnitude were: adequate emergency exits, alertness, having adequate exit routes, hiring security persons from recognized firms and ensuring schools had adequate disaster equipment such as fire extinguishers. It was concluded that schools can neutralize imminent disasters or minimize their effects through enhanced disaster preparedness. The study recommended that schools should ensure that disaster preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action (168 words)*
Keywords: *Disaster Management, Preparedness, Preventive Measures, Rhamu Town, Mandera County , Kenya,*

I.   Introduction

Background Information

Disaster is a serious disruption of the functioning of the society causing widespread human, material or environmental damage and losses which exceed the ability of the affected community to cope with using their own resources (ISDR, 2002). Munyasi (2002) notes that disasters such as earthquakes, floods, lighting, drought, and fire have an effect on child care, health, nutrition, water supplies, hygiene and sanitation, food production, shelter and security. Due to the great negative impact disasters have on the lives of those affected, there is an urgent need for improved disaster reduction strategies. Man-made disasters are a major contributor to human suffering. The Columbine High school Massacre of 1999 where two senior students killed twelve students and one teacher and then committed suicide was one of the deadliest disasters in the United States of America (Brown, 1999).Alexander (2002) opines the rising frequency, amplitude and number of natural disasters and attendant problems coupled with loss of human lives like the Mexico earthquake of 1985, prompted the general Assembly of the United Nations (UN) to proclaim 1990s as the international Decade for Natural disaster reduction. Schools in the United States instituted new security backpacks, metal detectors and computer generated identity cards among others. This follows the incident in 2007 where more than 30 people were killed on the campus of Virginia Polytechnic Institute, the worst such rampage in U.S. history (De Voe, Ruddy, Miller, Planty, Snyder, Uhart, & Rand, 2004).

The education process has been hampered in many ways as a result of disaster occurrences, with human loss and injury, social upheaval, school property damage and closings, and often with children having to leave school for long periods in the recovery period - their families needing their help in meeting basic needs (FEMA, 2007). The earthquake and subsequent tsunami on 26 December 2004 devastated communities and schools in coastal regions, primarily in Indonesia, the Maldives, Sri Lanka, India and Thailand (UNESCO, 2007; Republic of Kenya,2010). Following the October 2005 earthquake in northern Pakistan, between 17,000 and 20,000 students were reportedly killed in the collapse of some 10,000 school buildings (Asian Disaster Preparedness Center, 2008). Children comprised half of more than 75,000 deaths. Over 1,000 health care facilities were also destroyed, with high casualties among patients and health care workers.

State of The Art Review

There is a growing body of literature that profiles the disaster scenario and level of preparedness in institutions of learning in developing and developed countries (Alexander, 2002; Benette, 2010; Cooper, 1995; Karanja & Mutua, 2000; Muzaffargan, 2010; Republic of Kenya,2010). In Pakistan, over 5,500 schools have been damaged across the country, while 5,000 others are being used as shelters for displaced families. 8.6 million Children less than 18 years are affected (Muzaffargarh, 2010). Lightning is the most under recognized weather hazard. It is a leading cause of storm deaths and also inflicts life-long severe injuries on many more (Cooper, 1995). Yet because lighting usually claims only one or two victims at a time and does not translate into mass destruction of property, it is underrated as a risk. Lightning's unpredictability increases the risk to individuals and property.

In Africa, violent incidences have been reported mostly in South African black-township schools and in the killings and destruction in Kenya (NACADA, 2002). Students are victims of a spectrum of problem behaviors at school, ranging from minor disciplinary problems to criminal victimization. With the tropical climate and unstable landforms coupled with a high population density, poverty, illiteracy and lack of adequate infrastructure, Kenya is one of the most vulnerable developing countries to suffer very often from various natural as well as technological (human-made) disasters which strike causing a devastating impact on human life, economy and environment (Alexander,2002). These disasters include drought, floods, fires, landslides, transportation accidents, terrorist attacks and the post- election violence to mention but a few. For instance, during the 1997–1998 El Nino events, most parts of Kenya received 2 to 12 times the monthly long-term mean rainfall amount (Karanja & Mutua, 2000). The heavy rainfall resulted in floods and landslides in various parts of the country Ngecu and Mathu (1999), with consequent effects on education sector as well as loss of lives.

Landslides occur where they have before and in identifiable hazard locations. The materials may move by falling, toppling, sliding, spreading, or flowing (American Red Cross, 2010). Landslides can be activated by natural disasters or where human modification of the land has destroyed vegetation on slopes. These areas are vulnerable to landslides during and after heavy rains. Although landslides are primarily associated with mountainous regions, they can also occur in areas of generally low relief. In low relief areas, landslides occur in areas of roads and buildings excavations, open-pit mines, quarries and mine-waste piles. For example, in 1966, an avalanche of mud and rocks buried a school in Aberfan, Wales, killing 148 people, mostly young students. The school was located below a hill where a mining operation dumped its waste (Bennett, 2010).

In terms of disaster preparedness, the United Kingdom and 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. Effective safety management in educational establishments includes the following: Creation of a school safety plan, Perform a needs assessment, Conduct a site survey, adequate training and information for all members of staff, conduct practice drills, regular checking and servicing of disaster.

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

In Kenya, FEMA (2009) identified 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, arrangements must be made to provide for accountability of staff and students, orderly release of students to parents and guardians and temporary shelter, should it be needed, evacuation alarm information must be clearly communicated in the plan, allocate resources for emergency for the smooth running of the system, schools with staff or students with special needs must direct special attention to the disposition and needs of these staff and students, copies of each school disaster plan should be distributed to every staff member, one copy filed and another sent to local law enforcement and also on all notice boards and a state of high alert should be in place. Schools, while preparing the disaster plans should determine which natural and technological disasters are possible in their areas.

The Safety Standards Manual for Schools in Kenya (2008) adds that: The bus must have a First Aid Kit, the bus must be fitted with speed governors to be driven at not more than 60KPh, no undesirable materials should be depicted inside or outside the bus, the speed limit within the school compound for any motorized vehicle should be 5Kph, school administrators should ensure that Ministry of Education guidelines on school travel for learners are strictly adhered to. Nderitu (2009), while investigating the implementation of safety standards Guidelines in Secondary schools, found out that headteachers were not trained on disaster management nor was the school community. Therefore, a concerted effort must be made to educate and train staff and students in emergency procedures, otherwise in the event of a disaster, a period of panic and uncertainty may crop up before any action

can be taken. Panic, may also grip inexperienced, untrained rescuers as well as ill-equipped personnel. Each staff member should be made aware of his or her responsibilities, and the lines of authority should be known and written at strategic places.

Within the school, disaster protection systems are of primary concern. Nderitu (2009) in her study reported that most schools did not have adequate fire fighting equipments nor reliable alarm systems. Safety equipments in schools and other public places should be mandatory in preparation for disasters. These equipments include fire extinguishers, fire blanket, alarms, sand, water points and hoses. According to Mwangi (2008), resources for disasters, once they are ready play a critical role in ensuring timely and efficient delivery of disaster response efforts. The Kenya government in its efforts to assist schools prepare for disasters, disbursed funds to all provincial boarding secondary schools to purchase fire-fighting equipment. Smoke detectors can also be used to sense and warn people in cases of fires thus increasing chances of survival.

Good communication enables command and control of an emergency situation. Training of students and staff should be focused on the four recognized phases of emergency management for schools; namely prevention/mitigation, preparedness, response and recovery, (Borland, 2008). As Nderitu (2009) recommended, the Government should strive to assist the school authorities to adequately prepare for school disasters by introducing disaster management training in all teacher training institutions and in-service courses for others. The Ministry of Education issued Health and Safety Standards Secular in 2001, G9/1/169 to all educational institutions requiring them to implement the guidelines and specifications as per the circular.

Statement of The Problem

Despite the concerted efforts by the Government of Kenya(Republic of Kenya,2010) and other non-governmental organizations in creating disaster awareness and preparedness, Kenya still experiences a number of man-made disasters in schools. For instance, several fatal incidences have brought an urgent need for the government and the public to take action and deal with the problem of violence in our learning institutions and the youth in general (Republic of Kenya, 2001). Examples of such disasters include a disaster that occurred in 2001 at Kyanguli Secondary School in Machakos where 58 students perished in a night inferno started by some students using petrol (MoE, 2001). The post-election violence of 2007/2008 adversely affected the education sector in Kenya by destruction of schools, displacement of learners and teachers. Statistics by the Ministry of Education (2008) indicated that a total of 62,848 primary school pupils and 9,200 secondary school students were displaced as a result of the violence. In addition, 26 primary schools and four secondary schools in different parts of the country were burnt (Ministry of Education, 2008). With Al Shabaab attacks on the rise, the latest massacres in northern Kenya carried out by Al Shabaab have once again raised the spectre of Kenya's security crisis slipping out of hand. In the early hours of November 22, Al Shabaab militants ambushed a Nairobi-bound bus on the outskirts of Mandera, a town nestled in Kenya's frontier with the Ethiopian and Somalia borders. They separated Muslims from non-Muslims, killing 28 people. Days later, Al Shabaab militants overran an encampment at a quarry also outside Mandera, killing 36 workers (Daily Nation 2nd December, 2014). Efforts by the government of Kenya to formulate the National Disaster management policy to emphasize proactive and preventive strategies in addressing disaster situations seem not to be bearing fruits. Such incidences call for schools to be adequately equipped to deal with disasters. Poor infrastructure and complete absence of roads in some settlements makes rescue and relief efforts difficult, costly and risky for aid workers in Mandera County and most parts of Northern Kenya. As Nderitu (2009) notes that despite the stringent safety measures put in place by schools, disasters still occur, however it is the degree of management by the school entire system that makes the critical difference. It is, therefore, imperative that educational stakeholders foster disaster management strategy to either minimize or eliminate risky conditions or threats.

The main objective if this study was to assess the level of disaster preparedness and policy implementation in secondary schools in Rhamu Town, Mandera County, Kenya.

II. Research Methodology

Research Design and Locale

This study was conducted through descriptive research design. Orodho (2009) observes that the descriptive research studies are conducted to determine the status quo and with the gathering of facts and figures rather than the manipulation of variables. This study was conducted in Rhamu town of Mandera District, North eastern province, in Kenya. Mandera is one of the arid districts of Kenya with an erratic mean annual rainfall of 255mm, mean temperatures of 280c and a population of 312,000 persons. It borders Ethiopia to the North, Somalia to the East and Wajir District of Kenya to the South. There is a serious trend of events like early marriages that continue to be a matter of concern. The fluctuating numbers in enrolment have triggered interest and thus caused curiosity for investigation in terms of access and retention. This study dealt with the area that is ASAL. Arid and semi-arid areas cover about 80% of Kenya's land surface and have 25% of the country's

population, which was about 10 million people, (Republic of Kenya, 2003). Descriptive design was appropriate as it enabled the researcher to gather information concerning disaster preparedness without manipulation of variables.

Sampling, Data Collection and Analysis

The study used simple random sampling technique to select teachers and parents. Data was collected by use of questionnaires and interview schedule. After writing the questionnaires and before starting the actual data collection, the instruments were pre-tested in two schools in Mandera District. Problems and any unclear questions that arose during the pre-testing were sorted out by reframing the questions. A sample size of 20 principals and 130 teachers were considered making it a total of 150 respondents.

Data collected was subjected to qualitative and quantitative analysis. Qualitative data comprised answers to open-ended questions in the questionnaires and personal observations. Coding was used to prepare quantitative data for analysis. Quantitative data comprised the close-ended questions and categorized data. Quantitative data was analyzed by coding the data using SPSS (statistical package for social sciences) software and generate descriptive statistics such as percentages, frequency tables and graphs where applicable(Orodho,2009,2012; Orodho, Ampofo, Bizimana & Ndayambaje, 2016). This method was chosen because data was categorized according to themes and objectives in relation to the opinion, views and perception of the respondents. Recorded interviews were transcribed; interviews done in mother tongue of Somali and were translated in English and interpretation done according to emerging patterns from the respondents.

III. Findings And Discussion

Disaster Preparedness and Policy Implementation

The researcher therefore sought to find out the disaster preparedness policies in place in public secondary schools in Mandera County and it was established that only 40.0% of the schools implemented disaster preparedness policy while majority 60.0% did not have. The following are the list of core highlights of the disaster management/preparedness policy in secondary schools in Mandera County as shown in Table 1.

Table 1: Disaster Preparedness Policy in Schools in Mandera County

Highlights	Frequency	Percentage
Alertness in case of an emergency	67	44.7
Meeting/assembly points in case of disaster	37	24.7
Escape routes from buildings	60	40.0
Adequate emergency exits	82	54.6
Equipped with fire extinguishers	45	30.0
Security person from a recognized security firm	75	50.0

The results carried in Table 1 indicate that very few schools have disaster preparedness and appropriate strategies put in place in case a disaster occurs. Among the indicators of disaster preparedness considered, approximately half cited the need to have emergency exists and recruiting a security person from a recognized firm. The scores on the rest of the indicators were surprisingly below expectation. For instance only 30.0% had their fire prone areas fitted with fire extinguishers as a major highlight in disaster preparedness policy in their schools. Indication of meeting points in case of disaster occurrence was mentioned as indicated by only 24.7 % respondents. Another group of 40.0% respondents highlighted ensuring escape routes from buildings in case of disaster like fire outbreak and 44.7% alertness in case of an emergency.

It can be reduced from this response that schools level of disaster preparedness is still wanting despite the existence of Government policy although these highlights are not sufficient as policy. Data from 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 should be fitted with fire fighting facilities and equipments. As Nderitu (2009) notes, safety equipments in schools and other public places should be mandatory in preparation for disaster. These equipments include; fire extinguishers, fire blankets, alarms, sand, water points and hoses. It was imperative that schools acquire functional fire extinguishers. These facilities and equipment must be properly marked and appropriate signs placed in conspicuous points of a building (Fire Fighter Forum, 2009).In terms of a disaster emergency plan, 65.0% of the principals indicated that their schools had disaster emergency plan while 35.0% indicated that their schools did not have emergency plans. On the other hand, 40% percent of the teachers indicated that their schools had emergency plans while 60.0 percent indicated their schools did not have the plans. This implies that if disasters were to occur, there would be a lot of damage to

property and loss of life. This can be attributed to lack of commitment towards disaster preparedness in the schools. According to Fire Emergency Management Agency (2009) guide maps designating planned evacuation routes, assembly areas, utility shut-off valve, first aid stations and designated areas for prolonged staff and student care, arrangements must be made to provide for accountability of staff and students, orderly release of students to parents and guardians and temporary shelter, should it be needed, evacuation alarm information must be clearly communicated in the plan, allocate resources for emergency for the smooth running of the system, schools with staff or students with special needs must direct special attention to the disposition and needs of these staff and students, copies of each school disaster plan should be distributed to every staff member, one copy filed and another sent to local law enforcement and also on all notice boards and a state of high alert should be in place.

IV. General Disaster Awareness

In terms of disaster awareness, majority, comprising slightly below two thirds of   of the schools indicated that they were aware about the possibility of the occurrence of a disaster. The level of awareness is important because the school community members are able to prepare for the disasters they become proactive rather than reactive. In case of a disaster, was observed that 70.0% of the principals exercised quick response while 55.0 % asserted that they evacuated students from the scene of a disaster. Only 20.0% percent reported panic and confusion when a disaster occurs. However, the teachers had a different opinion where it was revealed in case of a disaster 80.0% would evacuate students and 80.0 % of the teachers also indicated there should be no panic and confusion.

This implies that most school community members did not know what to do when disasters occur which would therefore subject them total confusion in case of one. Previous studies established that no matter how much effort had been put into creating 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, (Patkus and Walpole, 2007). Nderitu (2009), while investigating the implementation of safety standards Guidelines in Secondary schools, found out that headteachers were not trained on disaster management nor was the school community.

V.   Conclusion and Recommendations

In Kenya today and the world all over, disasters have proved to be a major challenge. Most of the disaster response initiatives in Kenya have been adhoc, uncoordinated and short-term measures. However, it is important to prepare for disasters in schools through the four phases of Emergency Management that is prevention/mitigation, preparedness, response and recovery. These measures should be effectively implemented to minimize if not eradicate imminent disasters. The degree of preparedness of a school's entire system makes the difference should a disaster occur. Despite the integral nature of school in the life, health and protection of students, there had been remarkably little attention devoted to disaster preparedness in schools. Therefore, it is important for educational administrators to reduce vulnerability or avoid destruction and human misery that follow in the wake of disasters. They can neutralize imminent disasters or minimize their effects through disaster preparedness. Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action.

Based on the study findings, the following recommendations are made:

1. Schools should have an emergency team organized in accordance with incident command system principles and be prepared to engage in unified command processes (Borland, 2008). For example, clearly identify the person who can sound a fire alarm, order an evacuation, or contact outside assistance. At night the security personnel should be provided with telephone extensions or mobile phones to enable them contact emergency services.
2. School staff should be empowered to implement any of the emergency procedures, for example, calling the fire brigade or police. They should be able to give the name of the premises, road or street (Ibid). Disaster preparedness awareness can be incorporated into subjects like Geography, Science, Art and reading and other subject at the school and training institutions level.
3. The schools should invite qualified personnel in various fields to give talks and demonstrations to staff and students on disaster preparedness in a school context.
4. Practice drills and exercises should be conducted frequently and should be taken seriously because through practice, the students and teachers will learn what to do and how to behave in an emergency.
5. The escape route should be known and the assembly point identified. Everyone is expected to remain calm and accountability of staff and students done. Practice drills reduce time wastage during an actual evacuation.
6. Rehearsal drills in disaster preparedness must be done. The rehearsal re-emphasis points made in separate training programs and test the systems as a whole and invariably reveal several gaps that otherwise might have been overlooked. Rehearsal optimizes the effectiveness and efficiency of response.

Reference

[1]. Alexander, D. (2002). Principles of Emergency Planning and Harpenden Terra publishing: London.
[2]. Bennett, B. (2010). Mud buries school in Wales. A & E Television Network. http://www.aetv.com
[3]. Brown, J. (1999). Doom, Quake and Mass Murder. dir.salon.com/topics
[4]. Cooper, M.A. (1995). Emergent care of Lighting and Electrical injuries. Seminars in Neurology Vol. 15 No. 3, 268 – 278.
[5]. DeVoe F., Ruddy, A., Miller, K., Planty, M., Snyder, D., Uhart, T., & Rand, R. (2004). Indicators of school crime and safety: 2002 (NCES 2003- 009/NCJ196753). U.S. Departments of Education and Justice. Washington, DC.
[6]. FEMA for Kids (2007). How schools can become more disaster resistant Online www.fema.gov./kids.shtim
[7]. FEMA (2009). What to do before, during and after a fire online www.fema.gov./hazard.shtm.
[8]. ISDR (2002). Living with Risk: A Global Review of Disaster Reduction initiatives. United Nations, Geneva, Switzerland.
[9]. Karanja, K. & Mutua F. (2000). Reducing the impact of environmental emergencies through early warning and preparedness: ElNino/Country Reports/ Kenya.pdf
[10]. Muzaffargarh (2010). Pakistan: Flood damaged Schools lead to Education Worries www.Irinnews.org.
[11]. Munyasi, A. (2002). Introduction to Disaster Management. Institute of open learning module Kenyatta University.
[12]. Mwangi, P.W. (2008). A Survey of the status of Disaster Preparedness in Public Secondary Schools; A case of Kiharu Division. Murang□ a District Unpublished Project, KenyattaUniversity.
[13]. NACADA (2002). Drug and Substance Abuse: The Kenyan Context. Nairobi: NACADA News.
[14]. Nderitu, C. (2009). Implementation of safety standards Guidelines in Secondary Schools in Githunguri Division, Kiambu District. Unpublished Project, Kenyatta University.
[15]. Ngecu, W. & Mathu, M. (1999). The El-Niño-triggered landslides and their socioeconomic impact on Kenya .Environmental Geology 38:277–284.
[16]. Okumbe, J. (2001). Human Resource Management: An Educational Perspective. Sunlitho Limited, Nairobi, Kenya.
[17]. Orodho, J. (2009). Elements of Education and Social Science Research Methods (2nd ed.) Kenezja Publishers; Maseno Kenya.
[18]. UNESCO (2007). Natural Disaster Preparedness and Education for Sustainable Development. Bangkok: UNESCO