FIRE EMERGENCY PREPAREDNESS AT SCHOOLS: A CASE STUDY FOR SECONDARY SCHOOLS IN MOSHI RURAL DISTRICT, KILIMANJARO REGION, TANZANIA

By

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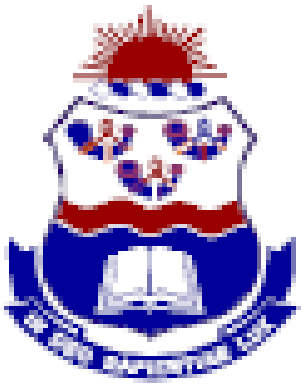
for

Masters Degree in Disaster Risk Management



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In partial fulfillment of the award of Masters Degree in Disaster Risk Management at the Centre for Disaster Management Education and Training Centre For Africa at the University of The Free State.

DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work, which all sources used or quoted have been acknowledged by means of complete references, and that dissertation was not previously submitted by me or any other person at any other university for a degree.

Signature:……..

Date:……..

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ABBREVIATIONS

BBC – British Broadcasting Corporation

BEMP - Basic Education Master Plan

DAS – District Administrative Secretary

DMD –Disaster Management Department

DRS - Development Research Centre

Form No. RS 6 - Form Number Registration of School 6

Form No. RS 7 – Form Number Registration School 7

GPS - Global Positioning System

GIS - Geographical Information System

ISDR - International Strategy for Disaster Reduction

IDPs - Internal Displaced Persons

ILO - International Labour Organization

IDRC - International

MoLSD - Ministry of Lands and Settlement Development

MoHSS - Ministry of Health and Social Services

MoID – Ministry of Infrastructure Development

MoHA – Ministry of Home Affairs

MoLGRA- Ministry of Local Government and Regional Administration

MoWI – Ministry of Water and Irrigation

MoEM - Ministry of Energy and Minerals

MoFP – Ministry of Finance and Planning

MoEVT - Ministry of Education and Vocational Training

NGO's - Non Governmental Organizations

NBS - National Bureau of Statistics

PMO – Prime Ministers Office

RAS – Regional Administrative Secretary

SPSS - Statistical Package for Social Scientist

URT - United Republic of Tanzania

UNDRO - United Nations Disaster Relief Organization

UNCRC - United Nations Convention on Rights of the Child

UNESCO – United Nations Scientific and Cultural Organization

UN - United Nations

USA – United States of America

UK – United Kingdom

UCLAS – University College of Lands and Architectural Studies

GLOSSARY OF TERMS

Building Codes:

Are the ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure to insure human safety and welfare. Building codes include both technical and functional standards. (UNISDR, 2009).

Capacity:

The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals. Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity also may be described as capability. (UNISDR, 2009).

Coping capacity:

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters. The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during crises or adverse conditions. Coping capacities contribute to the reduction of disaster risks (UNISDR, 2009).

Disaster:

Is a serious disruption of a society, causing widespread human, material and environmental losses, which exceeds the ability of the affected society to cope with from its own resources (UNDRO, 1991).

Disaster prevention:

Measures taken for the purpose of preventing disasters (especially human caused) from occurring. The main objective is to avoid the occurrence of an event. Prevention applies to disaster such as epidemics and most of the man made disasters (UNDRO, 1991).

Disaster Preparedness:

Preparedness is a state of taking measures to reduce to the minimum level possible, the loss of human lives and other damages, through organizing of prompt and efficient actions of response and rehabilitation. In other words preparedness is to put in place the necessary measures for effective and timely response to an event (UNDRO, 1991).

Disaster Response:

Action taken immediately or after the disaster strikes which aimed at saving people lives, reducing economic losses and alleviating suffering. This activity involved community warning and alerting, evacuation, search and rescue, medical assistance and temporary food relief (UNISDR, 2009).

Disaster Recovery:

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors. The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the “build back better” principle (UNISDR, 2009).

Emergency:

Is the situation generated by the real or imminent occurrence of an event that requires immediate attention (ISDR 2009).

Fire:

Is the oxidation of a combustible material releasing heat, light, and various reaction products such as carbon dioxide and water(Wikipedia s.a).

Fire Safety:

Refers to precautions that are taken to prevent or reduce the likelihood of a fire that may results in death, injury, or property damage, alert those in a structure to the presence of a fire in the event one occurs, better enable those threatened by a fire to survive, or reduce the damage caused by a fire(Wikipedia s.a)

Fire Protection:

Is the study and practice of mitigating the unwanted effects of fire].The most common fire protection gears are fire sprinklers and fire extinguishers (Wikipedia s.a)

Fire Prevention:

Is the activities intended to reduce sources of ignition and partially focused on programs to educate people from starting fires (Wikipedia s.a)

Hazard:

A potential natural or human caused event that could cause loss of life or damage to property and environment. Example of hazards is floods, fire, earthquake, explosions, refugees, Internal Displaced People (Carter, 1991)

Land use planning

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses(UNISDR, 2009).

Mitigation:

The lessening or limitation of the adverse impacts of hazards and related disasters. The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, “mitigation” is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change (UNISDR, 2009).

Risk:

A probability of meeting danger or suffering harm or loss. In relation to disaster risk has been more specifically described as the probability that disaster will occur. Normally using relative term as high risk, medium risk and low risk. (Carter, 1990)

School:

A school is an administrative unit dedicated to and designed to impart skills and knowledge to students. A school is organized to efficiently deliver sequential instruction from one or more teachers. In most cases, but not always, a school is housed in one or more buildings. (Wisconsin, s.a)

Secondary School:

Is a school providing secondary education according to Ministry of Education Tanzania (Education Act No 10 of 1978).

Vulnerability

The degree to which an area, people, physical structures or economic assets are exposed to loss, injury or damage caused by the impact of a hazard, or services are likely to be damaged by specific hazard type. The vulnerability can be categorized in three parts as physical vulnerability, Social vulnerability and economical vulnerability (Carter, 1992).

CHAPTER ONE

1.0 INTRODUCTION

Tanzania has been experiencing a number of disasters/hazards for years now. The disaster history in Tanzania can be traced back to 1872. Common disaster/hazards are epidemics, pest infestation, drought, floods, major transport accidents, industrial accidents, refugees and fires (URT-PMO, 2001). One of the biggest disasters in Tanzania history was the influx of refugees in Ngara district during the Rwanda genocide in 1994, where more than 250,000 people crossed the border to Tanzania from Rwanda overnight. The influx of that big number of refugees overnight created a big crisis of housing, water, sanitation, health and insecurity to refugees themselves and host communities. Schools and the surrounding community were seriously affected, that some of the schools in the area had to be closed, and buildings were damaged and used as accommodation for refugees. The impacts were exacerbated by poor capacity of the people to absorb, deflect or manage the actual disasters.

For the case of fire hazards, the experience shows that children are among the most vulnerable groups, especially those attending school. In the recent years Tanzania has experienced hazards which affected children in some schools and others places. In 1994, Shauritanga secondary school in Kilimanjaro region was gutted by fire and more than 40 students died in one school dormitory. The same incident happened again in the same school in 2005. In July 2005, Nsumba secondary school in Mwanza had its dormitories gutted by fire on different days in the same week whereby students lost all their properties. In 2006, fire gutted Kilimani primary school in Iringa region destroyed buildings, furniture and teaching material. In 2007, Bigwa secondary school in Morogoro region was gutted by fire and two student dormitories were burnt to ashes. In august 2008, Imalilo secondary school in Kwimba district, Mwanza was gutted by fire. In July 2008, nineteen children of between eight and fourteen years died in a disco hall in Tabora town due to suffocation. In July 2009, Ole Sokoine secondary school in Monduli district was gutted by fire, no one was killed but properties of the students' were destroyed (Habari Leo, July 2009). In August 23rd 2009, twelve girl's students died and fifteen were injured at Idodi secondary school after the school dormitory was gutted by fire (Daily Newspaper, August 2009).

On 3rd September 2009, the fire gutted Tubuyu day secondary school in Morogoro municipality, some classes were damaged and some students fainted and rushed to the hospital, no one was killed(Nipashe Newspaper, September 2009). On 8th September 2009, fire gutted Same secondary school in Kilimanjaro region, administration office, teacher's offices and important documents were destroyed. The effort to suppress the fire proved futile due to lack of fire tender in the district (Mwananchi Newspaper, September 2009).

The incidences described above are clear evidence of a lack of fire emergency preparedness, prevention, mitigation and awareness in schools.

1.1 BACKGROUND OF THE STUDY AREA

Tanzania is the largest country in East Africa, it is located between longitude 29^0 and 41^0 east. Latitude 1^0 and 12^0 South. It constitutes Tanzania mainland and Zanzibar Island, with 26 regions. It covers an area of 945,587 square kilometers with 883,749 square kilometers as land area and 59,050 square kilometers inland water (URT Website, 2009).The country borders eight countries, Kenya and Uganda in the north, Rwanda , Burundi, Democratic Republic of Congo in the west, Zambia and Malawi in the south west and Mozambique in the south. It borders the main water bodies to the east Indian ocean, to the north Lake Victoria and to the west Lake Tanganyika and south west Lake Nyasa (Figure 1.1)

According to 2002 census report, Tanzania had 34,569,232 people. Out of them 33,584,607 people were in Tanzania mainland and 984,625 were in Zanzibar. The annual growth rate was 2.9 percent. By 2005 the country had estimated about 36.2 million people (17.7 million were males and 18.5 million were females). 23 percent of the population is live in urban areas and 25 percent of the populations are children under 18 years old. The main economic activity in Tanzania is agriculture which includes livestock keeping. Agriculture provides livelihood income and employment to more than 80 percent of the population. This accounts for about 56 percent of the GDP and 60 percent of the export earnings (URT-NBS, 2002).

Figure 1.1 TANZANIA MAP

SOURCE: GEODATA CONSULTANTS LTD GEOSPATIAL DATA SERVER 2009.

1.1.1 Area of study

Moshi Rural district is one the district with highest number of secondary schools in the country. The district has 87 secondary schools which accounts for 2.14 percent of all secondary schools in Tanzania. Secondly, the district has experienced several fire accidents in secondary schools in the recent years (URT- MoEVT, 2009).

Moshi Rural district is one of the seven districts councils in Kilimanjaro region. Others are Moshi Urban, Same, Mwanga, Hai, Rombo and Siha. Moshi Rural district is bordered by Rombo district in the north, Hai district in the west, Mwanga district and Kenya in the east and to the south by Manyara region. According to the 2002 Tanzania National Census, the population of the Moshi Rural district was 402,431(NBS, 2002). Moshi Rural district council is administratively divided into 31 wards as shown in Figure 1.2, namely: Arusha Chini ,Kahe ,Kahe East,Kibosho Kati, Kibosho West,Kibosho East ,Kilema North,Kilema Kati ,Kilema South,Kimochi,Kindi,Kirima,Kirua Vunjo South,Kirua Vunjo West,Kirua Vunjo East,Makuyuni,Mabogini, Mamba North, Mamba South,Marangu West,Marangu East ,Mbokomu ,Mwika North,Mwika South,Okoani Kibosho,Old Moshi East, Old Moshi West,Uru North,Uru East,Uru Shimbwe, Uru South and Mawela The district is connected by road and railway networks from Dar es Salaam to Moshi town.

The district is endowed with the highest mountain in Africa, mountain Kilimanjaro, which due to its popularity attracts many foreign investors to the region. Moshi district is the second biggest tourist town of Tanzania after Arusha. This situation has increased not only its population but also the demand for schools.

Kilimanjaro region has 308 secondary schools (URT-MoEVT, 2009), out of which 87 secondary schools are in Moshi Rural district, and only 5 percent of these are government owned. The rest are run by religious organizations, NGO's, companies and private individuals. More schools are mushrooming in each ward every year (URT-MoEVT, 2007).

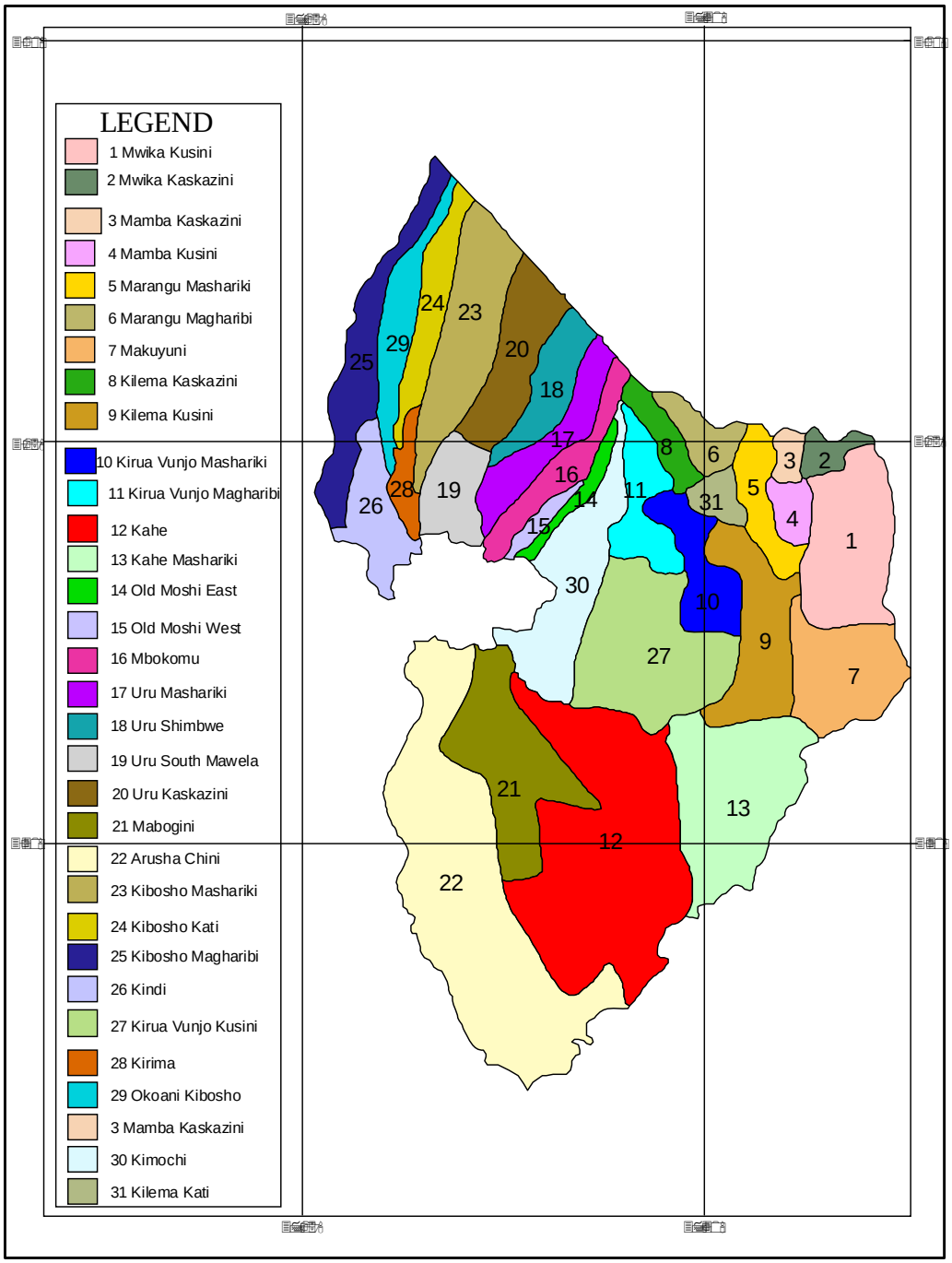

Figure 1:2 MOSHI RURAL

SOURCE: GEODATA CONSULTANTS LTD GEOSPATIAL DATA SERVER 2009

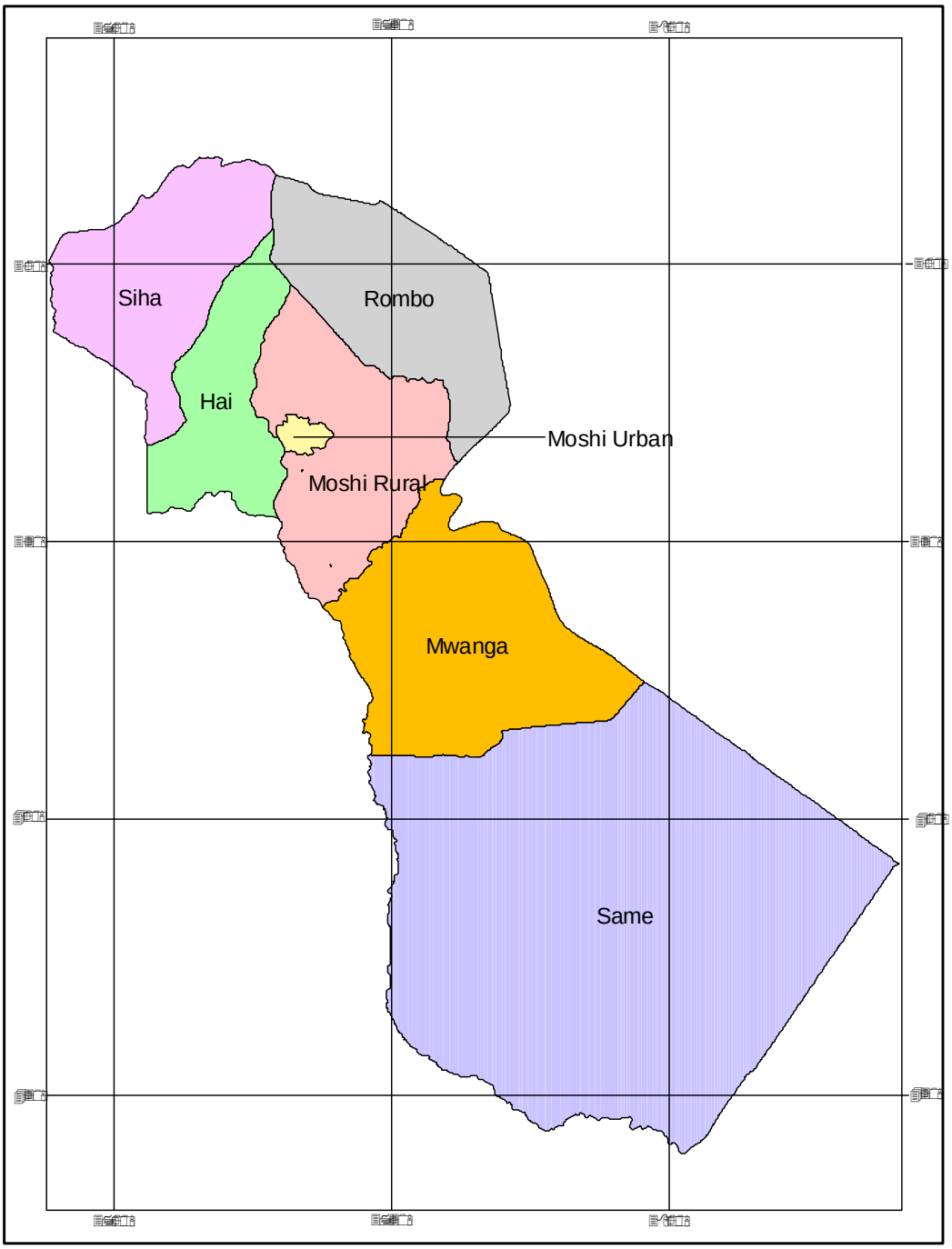

Figure 1:3 KILIMANJARO REGION

SOURCE: GEODATA CONSULTANTS LTD GEOSPATIAL DATA SERVER 2009.

1.3 MOTIVATION OF THE STUDY

The government and parents are investing a lot of resources to the schools as the breeding ground for the nations of tomorrow. Apart from family and community, the second important grooming ground for our children is a school, where our children imparted more knowledge and skills. We expect these places to be safe environment for children and schools community in general. It is very sad to expose our children to vulnerable environment unknowingly or knowingly. In recent years, Tanzania has experienced several incidents of fire hazards in schools, which have caused injuries and deaths to children, and damage to properties (URT-PMO, 2001). According to URT-PMO disaster vulnerability report of 2001, the main hazard to the schools has been fire followed by outbreak of diseases (URT-PMO, 2001). Based on that fact, this study have been motivated by the premises that most of the parents, teachers and school administration unknowingly or knowingly are exposing school children to hazards, by failing to put in place mitigation, prevention and preparedness measures in schools. Worse still, most incidences of fire hazards have happened in schools, and it seems that no lessons have been learnt from them. Examples, Machame secondary school in Kilimanjaro region was gutted by fire three times in 2008 and still the schools have three fire extinguishers which are not functional. More fire hazards are happening day after day in more schools (URT-MoEVT, 2008).That being the case, the study will look into all spectrum of fire hazard preparedness in schools, and come up with recommendations for improvement of fire safety in schools. The recommendations will be useful to policy and decision makers into ensuring safer schools capable of protecting the innocent children who constitute the future nation.

1.4 THEORETICAL FRAMEWORK

In all societies children represent hope for the future, because of their direct link to youths. Schools are universally regarded as institutions of learning, for instilling cultural values and passing on both traditional and conventional knowledge to younger generations. Protecting our children during natural and man made hazards, therefore, requires two distinct yet inseparable priorities for action: disaster risk education and school safety (ISDR, 2002).

The education sector is the breeding ground for our future leaders, experts and parents. A nation without well-groomed pupils at schools is subject to poor development (Nyerere 1977). In view of this, the education sector should be given a high priority in all aspects including disaster prevention, mitigation and preparedness. This can help to make sure that school surroundings are safe, with preparedness measures in place in case of any disaster. School communities are aware on what to do incase of any emergency. Since prevention is better than cure, preparedness is better than emergency response which most of the time is an ad hoc and creates a lot of problems, including trauma to the victims.

In order to understand the education sector regarding fire emergency mitigation, prevention and preparedness in secondary schools, the research focused in preparedness in terms of prevention and protection level in secondary schools. It will also examine strategies, policies and legislations dealing with safety and/or risk reduction in the education sector. It will look on how these are integrated with other sector indirectly or directly in the protection of school children and school community from hazards and emergencies.

Schools store inflammables liquids and chemicals for laboratory tests; they also use electricity and electrical material for different activities. Moreover some schools have boiler rooms. Students are coming from different backgrounds, with some of them never having used equipment found in schools. This coupled with the tendency of youth to experiment on new things, may create potential hazards which necessity the proper emergency preparedness at schools.

"The United Nations International Strategy for Disaster Reduction (UN/ISDR) the two year secretariat (2006 – 2007) and its partners made disaster risk education and safer school facilities the two key themes of the 2006-2007 World Disaster Reduction Campaign. The Campaign, entitled "Disaster Risk Reduction Begins at School" aimed to inform and mobilize Governments, communities and individuals to ensure that disaster risk reduction is fully integrated into school curricula in high risk countries and that school buildings are built or retrofitted to withstand natural hazards. The Campaign's key partners were UNESCO, UNICEF, Action Aid International, the IFRC, and the ISDR's thematic cluster on knowledge and education.(ISDR, 2006)".

In Tanzania, where schools are mushrooming in all corners of the country with very little control mechanisms, disasters at schools is a time bomb.

In addition to the essential role of formal education, schools must protect children in the event of hazards. Investing in preparedness (Prevention and protection of hazards) before disaster occurs reduces long term cost, protect the generation of children and ensure education continue after events (ISDR, 2006).

1.5 STATEMENT OF THE PROBLEM

Tanzania has been a socialist country since independence until a major economic reform was implemented in 1995. Before the reform most of schools (Primary and Secondary schools) were government owned while a few private ones were under religious organizations. All the schools were monitored by education inspectors from time to time to make sure that they were meeting standards in terms of buildings, staff and area, according to the Education Act Number 25 of 1978.

The Government introduced the education reform programme in 1995.The overall objectives of introducing education reforms and other policies was to ensure growing equitable access to high quality formal education and adult literacy through facilities expansion, efficiency gains and quality improvement, accompanied with efficient supply and use of resources. Through the reforms, the government in 1997 developed the basic education master plan (BEMP) to guide development in basic education provision. In response to the local Government reforms agenda, an action plan for transferring

responsibility to local school committees was prepared (URT- MoEVT,1997).The government's role has changed from that of a key player to that of a facilitator in the provision of education. This new role of the government provides a more conducive environment for the private sector to increase its investment in education. More participation of private sector in education created an opportunity for establishment of more schools, which impart both knowledge and technology to the youth for a more active participation in the agricultural sector and the economy as a whole.

Through the positive changes in education sector, more secondary schools were opened in different corners of the country. These are owned by private, community or religious organizations. The number of secondary schools increased from 800 in 1995 to 3975 in 2008 with 1,222,403 pupils (URT- MoEVT, 2008). More schools are built in every ward (URT- MoEVT, 2007). The number of secondary school education inspectors has decreased from 163 in 2005/2006 to 141 in 2006/2007 and to 132 in 2007/2008. (See Figure 1.4), while the number of secondary schools has increased by 8.24 percent in the same years (Basic Education Statistics in Tanzania, 2004-2008:58). The school inspectors are also constrained by inadequate working equipment, such as vehicles and computers.

Schools have become one of the lucrative businesses in Tanzania where business people are investing heavily (Wassena, 2009). The questions behind this development are (i) are education standards met? (ii) are the schools safe for our children? Some of these questions can be answered by reviewing the incidents happened in most of the schools after 1998.

For the past ten years from 1999 to 2009, twenty two incidences of fire hazards have been reported in secondary schools. Out of them eleven incidents were from Kilimanjaro region, Mwanza and Morogoro three incidents each, Iringa and Arusha two incidents each; and Coast region reported one incident (Figure 1.5). More than 60 students lost their lives and several buildings and students properties destroyed.

There were several other cases of fires in schools which were not reported. The fire incidents at secondary school especially the ones that happened more than once in the same schools are an indication of lack of, or inadequate emergency preparedness.

The Ministry of Education and Vocational Training (MoEVT) does not have enough capacity in terms of human and material resources to monitor and inspect the mushrooming of schools; hence some of them are sub - standard which make school children vulnerable to disaster. The school education procedure under the Education Act number 25 of 1978 and guidelines for the registration of schools of 1982 do not address all issues on the emergency/disaster preparedness at school. This situation is giving room for the mushrooming of schools which do not have safe environment for children and school community in general.

Fire and Rescue Act and regulations number 14 of 2007, give power to the Commissioner General of Fire and Rescue Force to inspect all premises of education institutions and other institutions of learning, training and research and issue fire safety certificate. This has to be done before the institution starts operating and for renewal of certificates every year. Any premises running without fire safety certification is contravening the law. Taking into consideration the current structure of fire and rescue force and the human resources level available at the force, there is a high possibility for new established secondary schools at ward level not adhering to the conditions. At the same time, inadequate equipments and budgetary allocation to fire and rescue force at district level may exacerbate the situation.

Based on the current structure loop holes in Fire and Rescue Force in Tanzania, it is evident that most of the schools are also not safe to fire and other disasters, either, hence posing danger to students and the school community in general.

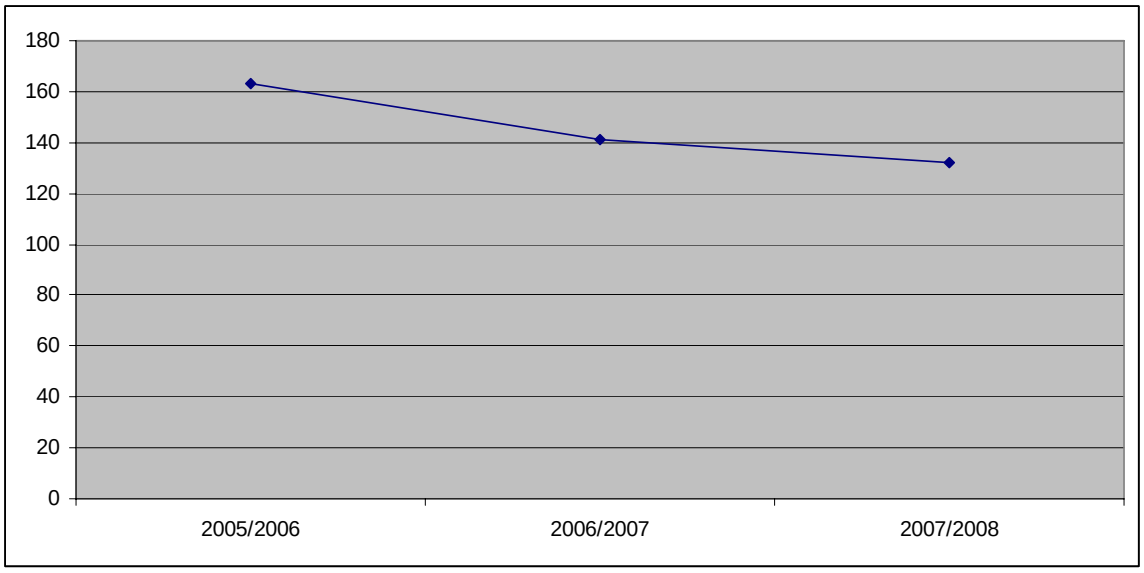

Figure 1.4, Secondary schools Inspectors 2005-2008

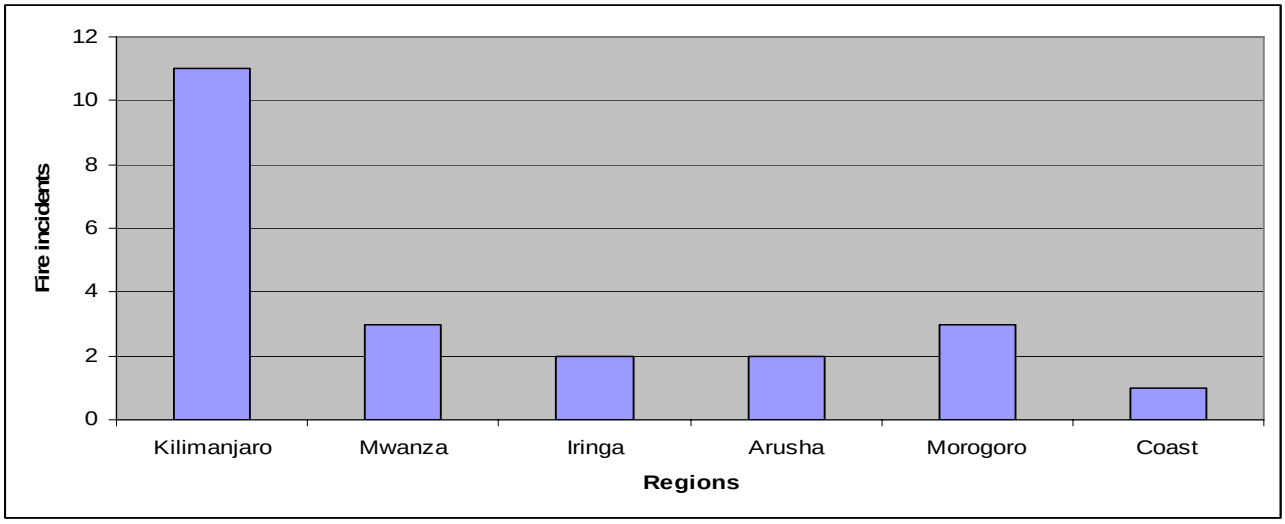

Figure 1.5 Reported Fire Cases in Schools 1999-2009

1.6 OBJECTIVES OF THE STUDY

1.6.1 Primary Objectives

To explore the level of fire emergency preparedness, prevention and mitigation in secondary schools, and analyze the factors leading to continuous occurrence of fire emergency in secondary schools, and recommend remedial measures.

1.6.2 Secondary Objectives

- To describe the fire emergency occurrence in secondary schools from 1998 to 2009.
- To identify and analyze the factors leading to fire emergencies at secondary schools.
- To assess the knowledge of school children and schools community regarding fire hazard management
- To assess the compatibility of education school building standards with corresponding policies, regulations and Acts regarding fire emergencies.
- To recommend school fire prevention, mitigation and preparedness plans.

1.7 RESEARCH QUESTIONS

- What are the factors leading to fires incidents at secondary schools?
- Are the school buildings certified by fire and rescue department?
- Are the school children and community aware and prepared for fire hazards?
- How many schools have functional fire emergency preparedness plan?
- Do education policy/school policies incorporate disaster management issues?

- Does the ministry responsible for education have capacity to monitor and control the mushrooming of secondary schools in the country?

1.8 ASSUMPTIONS

- Unclear linkage between different agencies and ministries in issues pertaining to the decision of establishing new schools overlook some legal provisions in Fire and Rescue Act 2007.

- The absence of fire and rescue services in all districts council and some town councils exacerbate fire emergency.

- Provision of adequate professional human resources, equipment and enough budgetary allocation to fire and rescue service and education sector might contribute to the reduction of fire hazards at schools.

1.9 RESEARCH METHODOLOGY

The study was conducted from January - November 2009, based on a case study which covered secondary schools in Moshi Rural district in Kilimanjaro region in Tanzania. The district was selected as a study area because of its largest number of secondary schools and school fire emergencies incidents which happened in the district. Available statistics show that secondary schools in Moshi rural district are more seriously affected by fire episodes than any district in Tanzania (URT- MoEVT, 2009).The district has 87 secondary schools which account for 2.14 percent of all secondary schools in Tanzania.

1.9.1 Sampling

The stratified sampling approach was used to get the representative schools. From the list of all 87 secondary schools in Moshi rural, only 20 percent of all secondary schools were selected as representative sample of the study, representing the ratio of 1:5. Twenty percent sample size is above the recommended sample size of more than five percent for population size of 80 to 90 (Isaac and Michael, 1981, Smith, MF, 1983). The more the sample size the more surer you can be that their answers truly reflect the population(Creative

research system, 1982) The sample size took into consideration the inclusion of government and private schools, and geographical administrative boundaries. In this case more than 50 percent of the wards in the district were covered.

Schools were divided in two groups, the school which have boarding and day students, and schools with day students only. The grouping was aiming to capture the homogeneous feature of the sample size. Twenty one schools were both boarding and day schools and 66 schools were day schools. From the first category with 21 schools consisting of boarding and day students, four schools were picked from the list using an interval of each fifth school. From the second category with 66 schools, 13 schools were picked using an interval of each fifth school. Out of all schools selected three were government owned schools.

The stratified sampling was used taking into consideration of its advantages on the population which does not constitute the homogeneous group. Using stratified sampling it was easy to get more precise estimates for each stratum and estimate more accurately each component part (C.R. Kothari, 2008:62)

1.9.2 Data collection

1.9.2.1 Consultations and Literature Survey

The consultation was done in the different departments and units in the Ministry of Education and Vocational training, namely; department of secondary school, planning, school inspectorate, chief education office and secondary school registration. Therefore literatures from reports, books, journals and other documents form the ministry were reviewed and analyzed.

The quantitative and qualitative data gathering approaches methods were used to collect the data using the following techniques.

1.9.2.2 Data Collection Tools

- **Questionnaires**

  Three types of questionnaire were used to collect data from (i) the Ministry of Education and Vocational training (MoEVT) at district level, (ii) Fire and Rescue services of Moshi municipality and (iii) School authorities. The structured and semi structured open and closed questions were used in the questionnaires. The semi structure open end questions allowed the interviewee to explain freely about the subject at hand (C.R.Khotari, 2008). '*The questionnaire allows for feedback from large number of people, where it is impractical to collect feedback using other more resources intensive methods. At the same it allows each respondent the opportunity to provide anonymous feedback on their experience'*. (Lets evaluation resources, s.a)

- **Checklists**

  Checklists were used to verify the facilities and equipments in place for fire protection at schools according to the Fire and Rescue Department requirements for a school.

- **Focus Group Discussions**

  Focus group discussion is where a group of people are brought together for a joint interview session. The focus group discussion gave an advantage to the moderator to probe for more in depth analysis and ask participants to elaborate on their response, and outcomes are quickly known (Krueger,1988;Babbier,1992). For this study the focus group discussion was done for students. Students were randomly selected two from each class; the group was mixed of sex and age in order to get information from all people. For the co – education one girl and one boy were selected from each class.

- **Observation**

  Observation is a technique which involves systematic selecting, watching and recording behaviour, characteristics, availability and status of an object or phenomena (IDRC, 2009); it gives more additional accurate information to the study. On this study the observations played a big part in confirming the availability and status of fire safety equipments at schools and check the compliance of schools building to the school fire safety standards, that is, emergency doors, fire extinguishers, meeting centers and other requirements.

1.9.3 Data Analysis

The data was processed in different ways. The first one involved the use of statistical package for social scientists (SPSS), whereby relationships between variable were used to come up with trends. Through descriptive techniques the data were derived to frequencies, percentages means and cross tabulations. The information was presented in different forms of statistical forms such as pie charts, histograms etc.

1.10 LIMITATION

It is recognized that disaster management is multi sectoral and multi disciplinary in nature, involving different sectors such as Ministry of Lands, Ministry of Home Affairs, Ministry of Education and Vocational Training and Ministry of Local Government to mention just a few. Therefore, the greatest limitation was a cross sectional majority of data to be collected. To avoid that, the researcher made sure the data collected is more focused on preparedness, mitigation and prevention of fire emergencies only.

Timing of year and weather was considered as one of the limitation, especially during the rain season whereby the movement can be restricted by weather and poor roads. The data collection was scheduled in dry season to avoid the above hurdles.

1.11 SCOPE OF THE STUDY

The study area was geographically confined in Moshi rural only. The selected sample of the secondary school in the area will represent all secondary schools.

1.12 SUMMARY

This chapter centered on introducing the research topic and its importance. It presented the background while introducing the area of study nationally, regionally and at the district level. The chapter further explained the motivation for conducting the study. The theoretical framework of the subject is presented from both a global view and in relation to the local situation. Fire cases recorded in secondary schools from 1998 – 2009 form the statement of the problem while informing the justification of the study. The fire situation poses danger to school children, school community and their properties.

The objectives of the study were divided in two tiers. The primary objectives and secondary objectives followed by four research questions, which need to be answered from the findings of the study. Three assumptions have been established and these were taken into consideration during the course of the study. The chapter has also described the methodology used during the study. Through the process the proposed budget, timeframe and resource sheet were developed to guide the study. The next chapter will look into the literature review related to the study topic.

CHAPTER TWO

FIRE HAZARD IN SCHOOLS - GLOBAL AND LOCAL PERSPECTIVES

2.0 INTRODUCTION:

The world population is ever increasing and has been increasing by 2.2 percent annually (United Nations, 2005). Around 27 percent of the population are below fourteen years (United Nations, 2005). More children are being born who will need education. In general, the children spend between twelve to seventeen years from kindergarten to university depending on the education system of the country. For example, in Tanzania the education system is of seven years in primary school, four years in ordinary secondary school, two years in advance secondary and three up to five years in the university depending on the course. In Kenya the education system is of eight years in primary school, four years in secondary school and three to five years at the university depending on the course. In the systematically process of grooming them as fathers, mothers, leaders and experts of tomorrow, a lot challenges have been cropping up one of which is fire disaster, a threat that has been experienced all over the world.

The safety of children at some schools has been questionable due to recurrence of fire incidents. The availability of preparedness measures in most of the schools in developed countries has tremendously reduced the impact of incidences (U.S. Fire Administration, National Fire Data Centre, 2007). In developing countries, however, the contrary is the case, for the lack of or inadequate preparedness measures in most schools, and the increase in fire incidents are raising alarm. The physical, financial and emotional devastation are the common impacts to both developing and developed countries. The closure of schools, damage of school properties, death, injuries and trauma are very common depending on the magnitude and severity of the fire itself (Blackaby, 2007).

The magnitude and severity of the fire varies depending on the level of preparedness. In this regard, most of the secondary school fire incidents in developing countries had severe impact on human being due to the poor level of preparedness. While school management, parents and children themselves need to be keen on the safety of school environment, United Nations agencies and other humanitarian organizations have been advocating for school safety. The protection of children from disaster has been alluded

to in the Humanitarian Charter and International Humanitarian Law (Geneva conventions, 1949).It describes the critical tenets that guide humanitarian action and asserts the right to protection and assistance (Geneva conventions, 1949). The charter recognises that preparedness in the education sector advocates for preservation of the right to life with dignity, protection against threats and availability of basic needs in case of disasters (Sphere standards project, 2004).

The United Nations Convention on the Right of the Child outlines the rights of children worldwide. It has five broad areas; (i) Survival rights: these are basic rights to life and include shelter, food and medical care. (ii) Developing rights: these are requirements that enable a child to reach his/her fullest potential and include access to information, education and freedom of thoughts, play and cultural activities. (iii) Protection rights: these relate to safeguarding children from neglect and other forms of abuse. iv) Participation rights: advocate for children to actively engage in various roles in their community and (v) Environmental rights: every child has a right to a clean environment (UNCRC, 1989).

The African charter of the rights and welfare of the child also advocates for mentally or physically disabled children to have the right to special protection in keeping with their physical and moral needs and under conditions which ensure their dignity, promote self reliance and active participation in the community (UNCRC, 1989).

Fire emergencies that happen in schools might directly or indirectly deprive the survival, development, protection, participation and environmental rights of children, as stipulated in the convention on the rights of children. The right of teachers according to the 5th October 1966 recommendation concerning the status of teachers by UNESCO in collaboration with ILO, in Paris, France, among other things stipulates the safety to teachers in regards to school buildings in two tiers, (i) School buildings should be safe and attractive in overall design and functional layout; they should lend themselves to effective teaching. They should be constructed in accordance with the established sanitary standards and with a view to durability and easy, economic maintenance. (ii) Authorities should ensure that school premises are properly maintained, so as not to threaten in any way the health and safety of pupils and teachers (ILO/UNESCO, 1966).

Both the Humanitarian Charter, United Nations convention on the right of the child and the recommendation concerning the status of teachers affirm the importance of safety for school, school community and the pupils. It affirms that the safe environment is one of the contributing factors for better education environment at school. The safe environment at schools will only come if people are aware and prepared, and more importantly are willing to spend more resources for disaster preparedness and prevention.

The staff writer of the website dealing with safety issues, safety products and safety tips in community(safetyissues.com), said that '*If you trust a school to educate your children and to house them you would not want to worry about fire in the dormitories of college and school(*Blackaby,2007).

The point above raises a lot of questions to the parents and guardians. Do they really trust the school, which educates their children? Are they aware about fire preparedness?(Blackaby,2007) If the answer is yes, how many times the parents have visited the school asking questions or advising about the safety features at school; talked to students and teachers about fire drills asked them if they have experienced fire at school?(Blackaby,2007). The parents are part and parcel of school community. They have a responsibility to advise the school management on any important issue, particularly, the safety of school in general. All together, they have to be fire wise; therefore protect and prevent fire in the schools (Blackaby, 2007).

2.1 FIRE HAZARDS IN SCHOOLS: A GLOBAL PERSPECTIVE

Fire incidents in secondary schools have been happening world wide, and no country is spared from this problem. Though the magnitude and severity differ from one country to another, the awareness and preparedness level do differ. United Kingdom, one of the developed countries has also experienced several fire incidents in schools. According to the survey conducted in United Kingdom by Arson Control Forum in 2006, nearly half of all secondary schools surveyed had experienced a fire serious enough to call fire and rescue services in the past three years. (Arson Control Forum, 2006). The Government has created awareness to school children through providing fire safety education and

give advice on fire prevention, risk assessment, evacuation and anti – arson measures (Arson Control Forum, 2006). Despite of prevention and protection measures in place, fire and rescue services in England and Wales attend around 1200 school fire episodes every year (Arson Control Forum, 2006). The survey results by the Arson Control Forum showed that 64 percent of the schools they taught fire safety education and 62 percent had taken some precautions against fire. Fire incidences in schools were reported to have long term and short-term impacts depending on the magnitude and severity of the fire itself. Among the common effects noted were temporary closure of schools, disruptions of lessons, loss of teaching notes, and loss of morale amongst teachers and pupils and negative publicity of the school. The most common causes of schools fires in England and Wales were identified to be of two types, the one started by suspicious or deliberate circumstances or accidental (Arson Control Forum, 2006). The suspicious or deliberate circumstances are like setting fire on the bin, toilet rolls or paper, rubbish or litter. The accidental fire causes are careless disposal of cigarette butts (Arson Control Forum, 2006).

In the United States of America the cases of fire in secondary schools have decreased tremendously, which reflects the high level of preparedness which is in place. A Report from United States Fire Administration, National Fire 2007 revealed that there were no reported school related fire deaths in 2007. This does not mean that there were no fire cases in secondary schools, but the impact to the life of people was minimal. This situation is contributed by the enforcement of policies and strict monitoring. Fire drills and fire education in schools are taken very seriously (United States Fire Administration, 2007).

The fire accidents in secondary schools in both the United States of America and United Kingdom have some similarities, in both prevention and protection measures, as both awareness and equipment have been put in place. Preparedness reduces the severity of the fire accident to the people and properties. There is significant reduction in death cases in most of the fire accidents in UK and USA compared to other countries.

In Africa, fire cases in secondary schools are very common and frequent. For example, in 2001, fire gutted a girl secondary school in Gindiri village, Northern Nigeria (Independent newspaper, March 2001), which killed twenty-three students and injured

fourteen. Students were trapped in the dormitory because it was locked and fortified with iron bars and a chain. Local residents managed to save some of them by opening a bathroom door. The fire was caused by overturned kerosene lantern (Independent newspaper, March 2001).

In Uganda, in March 2009, a dormitory of Alliance Secondary School in Ibanda district was gutted by fire and property worth millions of Uganda shillings was destroyed (New Vision, March 2009). Despite Police Fire Unit arrival at the fire scene, the truck could not be driven closer to the dormitory because of lack of access (New Vision, March 2009). In April 2008, fire gutted Ugandan Budo Junior School near Kampala and at least 19 girls and two adults died. (See plate 2.1) It was not clear how many children were in the room. It was established that the hostel doors were locked from outside (BBC, 15th April 2008). In March 2008, Maracha Secondary School in Maracha Terengo district in Uganda was gutted by fire at 7.30 am and two boys' dormitories were burnt (New Vision, March 2008). There were no injuries but properties of students and school were destroyed. A land dispute involving the school and the community and animosity among teaching staff were suspected to be one of the causes that led to fire (New Vision, March 2009). In July 2006, thirteen children were killed and several injured when fire gutted an Islamic Secondary School in Western Uganda (New Vision, July 2009).

Plate 2.1

One of the dormitories gutted by fire at Uganda Junior School (BBC, April 2006)

In Kenya, the fire accidents in secondary schools have been increasing every year. More than thirty secondary schools were closed by the end of July 2001, the main reason being riots, strikes and arson attacks (T&C Inc Kenya, September 2001). In March 26, 2001 fire killed fifty-nine boys at Kyanguli Secondary School in Machakos, Kenya. The cause was a petrol bomb thrown by students. Exit routes and doors were locked from outside (Associated Press, 2002). In March 2000, Bombolulu Girls School in Coast province in Kenya was gutted by fire and twenty-six girls were killed. After Kyanguli Secondary School fire caused by a petrol bomb thrown by students in March 2001, a series of petrol firebomb attacks occurred in many schools due to students' unrest(Associated Press, 2002). In Lelmokwo secondary school, seven petrol-bombs were thrown to a 116 capacity dormitory, killing one student and seriously injured fifty-three others (Associated Press, 2002. '*In June 2008, there was an average of ten cases of school unrest daily compared to about two in 2007. The trend is worrying as incidents of burning down property are now the preferred choice of many students in expressing grievances'* (Cleophas Tirop, Chairman, Kenya Secondary Schools Head Association, 2007).

On 13th July 2008, fire suspected to have been deliberately caused by students gutted the Ambothuguci Boy's Secondary School in Meru, Kenya. In July 10th 2008, Mitaboni ABC High School in Machakos district was closed and 500 students were sent home after fire gutted a dormitory. On 10 June 2008, Mukuunu Secondary School students in Eastern province in Kenya attempted to burn their school but did not succeed (Daily Nation, 2009).

Several commissions of inquiry formed in Kenya after every fire incident, which identified causes of the fire and gave recommendations for avoiding such incident from happening again. There is no evidence as to whether the recommendations were taken seriously. Bishop Lawi Imathiu of Kenya was a chairman of the commission of inquiry that probed the Bombolulu Secondary School fire incident in 2000. Among other things, he proposed that school managers should avoid crowding dormitories. In 2001, during the Kyanguli Secondary School fire, the dormitory had 130 students, apparently, above the required capacity of 80 students. Such overcrowding could have been avoided. If the number of students in the dormitory had been smaller, the number of deaths would have been lower (Rowan, 2001). Other recommendations from the commission were provision of

exit routes in every dormitory and hostel which should not to be locked from outside when students are inside. However, we have observed a series of fire incidents in secondary schools where the doors were locked from outside.

From the selected three African countries, Nigeria, Kenya and Uganda, the fire incidents at schools seem to have similarities in several aspects. The fire safety regulations are not effectively enforced due to several reasons. The issue of non-adherence to the building codes has been manifested in several cases, a situation which hinders accessibility of fire vehicle to reach incident site, hence failing to fight the fire. Lack of emergency exit doors is also very common. Furthermore school unrest, lack of awareness of school management and parents on matters relating to fire safety, contributed to fire incidents in most of the Africa secondary schools.

2.2 FIRE HAZARDS IN SCHOOL - TANZANIA PERSPECTIVE

2.2.1 General Fire Incidents

Fire episodes in Tanzania are common and repeatedly have happened at different scales. The country in the past ten years has experienced fire accidents in some of the big buildings and offices. Some of them are Central Bank of Tanzania building, National Shipping Company Limited building, part of the Tanzania Cooperatives union building which, houses the Fire Department Headquarter, Sea cliff hotel ,Part of the State House, Office of the Permanent Secretary in the Ministry of Natural Resources and Tourism in Dar es Salaam, Paradise Hotel and Ocean View Hotel in Bagamoyo district, fuel tanker truck fire in Mdaula –Ubena Zomozi in September 2009(See plate 2.2), fuel tanker fire in Isongore village, Rungwe district, Mbeya region where 28 people died and about 40 others seriously injured, just to mention a few.

Despite the effort by fire and rescue services some buildings were badly damaged. Fires incidents in residential buildings are also the order of the day. Consequently, fire and rescue teams face a lot of criticism from the public resulting from their slow response to fire emergencies, especially in residential

areas. However, the perceived slow response, according to fire departments is attributed to poor or lack of proper residential planning. Some of the unplanned areas are not accessible or are difficult to access. Although there are sentiments of truth with regard to slow response to fire incidents on the part of fire services poor or lack of accessibility in most of the residential areas is confirmed by the fact that 70 percent of urban areas in Tanzania are not planned(Kyessi,2003). Squatter settlements are rampant and, most of the squatter areas are not easily accessible by vehicles (Kyessi, 2003).

Plate 2.2

Debris of what used to be bicycles that belonged to the victims of fire that broke out an oil tanker, overturned in Mdaula-Ubena zomozi area in Dar es Salaam Laam - Morogoro highway (Ippmedia, 2009).

Serious burnt people are nursing their wounds. They were among a group of villagers who were scrambling to siphon fuel from a tanker (Ippmedia, 2009)

2.2.2 Fire Incidents in Secondary Schools

Secondary schools are not spared from fire accidents. From the recorded fire incidents, the fire cases in secondary schools have been increasing. From 1994 to 2009, Tanzania has experienced fire hazards in several secondary schools. In 1994, Shauritanga Secondary School in Kilimanjaro region was gutted by fire and 41 students died in one school dormitory. Another fire incident happened again after eight years, that is, in 2002. In July 2005, Nsumba Secondary School in Mwanza had its dormitories gutted twice by fire on different days in the same week whereby students lost all their properties. In 2007, Bigwa Secondary

School in Morogoro region was gutted by fire and two student dormitories were burnt to ashes.

In August 2008, Imalilo secondary school in Kwimba district, Mwanza was gutted by fire. Again Machame secondary school in Hai district Kilimanjaro was gutted by fire three times in July, August and November in 2008, several dormitories were burnt. The incidents were too close to each other being regarded as accidental or coincidental. In response to this an investigation was done to establish the causes of the fire and put in place protection and prevention measures (Guardian, 2008). The district authorities treated the incidents as arson. The District Commissioner reported it as an act of sabotage by the unnamed students (Guardian, 2008). Bagamoyo secondary school in Coast region was gutted by fire in 2004 thereby destroying some of the dormitories and students' properties. Other secondary schools gutted by fire are Marangu secondary school in August 2003, Old Moshi secondary school in 1999, Ungwasi secondary school in 1997, and Kisomachi secondary school in 2001, Komancha secondary school in August 2008.

In July 2009, Ole Sokoine secondary school in Monduli district was gutted by fire, fortunately no one was killed but many students' properties were destroyed (Habari Leo, July, 2009). In August 23rd 2009, twelve girl's students died and fifteen were injured in Idodi secondary school after the school dormitory was gutted by fire (See plate 2.3), (Daily Newspaper, and August 2009). The fire was caused by a candle which was used by one student to study at night. In the same incident the Iringa Regional Commissioner revealed that the number of student in that dormitory exceeded the capacity of the dormitory itself. The dormitory was planned for 190 students, but at the time of the inferno the dormitory had 461 students, 140 percent more than the specified capacity (Mwananchi Newspaper, August 29, 2009).

During the funeral services of Idodi secondary school victims the Minister responsible for education gave the Government statement and instructions, in stressing that Zonal and District education officers should collaborate with Ministry of Infrastructure Development - building department to inspect all

boarding schools both private and government to verify if they have adhered to the building standards. The Minister emphasized that all schools should install fire extinguishers and detectors and that teachers and students should be taught how to use them. He urged them to make sure that all hostels and dormitories in schools have emergency or escape routes. for the schools without having electricity to opt for photovoltaic electricity in order to avoid students using candles and other means of lighting which may cause fire(Majira Newspaper, August 26th,2009).

On 3rd September 2009, the fire gutted Tubuyu day secondary school in Morogoro municipality, some classes were damaged. Some students fainted and rushed to the hospital, however no death occurred. The cause of the fire reported to be the petrol stored in one of the classroom which was ignited by one of the students (Nipashe newspaper, September, 2009). This trend of fire accidents in schools is giving an indication that most of our school may not be safe. On 8th September 2009, fire gutted Same secondary school in Kilimanjaro region, administration office, teacher's officers and important documents were destroyed. The effort to suppress the fire proved futile due to lack of fire tender in the district (Mwananchi newspaper, September 9, 2009).

Several probe teams have been formed to investigate fire outbreaks in secondary schools. The findings are rarely made public; therefore, they can not help with the prevention of such incidents from happening in other schools. In this regard, no lessons learned are shared with the public, neither are there prevention and protection measures are put in place. For this reason, fire episodes at schools have continued to happen even three times in the same school in the same year**.** The Chief inspector of school in the Ministry of Education and Vocational Training Mary Stella Wassena speaking with Guardian news paper said that *'poor administration, lack of transparency in funds expenditure, corporal punishment and love affairs among school girls, boys, and male teachers are among factors that contributed to the recent spite of strikes and torching of some secondary schools in Tanzania'* (The Guardian- Tanzania, September, 2009).

According to the office of Tanzania Commissioner of Fire and Rescue Services, some of the recent fire incidents in schools are sabotage acts stemming from land ownership disputes or tribal conflicts. The commissioner's office also cited lack of protection and prevention measures in most of the secondary schools. It also pointed out that lack of fire protection equipment and the low level of fire awareness are contributing to fire accidents

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Plate 2.3

Some of the students affected by fire in Idodi secondary school (Ippmedia, 23/8/3009)

Member of the public viewing the smouldering remains of the dormitory Idodi secondary school (23/08/09)

2.2.3 Laws and Regulations Governing the Establishment of Secondary Schools

All secondary schools are registered by the Ministry of Education and Vocational Training. The registration unit in the Ministry of Education and Vocational Training is responsible of registering secondary schools guided by the Education and Training Policy of 1995, the Education Act Number 25 of 1978 and amendment Act section 10 of 1995. Among other things, the registration unit is responsible to perform visits to regions in order to provide on site support to owners and managers, to process applications for the establishments of school and to prepare and issue certificates of registration of private schools (URT-MoEVT, s.a).

The registration procedure of secondary schools in Tanzania involves several stages as per guidelines of the registration of school of 1982. In stage one; "*the client has to write an application letter to Chief Education Officer in the Ministry of Education and Vocational Training via relevant District Executive Director and Regional Administrative Secretary requesting to establish a school. The request should be accompanied by the client's project proposal, copies of site plan, school building drawings or plan and certificate of ownership of land by owner of the proposed school (URT- MoEVT,s.a).The permit to build schools infrastructure is granted by the Ministry (The chief education Officer) through issuing of a written permit to build a school, before the construction of the schools begins'* (URT - MoEVT, s.a).

Stage two involves the approval for owner and manager of the school, *'Application by client is made in Form No.RS 6 and No. RS 7 to the Ministry seeking approval of owner of school and manager of school. This is done after the owner has put in place necessary basic physical infrastructure, school furniture, teaching and learning materials, has potential human resources and has been inspected by relevant District Authorities including The district building Engineer, the District Health Officer, The District Chief inspector of Schools and has been recommended by the relevant district committee on education and Regional Administrative Authority'* (URT-MoEVT, 2009).

Stage three is the Application for Registration of a school; '*this stage is for the schools completed stage one and two and sought approval from Zonal chief education officer. The owners of schools that qualify for registration will be issued with written notifications and registration certificate with the registration number of the school*' (MoEVT, 2009).

2.2.4 Fire and Rescue Services, Regulations and Act.

The Fire and Rescue Force was established by an Act, of the Parliament of the United Republic of Tanzania in 2007. According to the Act, the functions of the force are to: '*(a) Extinguish fire (b) grade cities, municipalities, townships and villages into various fire and rescues services levels (c) conduct fire inspection and investigations for purposes of obtaining information relating to the causes of*

fire and loss inflicted by fire (d) Conduct studies on investigation of arson and accidental fire (e) Conduct training for fire department personnel, other officers and voluntary fire fighters (f) Prepare fire statistics and fire service information (g) Conduct fire tests on protection facilities, equipment and materials(h) Conduct test and experiments' regarding fire services(i) Give guidance and assistance in the re-enforcement of fire equipment and facilities (j) raise public awareness on fire prevention and fire services(k) Prepare test standards for hazardous materials handling(l)Prepare standards of equipment and facilities necessary for provision of fire and rescue services by various persons(m) Prepare fire prevention plans based on disaster prevention plans(n) Study and plan standards for rescue activities done by various operators(o) Plan inspection and security of construction of industrial facilities, petro chemical facilities, petroleum and gas pipeline (p) act as a liaison of various levels of fire and rescue services, including private ones (q) assist on preparation of curricula, materials and information relating to fire and rescue services which may be used by any training institution and (r) perform other functions as may be directed by the Minister' (URT, Gazette Number 25Vol.88 2007).

The Fire and Rescue Act of 2007 provides for the positions of District fire officer, Regional fire officer and Central command by Commissioner General of Fire and Rescue Force. Currently, all City councils, Municipal councils and town councils have fire and rescues services, which are Dar es Salaam, Morogoro, Iringa, Mbeya, Songea, Mtwara, Lindi, Dodoma, Kigoma, Tabora, Shinyanga, Musoma, Bukoba, Mwanza, Arusha, Tanga, Lindi, Sumbawanga, Kibaha, Moshi, Zanzibar, Korogwe, Arumeru, Temeke, Kinondoni and Manyara(Fire and Rescue Force report,2008). All district councils do not have fire and rescue services. Out of 127 districts, 99 district councils do not have fire services. Dar es Salaam city has the highest number of fire rescue and services unit, both government and private. Dar es Salaam City council have only one fire and rescue service unit in Ilala district and municipal fire services in Kinondoni and Temeke, which serve the whole city, a commercial capital of the country with more than three million people.

Departments and companies with fire and rescue teams are Tanzania Planting Company Limited in Moshi, Urafiki Textile Company Limited in Dar es Salaam, Tanzania People Defence, Airwing force in Dar es salaam, Tanzania Harbours Authority, Mwalimu Julius Nyerere International Airport, Kilimanjaro International Airport, Zanzibar International Airport, and Mwanza International Airport. Tanzania has recently registered private fire and rescue companies based in Dar es Salaam, Arusha and Mwanza.These are Ultimate Security and Knight Support fire services (Fire and Rescue Force report, 2008).

The existing structure of fire and rescue services is fragmented as described above, and as such it hampers the units in fulfilling their responsibilities as per the Act which established them. The functions of Fire and rescue services, a and c - q, as mentioned in Fire and rescue Act of 2007 can not be easily accomplished in areas where there are no fire and rescue units. A good example is the fire which happened in Bagamoyo town in March 2009, which destroyed two tourist hotels. Because there is no fire brigade in Bagamoyo district, the fire and rescue services were called from Dar es Salaam, 60 kilometres away. By the time the fire teams arrived the hotels were completely burnt down. This shows that the function number one of fire and rescue service under the Act 'Extinguish *fire'* was not accomplished due to the lack of effective fire and rescue unit in the area. This situation suggests the fact that all district councils and areas without fire and rescue teams may face similar problems.

In the Fire and Rescue Act of 2007, fire and rescue (safety Inspections and certificates) regulations are covered under section 32.The regulations instruct the commissioner of fire and rescue force to carry inspection and issue fire safety compliance certificate to different premises. Section 3(1)(d) covers fire safety issues for premises of educational institutions and other institutions of learning, training or research. In section 3(1)(g) it covers premises of facility used as a place for storage flammable liquids, gas or chemicals. In section 7(1) (a) and (b) the owner or operator of premises are instructed to observe that means of escape in case of fire at premises are safely and effectively used at all times when there are people in the premises. In section 9(4) the regulations stipulates that the plans should comprises of a drawings showing the essential escape

features, although fire authority may accept architects plan if they are available and suitable for the purpose.

Schools fall in section 3(1) (d) in the Fire and Rescue Act of 2007 which give power to the Commissioner of fire and rescue force to inspect and issue fire safety compliance certificates to the schools and other institutions of learning, training or research. In the same Act, secondary schools fall under section 3(1) (g) where it is mentioned that the premises of facility used as place of storage of inflammable liquids, gas or chemicals is one of the areas to be inspected for fire safety. Most of the science schools store inflammable liquids, gas and chemicals in laboratories. The issue of fire escape and emergency doors is also stipulated in the Act, whereby all public buildings need to put provision of fire escape facilities. It is apparent from Fire and Rescue Act of 2007, that fire and rescue force is required by the law to inspect secondary schools for fire safety certification.

From the provision in the school registration Act requirements, and comparing them with those in the Fire and Rescue Act of 2007, there are several disparities which can be observed between the two Acts. The school registration procedures and regulations require the necessary basic physical infrastructure, school furniture, teaching learning materials and potential human resources to be in place before the school is registered. No where in the procedure and regulations the issue of fire safety is mentioned as one of the basic requirement. The team which is required to inspect the school comprises of District Building Engineer, the District Health Officer and Inspectors of schools. The school needs to be recommended by the relevant district committee on education and Regional Administrative Authority for registration. No where in the school registration procedure the fire officer is included in the inspection team. Fire safety certification is not mentioned as one of the basic requirements for registration of schools. From the above analysis of different regulations, laws and Acts related to fire safety at school; the legitimate question could bee asked; how many secondary schools have been certified by fire and rescue services before they became operational?

2.2.5 Lands and Urban and Rural Planning Services

All the land of Tanzania is vested under the custodianship of the President of the United Republic of Tanzania as per the Constitution. The President entrusts his power to the Minister responsible for lands administration and management, where all matters of lands are dealt with. According to the Land Act of 1999, the ownership of land in Tanzania is covered in two pieces of legislation, Land lease Act and customary law. The Master plan, layout plans or land use plans designate different uses of lands. The uses are residential, commercial, industrial, recreational and public areas (Including hospital, schools, etc), cemetery and others. The master plan gives the bigger picture of the land uses and should be followed in the planning of compatible and incompatible activities.

Secondary schools areas are also covered by the legislation. In planned areas, the construction of any building should start when the building permit has been issued by responsible land office. This permit will be issued after the site plan has been approved by City, Municipal or Town planner (Urban Planning Act, 2007). The Architectural plans with sanitation drawings need to be approved by an Engineer, an Architect and Health officer. Through this process, the issues of accessibility in case of emergency, emergency exits, proper ventilation and health and hygiene issues are usually taken seriously before the approval (Urban Planning Act, 2007). There is no evidence on how these procedures are followed in the newly established schools. The above procedures and requirements also cover the schools buildings. The establishment of the school need to go through all the procedures before building permit is given by responsible Land Officer (URT -Land Act.1999).

2.3 SUMMARY

This chapter reviewed literature related to fire emergency in general in relation to specifics secondary school fire incidents. It started by looking into global population and the percentage of population which are currently expected to be in school. In this technological era, formal education through school system has been proved to capture a higher priority. Children spent twelve to seventeen years in school from kindergarten to university or college level, depending on the education system of the country. For example, in Tanzania, primary education takes seven years while ordinary secondary school takes four years, advanced secondary school, however takes two years. On the hand, university education takes three years for social sciences studies or four or five years for sciences and technical courses, respectively. In Kenya primary school takes eight years, secondary school four years and university between three to five years depending on the course.

Different international Conventions, charter, humanitarian laws and recommendations were cited in relation to safety in schools. The fire hazards were discussed with global perspective citing different fire incidents in schools at global and national levels.
The comparison and similarities of incidents in terms of the impact to the pupils and school in general were analyzed. Issues pertaining to protection and prevention of fire in both school and community was discussed and analyzed in depth. The cited countries in the discussion were Nigeria, Uganda, Kenya, United Kingdom and United States of America.

Issues pertinent to fire safety in Tanzania were discussed separately, whereby several fire incidents at different areas and schools were cited. The similarities and comparison of the causes and impacts of fire incidents were discussed in details. Education Act number 25 of 1978 and amended section 10 of 1995, Fire and Rescue Act of 2007, Land Act of 1999 and the Urban Planning Act of 2007 were discussed and disparities, similarities and comparison in the areas related to fire safety at schools analyzed. Several questions were drawn up from this chapter. The next chapter will analyze the data collected and produce the findings of the study to answer questions paused in this dissertation.

CHAPTER THREE

MAJOR FINDINGS ON SECONDARY SCHOOLS FIRE EMERGENCIES, PREPAREDNESS AND PREVENTION

3.0 INTRODUCTION

This chapter will dwell on the analysis and findings from the information collected using questionnaire filled by school authority, fire and rescue force, and district education office, focus group discussions with students and observations checklist. The information collected are divided in major four areas namely; school general information which looked into school management, reporting structure, ownership, registration, enrollment status, transport and communication. Fire emergencies at secondary school, fire emergency preparedness and other preparedness measures like insurance, training and awareness.

3.1 SECONDARY SCHOOLS MANAGEMENT AND REPORTING STRUCTURE

Secondary schools in Tanzania used to be directly accountable under the Ministry of Education and Vocational Training, secondary school division. Following the increased number of secondary schools in Tanzania from 800 in 1995 to more than 3900 in 2008, the government made a decision which aimed in reducing the bureaucratic procedure of managing the secondary schools in the country. In 2008, the department of secondary education and education colleges was established in each district. The department is responsible for all secondary schools in the area of its jurisdiction (URT-MoEVT, 2008).

The formation of the department which is dealing with secondary schools at district level aimed at increasing efficiency and reducing delay in decision making process. Before the establishment of the department all secondary schools used to communicate directly with the ministry of education, a situation which caused delay on the implementation of some activities. This happened partly because the country is vast and communication is not good in all areas.

All schools are managed by the board which comprises of teachers, parents and other prominent people in the community. Under the school board, there is a school

Headmaster or Headmistress who handles administrative matters. The head is responsible for the day to day administration of the school and reports to school board according the agreed schedule as figure 3.1 illustrates.

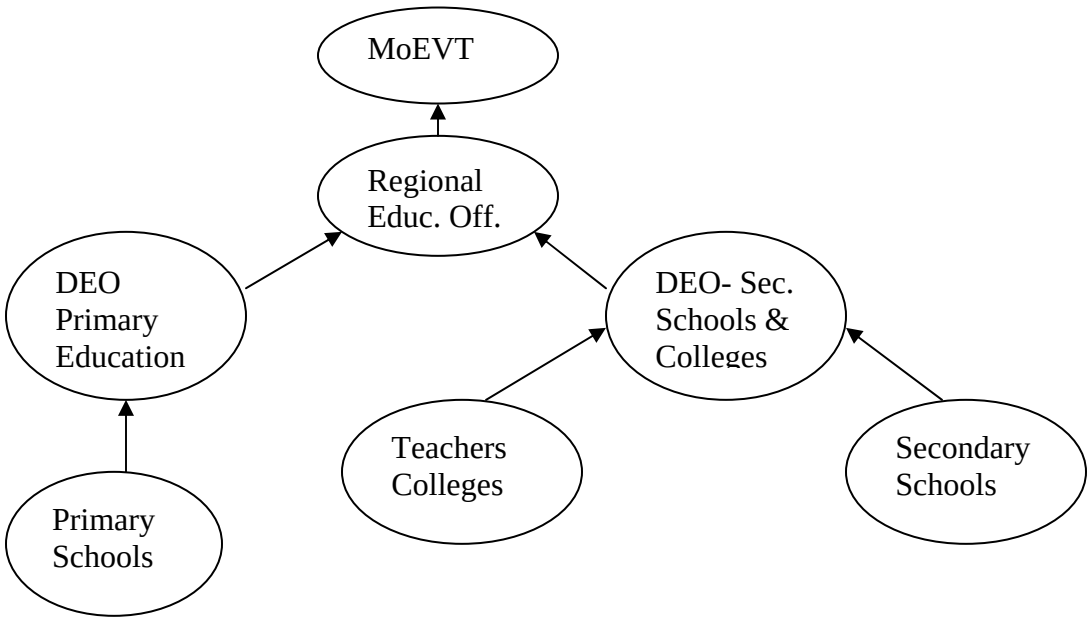

Fig 3.1 Reporting Structure of Schools in the Ministry of Education and Vocational Training (MoEVT,2008)

3.2 SECONDARY SCHOOL STATUS AND OWNERSHIP

Secondary schools in Tanzania and those in Moshi rural in particular are divided into different groups on the basis of ownership, type of education and grades. There are four groups of secondary school ownership namely; government owned schools, religious organization owned schools, private schools and community schools

3.2.1 Government Owned Schools

There are currently 90 government secondary schools in the country, and most of them were built during the colonial era or soon after independence (MoEVT report, 2008). A big number of them are old and characterized with old and unmaintained buildings (Table 3.1). The government schools accounts for 2.3 percent of all secondary schools in the country. (See figure 3.2). In Moshi Rural district as of June 2009 the government owned schools were three, namely Ashira girl's Secondary School, Weruweru girl's Secondary School and Umbwe Secondary School, and accounts for 3.4 percent of all secondary schools in Moshi rural district. The three government schools in the district were visited during the study. (See Annex 1)

3.2.2 Religious Organizations - Owned Secondary Schools

These are the most common types of schools since colonial era; most of the prominent Government leaders were educated in these schools. These schools are owned by religious organization. The major religious organizations owning secondary schools in Tanzania are Catholic church, Evangelical Lutheran church of Tanzania, Seventh Day Adventist church, Bahai Faith, Moravian church, Aghakan foundation, Anglican church, Muslim councils of Tanzania, Assemblies of God, and Pentecostal church to mention just a few. After independence some of the religious schools were nationalized and became government owned. The schools owned by religious organization in Tanzania as of June 2009 were 249 which accounts for 6.3 percent of secondary schools in the country (see figure 3.2). In Moshi rural the religious organization owned school are 18 (URT-MoEVT, 2009), out of which four schools were visited during the study.

3.2.3 Private Schools

These are schools owned by individuals, groups of people, Non governmental organizations, and private companies by shares or sole ownership. Some of the Non Governmental Organizations owning schools in Tanzania are YMCA and YWCA. In Tanzania, schools owned under this category are 547 and accounts for 13.7 percent of all secondary schools in the country (Figure 3.2). In Moshi rural district the schools under this category are 22, and accounts for 25.1 percent of all schools in Moshi rural as figure 3.3 illustrates. Out of these only five schools were selected during the study.

3.2.4 Community Owned Schools

These schools are very common nowadays in Tanzania. Subsequent the 2005 ruling party manifesto motto of building at least one secondary school in every ward in the country. The construction and management of community schools fall under the responsibilities of the communities themselves (See Table 3.1). Therefore the ownership of the schools is by large extent under the community with small support from the local and central government. The opening of community secondary in every ward has to large extent managed to boost the enrollment of most of the primary school graduates. Currently, community secondary schools are 3089 accounting for 77.7 percent of all secondary schools in the country (See figure 3.2). In Moshi Rural district alone, there are 44 community schools which accounts for 50.57 percent of all secondary schools. (See Figure 3.3). Out of which five were selected during the study.

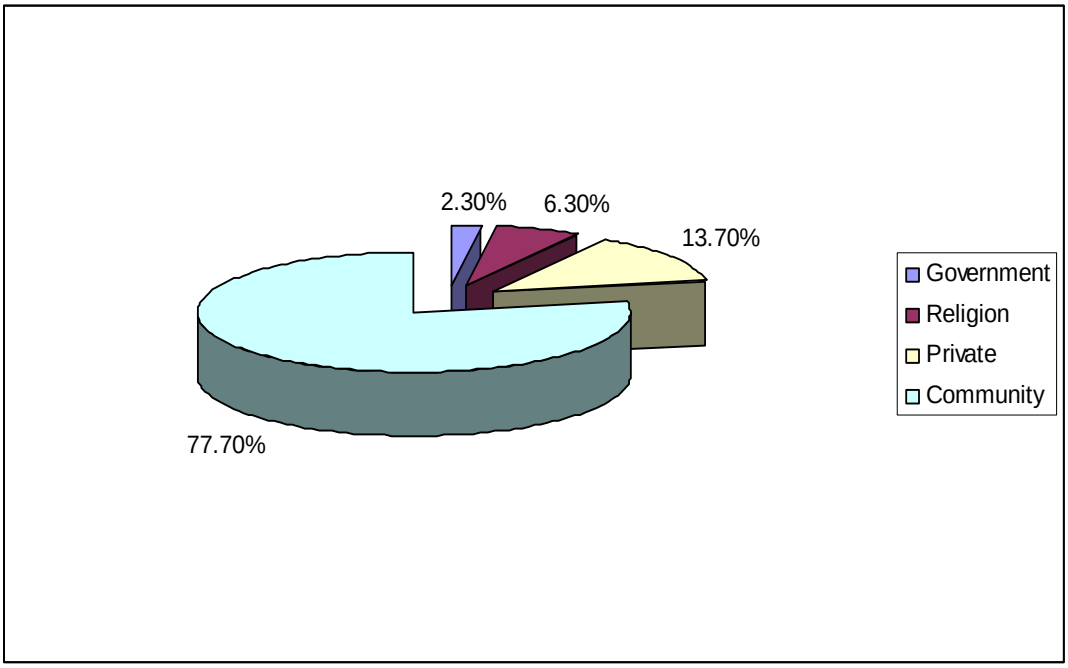

Figure 3.2: Secondary School Ownership in Tanzania

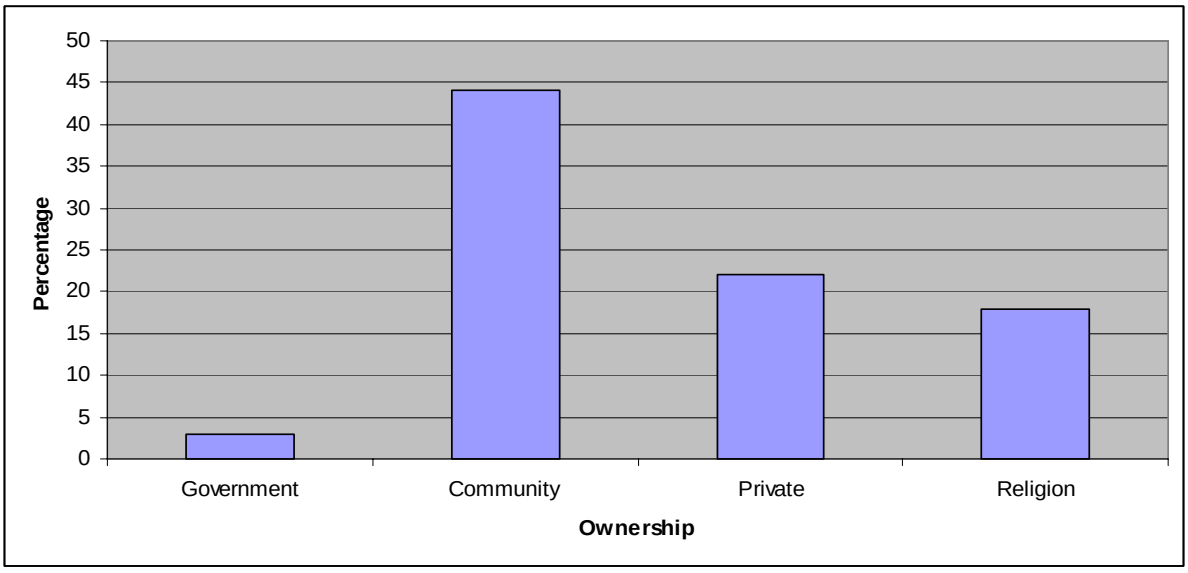

Figure 3.3: Secondary School Ownership in Moshi Rural District

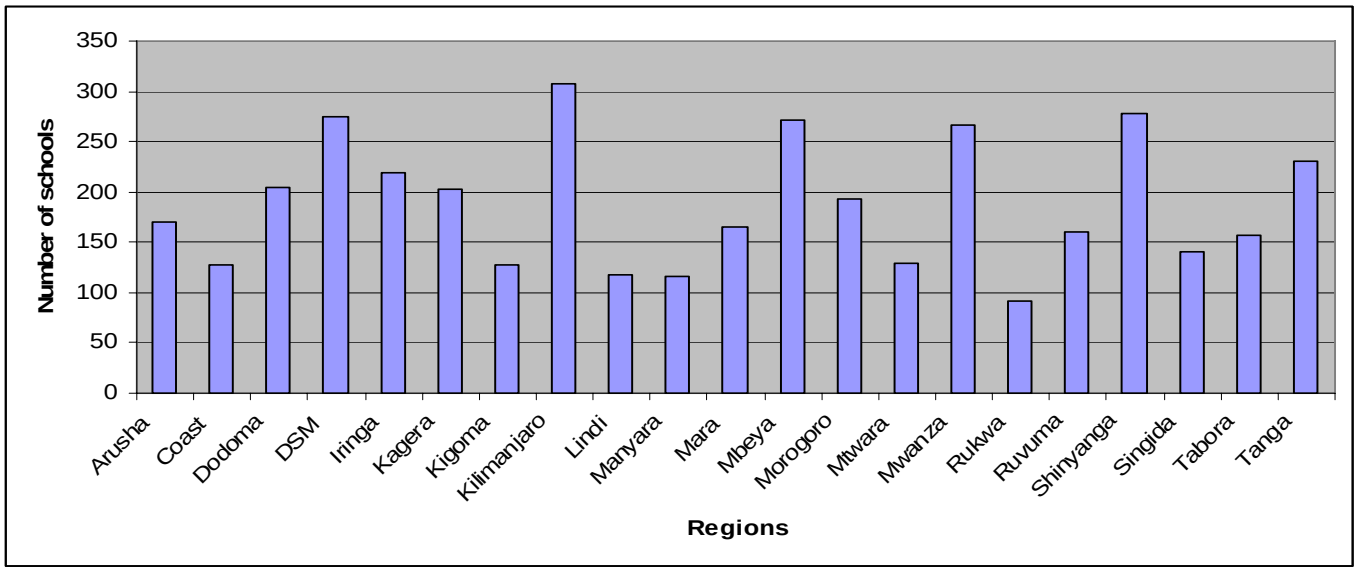

Figure 3.4 Secondary Schools in Tanzania Mainland by Regions

3.3 SECONDARY SCHOOLS CHARACTERISTICS BY OWNERSHIP

3.3.1 Introduction:

In the previous paragraphs we have discussed different type of school ownership which indirectly reflects the level of fire preparedness. The table below will show in detail the characteristics based on the ownership, type of students enrolled in the school and their place of origin, building/infrastructure, and transport/communication and funding. All of the above mentioned factors have implication on the level of preparedness level at the school

Table 3.1. Secondary Schools Characteristics

Ownership	Status	Students	Building/Infrastructure	Transport/Communication	Funding
Government	These are wholly owned by the Government. Managed by the school board and administered by Head of school appointed by the government. Teachers/Staff are employed by government. There are few teachers compared to the number of students, especially in rural areas. School fees are relatively low	Students are selected from all parts of the country without segregation of religion. Some classes are crowded. Teacher's student ratio is very high.	Generally numbers of buildings are sufficient but they are old and lack regularly maintenance. Most of the schools fire extinguishers have expired and not replaced Evacuation doors/windows do not exist, in most cases blocked. In some cases, emergency assembling points are not easily accessible by vehicles.	Some of them have vehicle, though old and unmaintained. Most of them have land line telephone. Although with evolution in communication, most of them are using personal mobile phones which are reliable and efficient. It is strictly prohibited for students to own a mobile phone.	Government budget. Parents contributions
Religious organization	Some are owned 100% by religious organization; some are co- owned with Government. Some schools are seminaries for preparing religious clergies. Depending on ownership agreement with government,	Students are from all over the country. For seminaries students are coming from religion owned the	Enough buildings and well maintained all the time. Most fire extinguishers are in place and are regularly serviced. Emergency meeting point with clear directional	Most of them have means of transport incase of an emergency. It is strictly prohibited for students to own a mobile phone.	From Religious organization. Donors. Government and well wishers.

	sometimes teachers are provided by both government and religious organization. Sufficient number of qualified teachers.	school. High level of student discipline.	pointer.		
Community	Partially owned by the community and local government. Most of the Teachers and other staff are mobilized and paid by the community. Very few employed by the government. Most of them are day co education educational schools Few qualified teachers School fees are relatively low	Mainly from surrounding villages or in the same district. Most of them are day students. Teacher's student ratio very high.	Buildings are few and some of them are uncompleted. Construction of buildings is done by local builders with little knowledge on school building standards and fire emergency requirements at school. Very few fire prevention and protection gears in place. Some schools are not located in school environment because of the conflicting surrounding activities**.**	No school owned means of transport. Very few with land line telephone, although with evolution in communication most of the staff are using personal mobile phones which are reliable and efficient. It is prohibited for students to own a mobile phone. Although some of the students own mobile phones.	Local community and well wishers. Parents contributions Local Government Central Government
Private	Owned by NGO's, Individuals, and groups of Individuals or registered companies. The ownership level depends on the agreement on the memorandum of the company. Teachers and other staff are	Students come from all places. Few students in the class(Teachers - student ratio	Depending on the level of funding. Some have good buildings, some very few, uncompleted. Some schools are not in good school environment because of the conflicting	Few have transport facilities owned by the school Some have land line, Although with evolution in communication most of them are using personal mobile phones which are reliable and efficient.	Privately funded, Donor and well wishers. Schools fees

	employed by the private company/NGO. Some have qualified teachers some not. Some of the schools use English as medium of communication with different curriculum. International schools employee some teachers from outside the country. Profit oriented – high school fees not affordable by people with average income.	is normal)	surrounding activities**.**	The ownership of mobile phones by students is very loose. In some schools it is allowed.	

3.4 SCHOOL REGISTRATION AND ENROLLMENT STATUS

The general information of all secondary schools in the country is not available; hence, it was difficult to get all required information. This situation resulted from the fact that no one took the responsibility of compiling information concerning the mushrooming unregistered secondary schools in the country. The Ministry of Education and Vocational Training had only the list of registered schools. The registered school list was for the schools registered from 1925 to 2008. It was from that list where representative schools for the study were identified.

The number of enrolled students in the sampled schools in Moshi rural district by the time of the study was 9,540, with 4161 boys and 5,380 girls. The data shows that 59 percent of all students are coming from Kilimanjaro region and particularly in the neighboring villages with the schools. Looking at the enrolment of students from the ownership perspective, it was observed that the recently established community schools whose objectives were to enroll the children from the surrounding wards were achieved. Almost 100 percent of community school visited had students from the surrounding wards. The condition is different in government owned schools and other private owned schools; the latter seems to have good facilities and qualified teachers. From the government secondary schools visited only 15 percent of the students come from Kilimanjaro region and the remaining 85 percent are from other regions of Tanzania. From the sampled private and religious owned schools including Non governmental owned schools 65.9 percent of the students came from Kilimanjaro region while the remaining 34.1 percent came from other regions of Tanzania.

It was generally observed that the schools with good teachers and facilities normally enroll more students from outside the region. The situation is probably the same in other regions where pupils from Kilimanjaro region have been enrolled for secondary school studies.

The ownership of schools by the community and the enrollment of students from the same community have increased the sense of ownership of school among members of the community. The situation has triggered the sense of protection and improvement of the standard of the schools.

3.5 FIRE EMERGENCY INCIDENTS AT SECONDARY SCHOOLS

The information of fire incidents in secondary schools for the past ten years was collected from different sources as mentioned in previous paragraphs. The number of fire incidents reported by different sources did not tally with each other; and hence shows there was a missing link in reporting and informing the public about fire incidents at schools. For example, the district education office in Moshi has a record of only three fire incidents in secondary schools, which caused the death of five people and a loss of properties worth Tanzania shillings 191,230,700.00(Equivalent to US Dollar 147,100). Two of the incidents were caused by electrical faults and one by students. The Fire and Rescue Force in Moshi municipality has recorded only two fire incidents; one in a secondary school and another one at the teachers' college. The fire service did not have any record of the number of people affected or the estimated loss of properties in both incidents. The causes of fire at the secondary school were sabotage while at the teachers' college it resulted from electrical faults.

Out of 17 secondary schools authorities interviewed only five schools experienced fire incidents, accounting for 29.4 percent of all schools visited. Three fires incidents broke in dormitories only, one in the dormitories and class room and one in other places. On the part of student's focus group, eight out of 17 secondary schools students experienced fire accidents in their schools, which accounts for 47 percent of all schools interviewed. Out of them, four fire incidents happened in the dormitories and four in other places. The causes for fire as reported were six electrical faults, one arson and one others. This situation suggests that probably not all fire incidents happened in schools were reported to the authorities. This view is supported by the evidence that the information on the fire incidents at the same schools was differently reported by school authorities and students. On average, 38% of the interviewed schools experienced fire accidents which were caused by, deliberate sabotage acts, electrical faults or students' negligence. Six people were killed in all incidents. In most cases the students are psychologically affected and lost their belongings.

With regard to fire incident reporting, 90 percent of the schools affected by fire reported immediately to the management, called fire brigade and police, gathered pupils at the assembling point and conducted recall. The remainder only evacuated the students who shouted for help and fled to different directions, claiming that shouting was a last resort

asking for help, since they did not have access to phones or emergency phone number. It was reported that only 18 percent of the school interviewed had emergency telephone number posted in public notice board.

3.5.1 Causes of fires in secondary schools

The causes of fire in secondary schools need to be analyzed for formulating remedial measures. On average, 38 percent of the interviewed schools experienced fire accidents which were caused by, (i) deliberate sabotage, (ii) electrical faults or (iii) students negligence. As mentioned in previous paragraphs, schools with good teachers and facilities normally enrolled more students from outside the region accounting for more than 90 percent of the schools affected by fires. Students who did not want to be recognized claimed that sabotage was one of the major causes of fire in secondary schools in Kilimanjaro region. They cited the repeated incidents of fire in Machame and Shauritanga Secondary Schools to prove their claims. The community around the schools always claimed that pupils from surrounding villages are denied the chance to study in those schools therefore decide to torture them. They forget that even their children are studying in other regions. Their claims are confirmed by the records from the sampled government secondary schools which revealed that 15 percent of the students are coming from Kilimanjaro region while the remaining 85 percent were from other regions of Tanzania.

The respondents mentioned sabotage as one the cause of fire in schools. This was associated with the land conflicts stemming from the area where the schools were built. It is claimed that the land used to build some of the schools was taken from some villagers without their consent. Some villagers still complaining about the land grabbed from them and sometimes threaten to revenge.

Students were also cited as being responsible for causing fire in schools. Some of the students deliberately set schools ablaze. While some fire incidents are accidental, others are due to electrical faults or negligence. It is common practice for students to modify electrical system in their dormitories for different uses such as cooking, boiling water and charging phones. In doing, so they end up causing short circuits which ignites buildings. This always happens if a school does not

have strict rules on the use of electrical appliances, or if the students are not oriented on the use of electricity after joining the school. Fire may also result from throwing fire or cigarette butts in nearby garbage pit which eventually can cause fire to the nearby buildings. Furthermore, students cited other reasons for deliberately setting schools on fire as follows:

- Lack of facilities in most of the community schools prompt some students to deliberately cause fire so that they can be transferred to other schools.

- In some cases students claimed that there is no rationale for them to be selected to join the community schools with few unqualified teachers, while their fellows are in government's schools with better facilities.

Electrical faults which was mentioned as a major cause of fire in secondary schools by both school authorities and Fire rescue force is a results of four reasons,

- Improper use of electricity

- Lack of regular maintenance of electrical system in schools. This was mentioned in most the government secondary schools.

- The use of unauthentic electrical fittings and wires especially for newly built community schools.

- The use of unqualified technicians to do electrical work especially for community schools which depends on community contributions.

3.6 FIRE PREPAREDNESS IN SECONDARY SCHOOLS

3.6.1 Introduction

Emergency preparedness is a stage which carry important role on the way the affected community will respond to fire incidents. According to the definition, Preparedness is a state of taking measures to reduce to the minimum level possible, the loss of human lives and other damages, through organizing of prompt and efficient actions of response and rehabilitation. In other words preparedness is to put in place the necessary measures for effective and timely response to an event, the ability to predict, respond to and cope with the effect of a disaster (ISDR, 2006).

The researcher looked into both hard and soft fire emergency preparedness measure at secondary schools. He dwelled into the availability of emergency plans. Training, drills, simulation, awareness, protection gears, escape routes and activities of different clubs like Red Cross in secondary schools. Mostly importantly he examined fire insurance for the schools.

3.6.2 Fire preparedness measures

A fire preparedness measure mentioned by students and school authorities in previous paragraph differ from each other. This is an indication that some preparedness measures are known by one group of the school community and not the other. For example on availability of emergency plan at school, only 59 percent of the schools administration mentioned to have one. Likewise, during the student focus group discussion about 18 percent of the schools mentioned to have emergency plans in place. All the schools have emergency assembly points which are normal assembly point for student's daily announcements. The problems is that, not all students know the area as an emergency assembling point and in some cases during fire incidents the students fled to other area instead of the meeting point.

Following the causes of fires mentioned in the previous paragraphs, one gets the impression that, some of the causes could have been prevented or mitigated if the students had been trained on some basics on disaster management. The research

revealed that only 35.2 percent of the students from the researched school mentioned to have been taught some issue in disaster management in class. Some disaster management issues are mostly taught in chemistry, physics and geography subjects. Forty seven percent of the visited school authority claimed to incorporate disaster management issues in their daily subjects. The point drawn from the responses from two groups raises the question on the teaching methodology. Are the students taught to use the knowledge for examinations purposes only or also for use of information for their daily lives? Do the teachers relating the subject taught to the students with normal disasters which have happened in the community? Teaching can be one thing and understanding the use of materials taught can be another thing. Therefore, the emphasis should be more on mainstreaming disaster management in school curriculum at all level of education. In that sense the teachers should teach some subject with a focus on disaster management. Living examples should be used to enable the students to understand more about their own environment.

The current practices whereby students and teachers aiming solely on passing examination and puts the utilitarian aspects of the subject at a disadvantage, especially with regard to the community disaster risk reduction and management.

3.6.3 Fire Safety Inspection

Fires incidents are so common in our lives that people tend take them as normal issues. However, when they happen create a lot of problems to them. The same thing applies to education institutions where large numbers of people live or working together and still some fire preparedness measures are neither considered in their daily chores nor in policies. From this study only 29.4 percent of the total interviewed school authorities admitted to have incorporated disaster management issues in their school policy, including consideration of fire emergencies and the provision of fire protection equipment such as fire extinguishers and sand buckets. Out of 29.4 percent percentage only 11.7 percent of the schools, mention to have emergency plans in place and conducted simulation and drills regularly as one aspect of disaster management issues in their school policies.

Although some of the schools tried to put some protection measures for fire emergencies, hardly any one of them of them remembered seeing the document or being informed about fire safety inspection done at their schools. Only 11.7 percent of the school visited mentioned that their schools had been inspected, but after they started operating. The answer which prompted the researcher to know if the school was given a fire safety compliance certificate and whether it is renewed every year as per Fire and Rescue Act Number 14 of 2007. None of the secondary schools surveyed had fire safety certificate.

Although the Fire and Rescue Act (Act 14 of 2007) requires all education institutions to be inspected prior to starting operating, the capacity of doing so on the part of fire and rescue force is still low. This is attributed to the fact that fire and rescue force has offices at City and Municipal council's levels and few ones in town councils. Therefore, the current structure does not allow the force to provide service to all places in the country; it operates mainly in urban areas. On the part of staff and equipment the situation is shaky, as there are not enough staff and equipment in most of the fire service stations. For the case of Moshi district where the study was conducted, there is only one fire and rescue force station at Moshi Municipality which covers all of Kilimanjaro region with seven districts, Moshi rural inclusive. According to the fire station master in Moshi municipality, the force does not have enough staff and equipments. The force had 33 staff (fire fighter) compared to the requirement of 50 staff, which is 66 percent of the requirement. They have two fire tenders instead of five. Besides, there is a shortage of fire hoses, foam, blankets, boots, gloves, communication equipments (radio call, mega phone etc). Based on the above mentioned capacity shortage, all the activities of the force are constrained, hence reducing the operation efficiency. The enactment of the law alone is not enough; something has to be done to make sure it is enforced; otherwise the Act can remain as a white elephant. Restructuring of the force to make sure it reaches rural areas and increasing the capacity of both human and material resources to the force might be one step towards the right direction of having fire safe schools in the country.

3.6.4 Transport and Communication

Although it may look out of line for some people to discuss communication and transport in relation to fire emergency preparedness at school, the issue carries a lot of weight once the fire occurs. Out of all the schools visited during the study,41 percent of respondents report had land line telephone communication at school, although some of them mentioned that the use of the land line telephone line is only restricted to the head of the school. The remaining 59 percent do not have land line telephone communication. With the advancement in mobile telephone communication, however, it was mentioned that more than 50 percent of the teachers owned individual mobile telephones. Fifty two percent of the surveyed schools are using mobile phone telecommunications for official use, including emergencies.

Despite of internet communication being a common means of communication in the 21st century, only 29.4 percent of the schools visited admitted having school email addresses and connected to the internet system. Thirty percent of the schools have computers without connections to the internet services. Seventy percent of the schools had Masters/Mistress who had their own personal email addresses and occasionally access internet outside the school.

With regards to means of transport, all schools depend on vehicle transport on their day to day activities. Forty seven percent of the schools do not have means of transport to cater for emergency cases. Fifty three percent of the schools owned the vehicle which can be used incase of any emergencies while the remaining schools depend on hired vehicles. The school-owned vehicles were reported to be old and lacking proper maintenance. Six percent of the schools owned motorbikes and bicycle as the major means of transport. Kilimanjaro region terrain is very hilly, especially towards Mount Kilimanjaro area where Moshi rural district is located. The type of transportation in that area is restrictive especially during the rainy season.

The provision of proper communication system at school level needs to be considered important as one of the emergency preparedness measures. While transport is essential for evacuation purposes to save affected victims' lives during

emergency, is equally important to keep in touch with authorities for immediate assistance.

3.6.5 Fire Protection Equipments

It is very common to see fire protection facilities in different buildings, vehicles and institutions. This is an indication that fire protection equipments are not new thing to many people. The researcher through focus group discussion, observations checklist and school authority questionnaires managed to collect some information on the availability, quantity, functionality and location of fire protection equipments at the secondary schools.

Sixty five percent of the schools surveyed have fire protection equipments in their schools ranging from fire extinguishers, sand buckets, fire blankets to fire smoke detectors. None of the school had hose reels, fire beaters and water hydrant as shown in figure 3.6. Sixty five percent of the schools had fire extinguishers whose total added up to one hundred and the maximum number per school was fifteen. (See figure 3.6 and plate 3.1).Thirty five percent of the schools had none. Fifty four percent of the fire extinguishers were located in the laboratories, 18 percent in the dormitories, nine percent in the classes and another nine percent in the kitchen and 10 percent in other places.

Out of 17 schools surveyed, 53 percent of the schools have fire extinguishers and both teachers and students know how to use them in case of an emergency. Six percent have fire extinguishers and some of the teachers know how to use them and none of the students do. Six percent have fire extinguishers but neither the teachers nor students know how to use them. The remaining 35 percent do not have fire extinguisher in their schools. Out of 100 fire extinguishers found in schools, 54.4 percent of them were not functional, and had not been serviced for long time. Therefore, they can not serve the purpose for which they are intended.

In the case of fire blankets only one school out of 17 schools had one fire blanket in the dormitory. The students did not know the use of it, until fire experts accompanying by the researcher explained to them.

Twelve percent of the schools have smoke detectors. These are found in old government and seminary schools and mostly in dormitories and laboratories. The students and teachers are aware of them, but none of detectors are functional due to lack of service.

Sand buckets are one of the most known fire protectors in most of the schools visited. Almost 100 percent of the students and teachers know the use of sand for fire protection, but only 41 percent of schools had sand buckets in the schools (see figure 3.6). Out of the seven schools found with sand buckets, 57 percent of them had sand buckets in the dormitories, 29 percent had sand buckets in the laboratories while the remainder had sand buckets in the dining room. Despite being the cheapest and the best known fire protection equipment suitable for schools, less than half of the schools visited did not consider as a priority tool for fire emergency protection.

The data on fire protection equipment as explained in the above paragraph indicates that people understand about the equipment, but they do not bother acquiring them. This is evident from the level of the equipment at schools, functionality of the equipments and the way school communities understand their use. Generally, we can conclude that the availability and use of fire protection equipments in most of the schools is low.

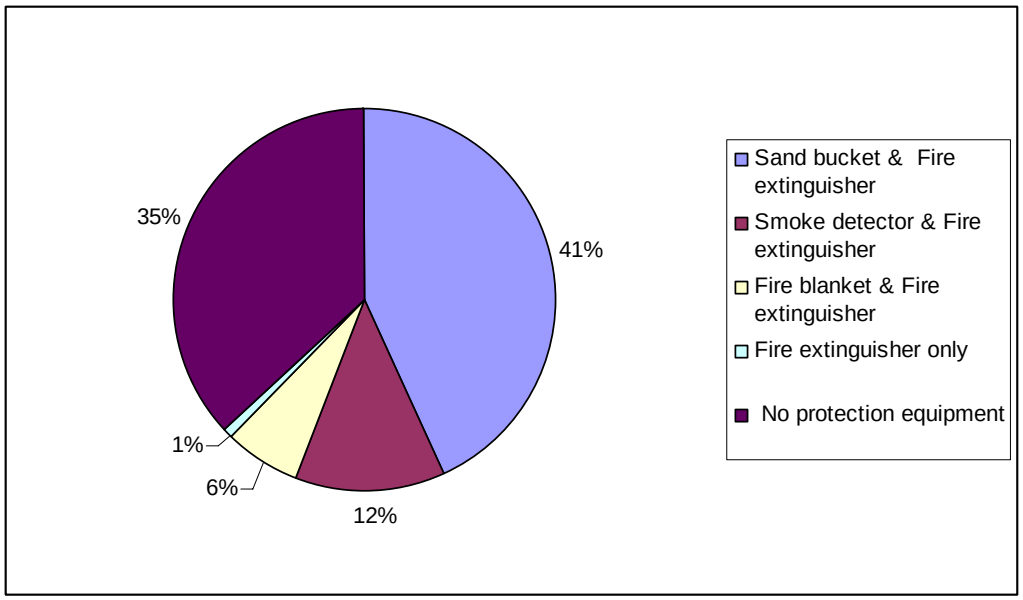

Fig 3.5 Fire protection equipments at schools

3.6.6 Fire Escape Routes, Alarm System, Simulation and Drills

Fire escapes routes, alarm systems and simulation exercise are very important components in fire emergency preparedness. The availability and accessibility of escape routes will enable people to safely evacuate the place therefore save their lives. But this will be possible and efficient if every person in the area knows the routes, something they can be reminded about during simulation and drills exercises. Alarm systems are very common in many places in case of an emergency but differ according to area and type. In African culture there are indigenous alarms and early warning system which differ depending on the type of disaster/emergency in the village (UNEP, 2008).

This study looked into both, in terms of availability, accessibility and use. Thirty five percent of the schools have proper escape routes in their dormitories and classes in case of fire emergency. This includes both open door and windows which can be used as escape routes. Although the dormitories and classes normally have enough windows which can be easily used as escape routes, most of them have grills. Ninety three percent of the school communities with escapes routes are aware of them. Fifty percent of the escapes routes are not

accessible all the time and are sometimes completely blocked with other goods or for security reasons, especially theft.

All the schools visited had traditional school alarm system, which is the bell, is normally used in most of the schools in Tanzania. The sound of a bell differs from event to event. The bell is used to call students to the assembly ground for announcement before class or after. The signal is also used for changing class sessions. It also rings to signal breakfast, lunch or supper time. A bell rung with a different tune out of the specified time is always regarded as emergency alarm requiring students to meet at the assembling point for further instructions. Eleven percent of the schools have both manual alarm systems (bell) and electronic alarm systems the remainder have only manual alarm system (bell).

Another important part of preparedness is simulation and drills exercises. Although simulation and drills are not real, they trigger the same psycho-physiological responses that humans experiences in a real situation (Ed Byrne, s.a). Simulation and drills exercise always remind people or community that something can happen anytime and they have to be ready. Simulation and drills exercise are of special importance to emergency cases, since they show whether the people still remember the whereabouts of the escape routes, the fire extinguishers and their functions, including any other fire protection equipments. This type of exercise can help the authority to make some changes or improve some part of preparedness measures. During this study only 17 percent of the schools visited mentioned that they had simulation and drills exercise two to three times a year. According to school authorities, simulation and drills exercises have helped them to improve on both fire protection in their schools but also students awareness on fire emergencies.

The remaining 83 percent claimed to lack of orientation and experience in conducting simulation exercises and drills, the situation that hinders most of them to conduct the exercise. This particularly the case with a specialized field like fire search and rescue where some expertise is required, in demonstrating how the equipments are used.

3.6.7 Other Preparedness Measures

Preparedness covered a big spectrum depending on the understanding of people involved. As already explained in previous paragraphs, there are hard and soft preparedness techniques, cheap and expensive techniques, but both depend on property owned and capacity of the owner. Therefore, in this paragraph, the study looks into the remaining preparedness measures which most the people may consider not very important, but in real sense they do play the big role once emergency incidents have happened.

3.6.7.1 Insurance

Of all the schools visited no one was insured for fire or any insurance policy. In unrecorded discussion with some of the non governmental schools authorities it was mentioned that, fire insurance is not a priority to school owners. This can be interpreted as lack of awareness on the part of school owners and at the same time a loophole in the school registrations requirements.

On the part of government schools, the schools authorities understand that none of the government property needs to be insured. Vehicles and other government properties were cited as examples. It is true that school and all the government properties including buildings are not insured with any insurance policy. In this regard further research should be done on government policy concerning insurance and reasons of not insuring government properties.

Information's from the respondent's shows that all the time when fire accident occurs at a school, surrounding community and well wishers come to give assistance to the affected students in terms of clothes and other needs. Students are affected by loosing their properties and suffering psychologically. Nothing is paid back to them in the real value, therefore the loss is real. If the schools were insured, compensation would be taken into account in real terms

On the part of the buildings, recovery and reconstruction after fire incidents takes long and it is normally costly. At that time of tragedy even financial power is mostly affected, therefore reconstruction is very slow. At the same time students remain at home or missing some equipment required for their studies. If insured, both the material and equipment lost could be compensated for within a reasonable time. This done, the affected school would resume its normal duties in pursuit of its mission.

3.6.7.2 Red Cross Society Clubs.

Red Cross or Red Crescent society is one of the international society working all over the world especially in disaster areas. In Tanzania the society was established more than fifty years ago. The major activities in schools and college are first aid training and awareness. The society comprises most of the volunteer staff that always train students in schools about first aid, establishes Red Cross clubs and in some cases respond to any emergency. It is from this background, researcher was prompted to include Red Cross club society as one component to look into on the preparedness .Six percent of the schools visited had Red Cross club in the schools, while the remaining ones were not aware of Red Cross society. The schools with Red Cross society clubs in Moshi district have benefited through awareness campaign, first aid training, and were supplied with first aids kits.

3.6.7.3 Dispensary and First AID kits

It is very common in any institution where there is a large community to have a dispensary or first aid kit in case of any emergency. Schools are one of the institutions with large communities; therefore the preparedness of that kind is very important. Eighteen percent of the schools visited had dispensary or a specific room for sick people and a health practitioner at school. (Nurse). Forty one percent of the schools had first aid kits at school to be used in case of any emergency (See figure 3.7 & plate 3.2). Unfortunately, the availability of first aid was known by very few people in the community. The kits are only availed when the responsible teacher is at school; this denies the student access to first aid especially during week ends. Forty percent of the schools do not have a dispensary, specified room, health practitioner or a first aid kit

(See figure 3.7). Some claimed to depend on the nearby government dispensaries which are used by the surrounding villages. At least the availability of first aid kits needs to be emphasized. As the name stands, it is a first aid for any eventuality at school before the patient is taken to dispensary or hospital. The availability of the first aid kits coupled with first aid training from Red Cross society can mould the students to become responsible citizens, by using their skills to help others in case of problems.

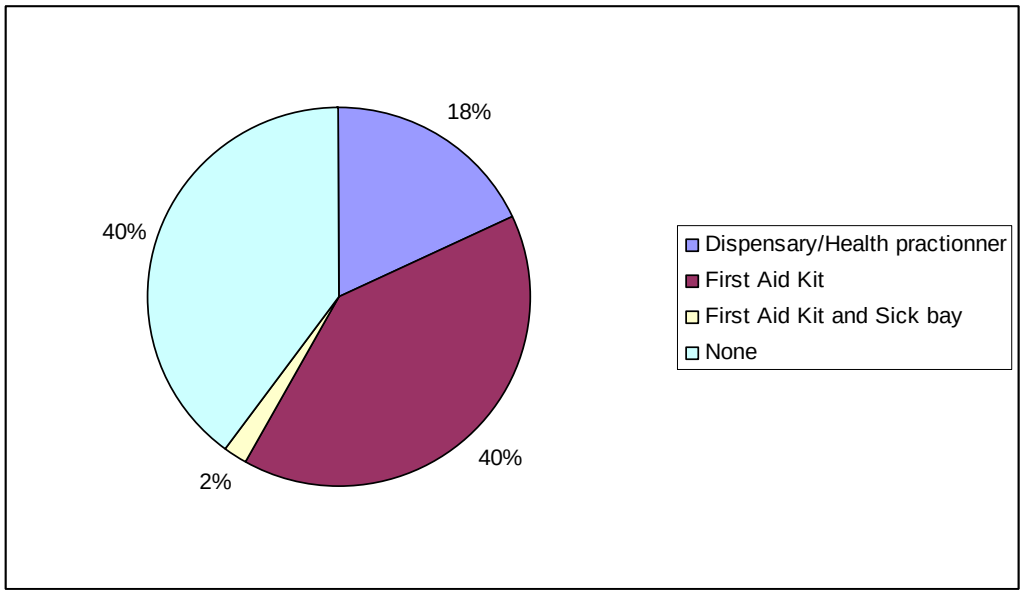

Figure 3.6 Preparedness (Health)

3.7. GENERAL LEVEL OF FIRE EMERGENCY PREPAREDNESS

Preparedness as mentioned in the above paragraphs was discussed from different angles. It is better to conclude by discussing general fire emergency preparedness level at secondary schools. The question of preparedness level was posed to school authorities and students and almost all of them came with the same answers. The preparedness level was ranked with level from 1 to 5, one being the lowest level of preparedness that means no preparedness at all. And a score of five being the highest level of preparedness with emergency plans in place, protection equipment in place and functional, availability of escape routes and accessibility all the time, school community awareness in fire emergency and the like. None of the school had a high level of preparedness in case of fire emergency. Fifty three percent of the schools visited were ranked at very low level of preparedness, 17.6 percent were given score number two, which means low level of preparedness. 29.4 percent were scored at level three of preparedness which means a satisfactory level of preparedness. On average, the preparedness level stands at score level two which indicates low level of preparedness in all secondary schools. The situation is not good at all, taking into consideration that the school is the institution which needs to be safe for the children and not otherwise. In addition to that, we need to ask ourselves if the school we went to had not been safe, what could have happened to us. How many students lost their lives in fire incidents at schools? Is that not enough indicators for the government and parents to think twice about safety of students at school? One philosopher in disaster management said that, every dollar spent on preparedness it saves six to nine dollars during disaster response and recovery (Honore, 2008). Therefore, it is better to spend less now for emergency preparedness, prevention and mitigation than waiting to spend more to respond at that time you have already lost people lives and properties.

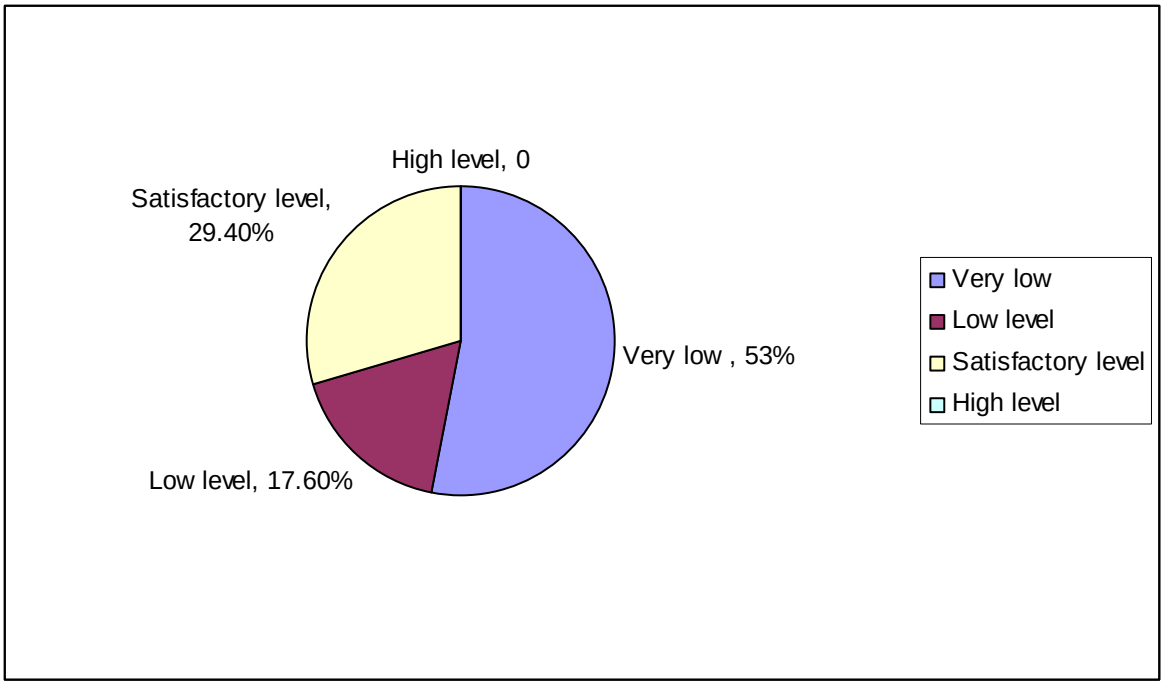

Figure 3.7 Fire preparedness level at secondary schools

Fire protection gears in one the schools.

Plate 3.1 Fire extinguisher - Weruweru secondary school

Plate 3.2 First Aid kit - Ashira secondary school

3.8 SITE PLAN AND ACCOMMODATION SET UP

Secondary school as an institution has its own standard requirement for buildings in order to suffice the service given to the students. The type of buildings, facilities and site planning differ from one school to another depending on the terrain of the area, type of students in the area (boys or girls), type of subjects taught (science or arts) and if the school is boarding or day school.

The common buildings in the schools are classes, offices, store, and laboratory, dormitories, dining room, kitchen, library, toilets and bathrooms. All these need to be planned in the way which is conducive for students and school community in general, thus planned; vulnerability to any disaster is minimized.

3.8.1 Site Plan

Site plan is a very important tool in any building development, it gives a real picture of how the areas is planned, therefore making it easy for the people to understand the way different activities are located in the area. More than 90 percent of the schools visited have shown very good site maintenance and planning. The activities are well demarcated according to their importance and usefulness. In all schools the assembly ground are well demarcated.

The average distance from the dormitories to the laboratories is 98 meters. The closest being 10 meters while the furthest is 200m meters. The laboratories being the rooms with a lot of inflammables need to be located a reasonable distance away from the residential buildings. The average distance from dormitories to the kitchen was 53 meters, with the closest dormitory at three meters and the furthest dormitory at 200 meters. The kitchen according to it is nature of activities needs to keep a reasonable distance from other activities. In some schools the kitchen was very close to the dormitory up to three meters. Such a situation puts the school at risk of fire, resulting from poor planning of buildings in relation to activities at schools. The average distance of the food store from the dormitories was 64 meters. The closest being 10 meters away from the dormitories and the furthest being 200 meters away from the dormitories.

The set up of activities from compatible to incompatibles need to be planned well to avoid mixing up of activities (De chiara, Joseph and Lee.E. Koplemen, 1978).For

example: building a school nearby the market or bus stand can cause a lot of inconveniences to students hence disturb their concentration levels. At same time can attract students to get involved in other dubious activities going on in the market, hence disrupts their studies. The dubious activities alluded to may lead to arson which in turn brings torture to the entire school community. The live example was Himo secondary school which happened to be very close to the market and bus stand. The teacher complained of the disturbance caused by the public activities nearby the school which affects school proceedings.

Therefore the site planning within the school itself and type of activities surrounding the school need to be professionally planned with experts in land use planning (See figure 4.1 & 4.2). The profession insists to allocate the use of land by avoiding to putting incompatible activities together. For example: residential, commercial land, public institutions, bar and clubs, churches, mosques (De chiara, Joseph and Lee.E. Koplemen, 1978).

3.8.2 Accessibility

Accessibility is one of the very important components in site planning and also plays a big role in emergency situations. It is very common for most of the urban squatter's area being characterized with poor accessibility. This situation has been causing negative impact, incase of fire emergency in their areas. In many cases fire services failed to reach the house gutted by fire due to poor or lack of accessibility, hence failed to serve peoples lives and properties (Fire and rescue service report, 2008).

Accessibility to the school buildings was also observed as expressed above. All schools visited have their dormitories accessible by the vehicle to the door step, the longest distance from the door step being ten meters. In general, that is a very good indicator of accessibility to the school building in case of fire emergency. This situation can not be conclude that all secondary schools have complied with this , since the study was done in the rural district where the land can be easily available than in urban areas. At the same time the study can be an eye opener to education inspectors to start observing the accessibility of schools buildings as one of the very important components of school safety.

3.8.3 Accommodations set up

Accommodation set up of the school dormitories has a big role in emergency preparedness. It is not true that any building can be a dormitory for students; it needs to meet certain safety criteria to qualify it to be a dormitory. The safety criteria aimed at making the life of the students living in them safe and conducive for their day to day living and studies. The dormitories need to have proper lighting during the day and at night, proper ventilation, toilets, water, and emergency route and not overcrowded. In this section the study will look into accommodation set up of the sampled schools.

3.8.3.1 Buildings and Services

All the dormitory buildings visited in the sampled schools were built using permanent materials (blocks, iron sheets or tiles) and have an average of ten meters apart. The number of dormitories differs from one school to another depending on the number of students at the schools. On average 52 students are living in one dormitory building. In another school one dormitory is divided into small cubicles which cater for six to ten people, but in other schools students are living in big halls. Eight percent of the buildings had toilet and the bathrooms inside, 100 percent of the school visited had running water either from a borehole, river or main water system.

For ventilation purposes, enough windows are very important especially in places where large number of people is living in one building. During the study it was found that all the schools had very good ventilation in the dormitories which allow proper ventilation during the day and at night. Seventeen percent of the windows were made of out steel and the remainder was of wood or aluminum. On the part of the doors, 100 percent of the doors were made of wood but some reinforced by grilled door.

For security purposes the dormitories doors are locked at night. As in some cases some students may go out of school at night, for displinary purposes in some schools have specific time for closing the door. In all boarding schools students attend evening studies at night between 7.00 p.m. to 10.00 p.m and after which they go to bed. Twelve percent of the schools mentioned that girls dormitories are locked from outside after the evening studies at night. The rest of the schools

dormitories are locked from inside by any student or a prefect. The schools whose dormitories are locked from outside had bathroom and toilets inside. Fifty eighty percent of schools had electricity and the remaining did not have electricity. Thirty percent of the schools with electricity are using it for lighting and operating computers, 10 percent for lighting, laboratory services and pumping sewage machine ,10 percent for lighting and grinding machine and 50 percent of the schools are used for lighting only. Despite the provision of power to schools, improper connection of power renders most of the schools vulnerable to fire. According to fire incidents reports by fire and rescue force of 2007, the use of sub standard electrical material and equipment makes the schools more vulnerable. It was very impressing to find that all schools have electrical main switches and circuit breakers. But the main question was how many and where are they located. More than half of the schools had only one main switch and circuit breaker which caters for classes and dormitories. Therefore in case a short happens in the dormitory or classes it may affect the electrical supplies in all buildings. Improper connection of electricity supply in schools, and many direct electricity connection which are not directly from the main switch or the circuit breaker were identified by the electrician who was part of the data collection team. Actually some connections are a timing bomb.

3.9 SUMMARY

Chapter three addresses some questions posed in the previous chapters. The chapter analyzed the information collected from the Ministry of Education, District Education office Moshi, Fire and Rescue force Headquarters in Dar es Salaam, Municipal Fire and Rescue Service in Moshi and questionnaires conducted to school authority, and focus group to students in which 17 sampled secondary schools were involved. The data collected were divided into four main areas, (1) General information of the schools, which looked into school management and reporting structure, School status and ownership, Registration and enrollment status and transport and communication. (2) Fire emergencies at secondary schools, which looked into fire incidents that happened in secondary schools from 1998 - 2009, people and property affected by fire in secondary schools and causes of fire in secondary schools. (3) Fire emergency preparedness at secondary schools, which looked into availability, functionality and usage of fire protection equipment, fire escapes routes, and alarm systems. (4) Other preparedness measures like insurance, training and awareness through Red Cross club were also addressed. The information analyzed in this chapter will be used in the next chapters for drawing plans, conclusion and recommendation for better fire safety planning at schools.

CHAPTER FOUR

PLANNING FOR FIRE SAFETY IN SECONDARY SCHOOLS

4.0 INTRODUCTION

The findings in the preceding chapters revealed clearly the level of fire safety in terms of, mitigation, prevention and preparedness in secondary schools. Though the mitigation and prevention were not the core component of this study, it was clear that it is difficult to draw a line between mitigation, prevention and preparedness, especially in dealing with fire emergency safety in secondary schools. The implementation of all components is a process which depends on each other, and need to be viewed as a whole.

It was pointed out in chapter three that the average level of fire emergency preparedness at secondary schools stands at score level two which indicates a low level of preparedness. Proper planning is one way which can increase preparedness at school level. It is better to spend less now for emergency preparedness, prevention and mitigation than waiting to spend more in responding to the disaster itself (Honore, 2008). Emergency preparedness needs to be incorporated in the planning process of building, maintaining and running schools.

4.1. SCHOOLS REGISTRATION AND OPERATION

It has been explained in previous chapters how schools in Tanzania are registered, and how fire and rescue forces operate. Both activities are supported by the Fire and Rescue Act of 2007 and Education Act Number 25 of 1978 and amendment Act number 10 of 1995.There is a very big question mark on the enforcement of both Acts. To have a law is one thing and enforcement of it is another thing.

The loop holes in the enforcement of the law and the political will to expand secondary school education in the country, have contributed to the tremendous increase of secondary schools in Tanzania. This development was also accelerated by the ruling party manifesto of setting up secondary schools to every ward. In this regard, proper planning must be carried out thoroughly, despite of the political push and urgency; the lives of the pupils and citizen are very important than any political power inspiration and ambitions.

Step by step procedure in establishing and registering a school need to be followed as per school registration procedures. Relevant departments and ministries should participate in the inspection of schools buildings and sites. For instance, Ministry of Lands and Settlement Development - (Land department), Ministry of Home Affairs (Fire and Rescue Force), and Ministry of Infrastructure Development (Buildings department), Ministry of Health and Social Development (Health department). Ministry of Water and Irrigation (Water department) and Ministry of Energy (Tanzania Electrical Company) should get involved in the process. In other words, participatory planning and approval process are vital. Political leaders at different level: regional, district, ward and village level should participate in the process in order to better understand the pros and cons of some decisions which are politically motivated.

4.2 SCHOOL ESTABLISHMENT

The establishment of secondary schools is not easy and therefore needs proper preparation. In recent years, there has been a mushrooming of secondary schools without following the proper procedures; consequently, some of them are already operational despite the fact that they are not registered.

The establishment of the schools starts with an idea conceived from an individual, a group of people, government or political decisions. All of them aim to fulfill one objective of providing good education to people. In many cases, schools have proved to be lucrative business; therefore people tend to venture on it with business oriented mind (Wassena, 2009). As a result of this, proper procedures for establishing a school are overlooked.

After an idea has been created, the second thing is to look for a suitable location for the school. That means an area where the school is going to be established. The respondents suggested the following planning steps which if complied with could reduce fire disasters in schools.

Area:

- The selected site on which school buildings are to be erected must be seen by an expert from the Ministry of lands for examination and approval. The expert will, among other things, look into the layout plan of the area, topography and accessibility. This will enable them to understand different land uses surrounding earmarked location to avoid conflict in land uses (See figure 4.1 and 4.2). At the same time, they will consider the ownerships status of the land. This important , as some fire incidents have been associated with the issue of land ownership and conflict in land uses as indicated in chapter three.

- Coverage of the school is another important factor. This can be used to determine the enrollment status and thereby give an indication of the area size needed. It has to take into consideration the standard area needed by one student, which is two square meter per student (MoEVT, s.a).

Funding:

- The availability of funds to build a school should be an important factor as it influences a school to be built, the duration of construction and material to be used. For this reason, the Ministry should involve government financial expert to determine the financial capacity of the owner of the school, in terms of his ability to both build and run the school. In several cases, the non availability of enough funds has caused the owner to open the school before the completion of construction or to use cheap and sub standard building materials.(See table 4.1)

Buildings (Before construction):

- After the initial preparation level has been verified, the site plan and building plans need to be submitted to responsible authority for approval. This need to be accompanied by layout plans explained in the above step. This step needs to involve the Ministry Lands and Ministry of Infrastructure development for approval of buildings' drawings (buildings, electrical and water system), Fire and Rescue services for checking of fire safety

components, Ministry health for health components. The process needs to be coherent and systematic(See table 4.1)

- The water department should be involved in the process so as to check the water system in the area and erect or locate the water hydrant system. This must be indicated on the site plan.

During Construction:

- During construction, proper monitoring needs to be done by relevant ministries to ensure the standard agreed are followed.

- After the construction of the school building has finished, the inspector of school must inspect the school in accordance with the recommendation given by the relevant ministries during the process.

The systematic planning will make sure the emergency safety measures are in place and according to standard. This will help in avoiding or reducing the number of fire emergency incidents in schools.

4.2.1 Planning Fire Safety Perspective

Fire and rescue force, schools authority and district education offices explained their concerns about the process pertaining to the establishment secondary schools, some of which are already explained in the above paragraphs. What follows is a compilation of suggestion from different stakeholders on the steps to be adhered to, including the relevant authorities to be involved. This planning process has fire safety perspectives and indicates the potential hazards or vulnerability if the process is not followed.

Table: 4.1. Planning Table –Fire Safety Perspective:

No	Steps	Issues	Relevant responsible Authorities	Potential hazards/Vulnerability **(If relevant ministry will not play their roles)**
1.	Acquiring of Land/Area as per Land Act 1999	-Ownership of the land/Area. -Layout/Land use plan -Site plan -Coverage of the school - Accessibility	- MoLSD - MoLGRA - MoID	- Conflict on Land uses and land ownership (See figure4.2). - Poor accessibility - Building on hazard land
2.	Funds Mobilization	Enough funds to finish the project	-MoLGRA - MoEVT - MoFEP	-Lack of enough funds lead to under standard building. - Poor construction & quality//Uncompleted
3.	School Buildings(plans) submission and approval	-Approval of site/Layout plan -Approval of building plans/Structural -Approval of electrical system -Approval of water system - Approval of fire safety	-MoLSD - MoLGRA - MoID -Fire and Rescue force -MoH -MoEVT -MoWI	-Under standard building/structure -Poor water & sanitation system -Vulnerable to fire -Poor hygiene (outbreak of disease)

		components -Approval of health components		
4.	School Building-Construction	Proper monitoring to make sure standards are followed	-All relevant ministries above	-Under standard buildings, use of poor material and unqualified expertise. (Collapse of buidings) -In illegal Change of plans
5.	School buildings – (Completion) - Certification	Follow up on recommendation from relevant ministries. -Inspecting the completion of the building and safety net equipments	- MoEVT - MOID - MOLSD -Fire brigade force - MoLGRA	- Unsafe school -Vulnerable to fire and other hazards

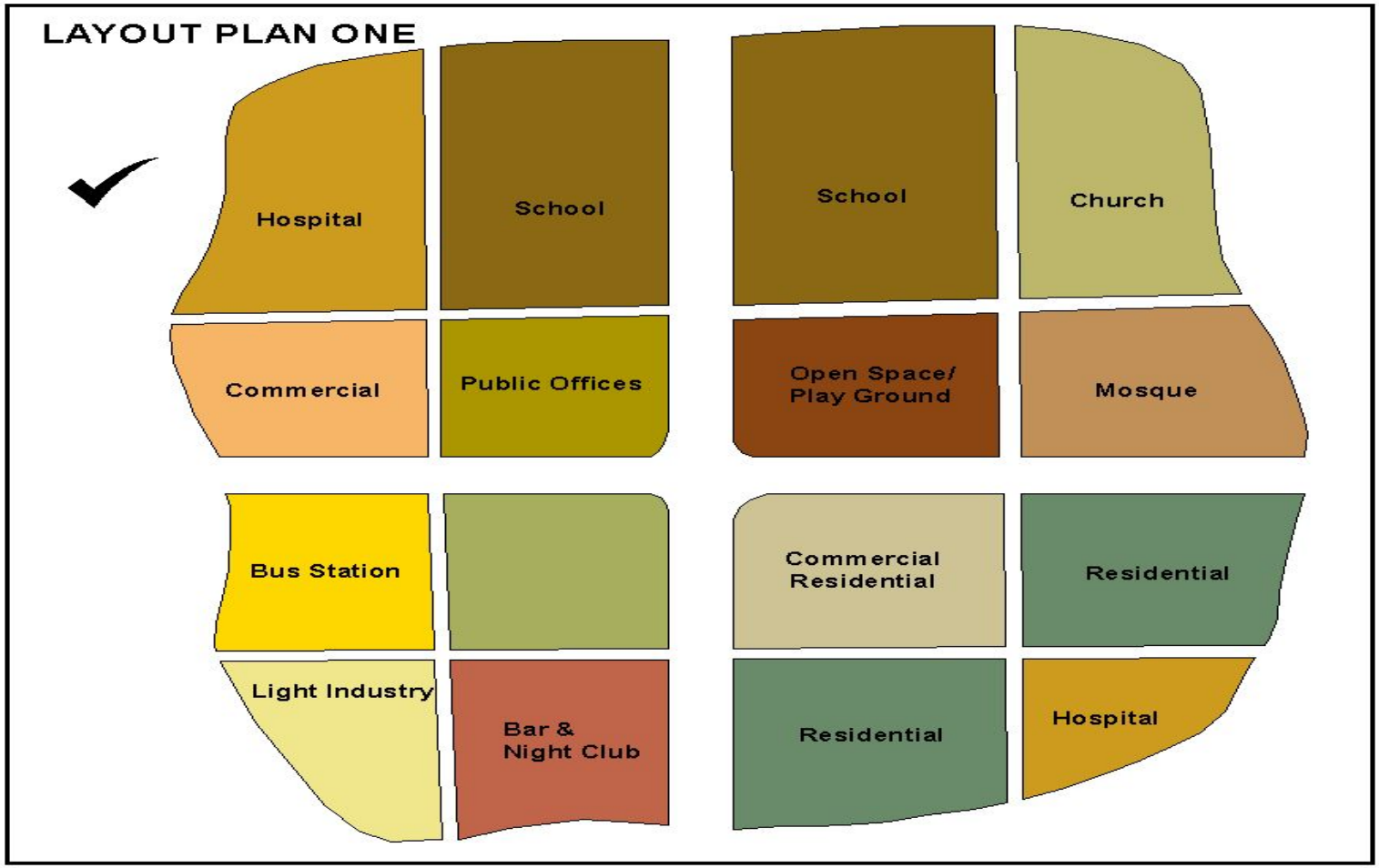

Figure 4.1: Layout plan one

This layout shows the example of compatible activities on the land use (De Chiara, Joseph and Lee Koppelman, 1978 & (Urban planning Act, 2007).

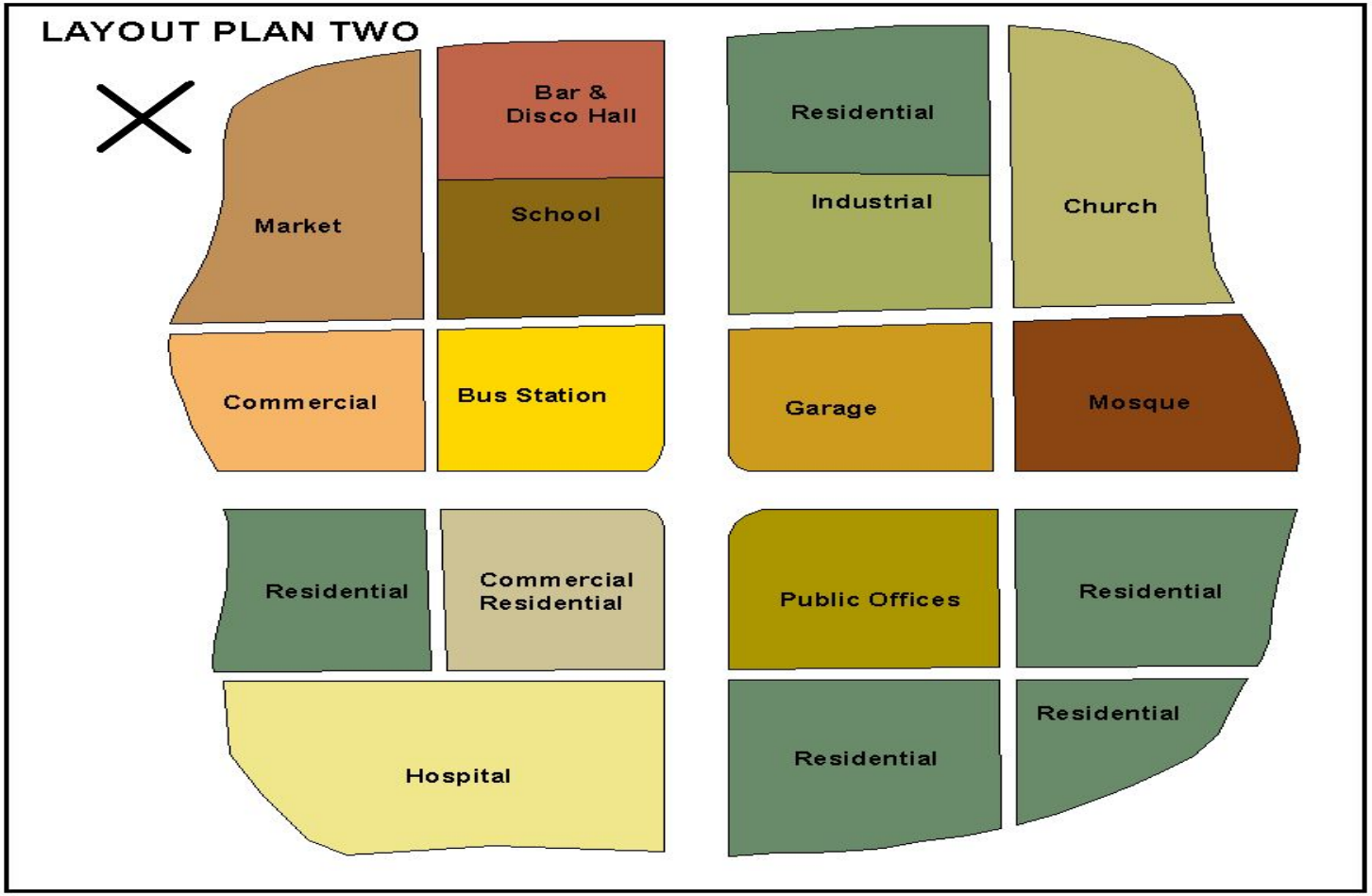

Figure 4.2: Layout plan two

This layout shows the example of incompatible activities on the land use (De Chiara, Joseph and Lee Koppelman, 1978 &, Urban planning Act, 2007).

CHAPTER FIVE

RECOMMENDATION AND CONCLUSION

5.0 RECOMMENDATION:

The researcher has reviewed fire incidents at secondary schools and the causes from 1998 up to the recent incident which happened in 23 September 2009. To a large extent the research findings answered all research questions and confirmed the assumptions. In general, the findings indicated that the fire emergency safety preparedness level in secondary schools is low.

5.1 LAWS AND REGULATIONS

Tanzania has many laws and regulations which are used interchangeably in enforcing different activities in the community. On the part of fire safety at secondary schools, different laws and regulations are used or can be used to enforce certain safety measures, before and after the school becomes operational. The laws and regulations includes Education and Training Policy of 1995, the Education Act Number 25 of 1978 and Amendment Act number 10 of 1995, Fire and Rescue Act of 2007, Fire and rescue (safety Inspections and certificates) regulations, Land Act of 1999, Urban Planning Act, 2007 and building regulations. The major problem has been poor enforcement of the laws, regulations and guidelines. This leaves a loop hole for violation of the requirements.

Recommendations:

5.1.1 Capacity Building to Law Enforcers

- Increase the number of school inspectors which currently is very low compared to secondary schools in the country. The data from the Ministry of Education and Vocational Training shows that the number of secondary school education inspectors has decreased from 141 in 2007 to 132 in 2008, while the number of secondary schools has increased by 8.24 percent in the same year (Basic Education Statistics in Tanzania,2004-2008:58).

- Provision of adequate resources to school inspectors, such as computers and vehicles to enable them to do their work efficiently and timely. The data from Ministry of education shows that school inspectors are constrained by inadequate resources (Basic Education Statistics in Tanzania, 2004-2008:58).

- Training of school inspectors in different aspects pertaining to school safety, including the laws and regulations related to school buildings. Seminars and workshops which bring together different actors in fire safety are important.

- Provision of enough resources (human and material) to fire and rescue teams at different levels. This should take into account more staff and fire tenders.

- Provision of training to fire and rescue force staff in order to understand their role in awareness raising and training to the community on fire safety.

- Provision of guidelines which stipulate the roles of each relevant ministry and department in the inspection of schools before they are registered.

5.1.2 Establishment of Schools

In recent years the country has witnessed the mushrooming of government, community and private secondary schools.The number of secondary schools increased from 800 in 1995 to 3975 in 2008 with 1,222,403 pupils (MoEVT, 2008). More schools are being built in every ward (MoEVT, 2007). Political will has contributed a lot to this phenomenon. This to some extent contributed to some laws and regulations guiding the establishment of school being overlooked. Some of the school started operating before completion and inspection by the inspector of buildings.

Recommendations:

- The good political will to establish more secondary schools need to be implemented according to the laws and regulations governing the establishment of schools.

- Opening of schools before completion of the construction and approval by building inspector and other relevant ministries is against the procedure. (Education Act Number 25 of 1978 and Amendment Act number 10 of 1995). Therefore such schools should not be allowed to start operating without being inspected by relevant authorities.

- There has been a tendency of schools starting operating before being registered. The registration is done while the school is operating. That is against the law, and should not be entertained in the first place(Education Act Number 25 of 1978 and Amendment Act number 10 of 1995) In this respect, the existing unregistered schools should be closed down pending registration after all procedures have been followed.

5.2 CONSTRUCTION OF SECONDARY SCHOOLS

During the research it was revealed that most of the community schools are built by using locally available resources from the community. (Materials or in kind). The collection of building materials and funds are done by school committee. The community gives whatever they have to build a school without any specification or standards. (e.g. bag of cement, iron sheets, nails, timber etc). Building material standards does not seem of much relevance to them at that time. The village committee always contracts the experienced builders from the villages to build a school. The initiative of using the builders from within creates a sense of ownership to community.

In several fire incident cases, students have been trapped in the buildings because of the use of steel bars on most of the openings in the dormitories such as windows and doors.

Recommendations:

- The idea of using local builders is good and should continue, but there is a need for supervision by registered engineers or contractors to ensure building standards and codes are being adhered to.

- Contribution of building materials should be carried out according to specifications i.e. the building materials should meet the required standards.

- School building codes should be enforced and made available to education department at district level.

- The use of iron bars (grills) in dormitory windows should be discouraged to reduce the confinement of students during emergency situations.

- For high rise buildings each floor should have an emergency ladder to be used by students and emergency teams.

5.3 GENERAL PREPAREDNESS, MITIGATION AND PREVENTION

Fire is a good for human beings, but it becomes a danger when it occurs where it is not needed. Several fire incidents at schools have been associated with electrical faults, negligence of students and sabotage. The fire incident can be prevented, mitigated and if not, the community can get prepared to respond and reduce the impact of it. From the findings it was revealed that the mitigation and prevention of fire was not a priority in most of the schools.

Recommendations:

- Ministry of Education and Vocational Training in collaboration with Disaster Management Department in the Prime Minister's office and Ministry of Home Affairs - Fire and Rescue Force should develop an emergency preparedness manual for schools and other education institutions.

- Fire safety programme should be mainstreamed in the education curricula to enable students to understand how to avoid and respond to fire incidents.

- Emergency education and awareness programmes for new students, should be in the school calendar every year.

- To establish disaster management committees at school level involving teachers, students and parents from the surrounding villages. The committee would ideally meet every month, but also at any time when a need arises. It will also identify the potential hazards in the area and inform the management.

- All schools should develop an emergency plan, which among other things should include:

  - Emergency assembly point,

  - Evacuation/escape routes,

  - Emergency alarm,

  - Protection equipments,

  - Emergency telephone numbers.

  - Communication structure for emergency information

  - Disaster management committee

- The school should develop an emergency alarm system which caters those with hearing, visual, mental or physical impairments.

- Schools should make sure there is clear escape routes at all times in all buildings and accessible exits.

- For the Schools surrounded by bushes or plantations fire guards should be created.

- The schools should carry out simulation exercises and drills regularly, to enable the school community to understand the procedures to be followed in case of an emergency.

- Every school should train the first aiders to manage injuries before the victims are referred to the hospital.

- Red Cross society should establish the clubs at school to impart the first aid knowledge to students and the school community. As it is not possible for the school to do everything itself, There is need to invite a professional Non Governmental Organization to assist in some aspects of emergency preparedness. In that way the community and other partners will be able to play their role in grooming the children to be good citizens.

- All schools must have fire fighting equipments such as:

  - Fire extinguishers

  - Hose reels

  - Sand buckets

  - Fire blankets

  - Fire hydrants

  - Stocked first aid kit

- Fire extinguishers should be located at strategic places where they can be easily grabbed and used.

- Students and teachers must be trained on how to use fire extinguishers and other fire protection equipments.

- School authorities should make sure main switches and circuit breakers are available in all buildings and are functional.

- School authority should check the fitness of electrical appliances (electrical irons, plugs and socket outlets) being used by pupils/students.

- Distribution boards, switches and socket outlets should not have bare wires except the earth wire.

- The Government should make sure schools are connected to electrical or solar power to avoid students using candles and other means of lighting which are unsafe and can not be monitored.

6.0 CONCLUSIONS

The study has revealed several issues pertaining to the fire safety at schools and safety in general. It is a common knowledge that disasters may happen anytime and cause losses of life and properties. At the same time, human beings console themselves that the disasters are God's plans and therefore human beings can not stop them. This way of thinking has resulted into remarkable negligence especially in relation to government properties, including schools.

Negligence and unpreparedness has been worsened by lack of resources, inadequate resources, poor planning and unrealistic prioritization. In several cases, some government schools have been closed before the end of term due to the lack of funds to feed students. At the same time other government schools continued with studies despite the claimed little funds released by the government. The reasons for such situation may entail another research. Though fire safety at schools is important, normal human beings can not leave the students without food and buy fire extinguishers or other fire protection gears. That is where prioritization of activities comes in.

In the case of government institutions dealing with fire safety, the trend is the same. The Fire and Rescue Force have shortage of staff, equipment and budgetary constraints. There is low possibility for the fire master to release few fire staff from the station to go and train at the schools, albeit for a couple of days. The priority should be to leave them at the fire station and wait for any fire eventuality. Even if the station could have enough fire staff, other resources like vehicles and allowances for staff to conduct training would still pose a problem.

On the part of school inspectors, the trend is also the same, inadequate staff; equipment and budgetary allocation are major constraints. Therefore despite good will on the part of the staff to perform their duties efficiently, they are constrained by many hurdles.

In general, the issue of fire preparedness at secondary schools lies on the hands of the government which has the responsibility of putting law and order to safeguard its citizens. Furthermore, the government should empower its ministries and departments by providing adequate human resources, equipments and financial resources as well as enforcing laws and regulations.

Since the government comprises people and their leaders, the latter need to hold political leaders accountable for the loss of their children. Parents need to ask compensation for the loss of their children and their properties. In so doing, decision makers through the parliament, will be compelled to allocate enough resources to the government organs responsible for safety at schools and other institutions. At the same time it will raise people's awareness on the importance of fire safety both nationally and in schools. '***Let us be fire conscious and fire wise'.***

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7.0 REFERENCES:

Arson control forum, 2006. Surveys of School Fires, Research bulletin Number 10

Krueger, 1988; Babbier, 1992.Assessment-Guide-Chapter-9, [Online] Retrieved from:www.nationalgangcenter.gov [20 April 2009].

BBC, April 2008. School Fires Kills Uganda Children,[Online] Retrieved from: http://news.bbc.co.uk/2/hi/africa/7347946.stm [25 March 2009]

Ben Wisner, Piers Blaikie, Terry Cannon and Ian Davis, 2004.At Risk

Convention of Rights to Children (CRC), 1989. [Online] Retrieved from: http://www.unicef.org/magic/briefing/uncorc.html [5th April 2009]

Carter, W.Nick, 1991. Disaster management, a disaster Manager's Handbook

C.R. Kothari, 2008. Research Methodology, Methods and Techniques

Creative research system, 1982 [Online] retrieved from http://www.surveysystem.com/sscalc.htm[29/8/2009]

Daily newspaper Tanzania, Idodi fire victims laid to rest, August 26th 2009

Daily News paper Tanzania, Blaze kills 12 students, August 24, 2009

Daily Newspaper Tanzania, [On line] Retrieved from http://www.dailynews.co.tz/ [27/8/2009]

Data collection tools [Online] retrieved from http://www.nationalgangcenter.gov/Content/Documents/Assessment-Guide/Assessment-Guide-Chapter-9.pdf[15 March 2009]

Data collection tools [Online] retrieved from http://www.nationalgangcenter.gov/Content/Documents/Assessment-Guide/Assessment-Guide-Chapter-9.pdf[15 March 2009]

De Chiara, Joseph and Lee Koppelman, 1978.Site planning standards

ED Byrne, s.a, [Online] Retrieved from: http://www.defendu.com/fist_training.htm[20 November 2009]

General Russel Honore, speech 2008,[Online] retrieved from http://www.projectwhitehorse.com/pdfs/My%20Next%20Mission.pdf [22 November 2009]

Kyessi, A.G.: Squatter settlement development and upgrading in Dar es Salaam – Tanzania. In: The Journal of Building & Land Development, Vol. 3, and No. [Online] Retrieved from www.corp.at/corp_relaunch/papers_txt_suche/CORP2003_Kuffer.pdf [15September2009]

Humanitarian charter and minimum standards in Disaster Response [Online] Retrieved from http://www.sphereproject.org/[15 February 2009]

Susan Blackaby, 2007.Fire safety education school [Online] Retrieved from http://www.esfrs.org/community_safety/Schools/schools.htm#secondary[29/8/2009]

Fire at Tubuyu secondary school in Morogoro [Online] Retrieved from,http://www.freemedia.co.tz/daima/habari.php?id=832 [2009]

Focus Group Discussion with Students (17 Secondary Schools) 30-31 July & 1st August 2009

Grenada revolution on line- Major fires [Online] Retrieved from http://www.thegrenadarevolutiononline.com/page17b.html[28/8/2009]

Habari Leo Newspaper Tanzania [Online] retrieved from http://www.habarileo.co.tz [26/7/09]

ISDR.s.a. Disaster Risk reduction begins at school [Online] Retrieved from: http://www.unisdr.org/eng/public_aware/world_camp/2006-2007/faq-en.htm[20 February 2009]

ISDR, 2006. Thematic cluster on knowledge and education [Online]. Retrieved from: http://www.unisdr.org [20th February 2009]

ISDR.2006, Disaster risk reduction begins at school [Online] Retrieved from: http;//www.unisdr.org [20th February 2009]

Indigenous knowledge in disaster management in Africa, UNEP, 2008

Julius Nyerere speech, 1977[Online], Retrieved from http://www.newworldencyclopedia.org/entry/Julius_Nyerere[13 July 2009]

Kumekucha, s.a. [Online] Retrieved from http://kumekucha.blogspot.com/2008/07/school-fires-arson-or-accident.html, [20 March2009].

Lets Evaluations Resources, the University of Sheffield, s.a.[Online],Retrieved from http://www.shef.ac.uk/lets-evaluate/general/methods-collection/questionnaire.html[20 May, 2009]

Interviews, Heads of 16 Secondary Schools, 30-31 July & 1st August 2009

Interview, District Education Officer (Secondary School), Moshi Rural, August 1st 2009

Interview, Fire Master Moshi Municipal Council, July 31st 2009

Ministry of Finance and Planning, 2007, National Bureau of Statistics report (Online) Retrieved from: http://www.nbs.go.tz/population.htm,[2008 3rd December].

Mwananchi Newspaper Tanzania, Shule ya Sokoine yaungua, July 29, 2009

Ministry of Education and Culture Tanzania, 2003.Basic Education Statistics in Tanzania 1999-2003,

Ministry of Education and Vocational Training Tanzania, 2007.Basic Education Statistics in Tanzania 2003-2007

Ministry of Education and Vocational Training Tanzania, 2006.Basic Education Statistics in Tanzania 2002-2006

Ministry of Education and Culture Tanzania, 2002.Basic Education Statistics in Tanzania 1997-2001

Ministry of Education and Culture Tanzania, 2004.Basic Education Statistics in Tanzania 1995-2004,

Ministry of Education and Vocational Training Tanzania, 2005, Basic Education Statistics in Tanzania 1995-2005,

Ministry of Education and Vocational Training, 2008. Basic Education Statistics in Tanzania 2004-2008, [Online] Retrieved from: http://www.tanzania.go.tz/education.html [2009, 3rd December]

Ministry of Education and Culture Tanzania.1982. Guidelines for the registration of schools, [Online]. Retrieved from: http://www.tanzania.go.tz/education.html, [2009, 3rd December].

Ministry of Education and Culture Tanzania, 1995, Education and Training policy

Ministry of Finance and Planning, National Bureau of Statistics, Tanzania Census Report 2002

Ministry of Education Tanzania, Annual Ministry of Education report 2007

Ministry of Education Tanzania, Annual Ministry of Education report 2008

Ministry of Education Tanzania, Basic Education Master Plan 1997

Ministry of Education, Basic education statistics in Tanzania, National data 2004 - 2008:58

Ministry of Education Report Tanzania, 1997. [Online] Retrieved from: http://www.tanzania.go.tz/education.html [2009, 3rd December].

Ministry of Education, Basic Education Statistics in Tanzania, National data, page 58, 2004-2008

Ministry of Education Tanzania.1982. Guidelines for the registration of schools, (Online). Retrieved from: http://www.tanzania.go.tz/education.html, [2009, 3rd October].

Ministry of Education Tanzania, 1995, Education and Training policy

Ministry of Home Affairs, Fire and Rescue Force report, 2007

Ministry of Home Affairs, Fire and Rescue Force report, 2008

Mwananchi newspaper, Tanzania [Online] retrieved from http://www.mwananchi.co.tz/newsrids.asp?id=14478[9 September 2009]

McConnell, Shean, 1981, Theories of Urban Planning, London: Heinemann

National Bureau of Statistics Tanzania, 2002. Census report [On line] Retrieved from: http://aspc.hhs.gov/HSP/97trends/PF1-2.htm [3 March 2009].

New Vision Kenya, 10th March 2009. Maracha School Shut over Fire

Overview of data collection techniques, IDRC [On line] Retrieved from: http://www.idrc.ca/en/ev-56606-201-1-DO_TOPIC.html [15 March 2009]

Prime Ministers Office, 2001, Disaster Management Department, Tanzania Vulnerability Assessment report

Prime Ministers Office Tanzania, 2004. Disaster Management Policy

Prime Ministers Office Tanzania, 2002, Reference Manual for Disaster management Course

Recommended samples sizes for two different precision levels, [On line] Retrieved from http://www.uwex.edu/ces/tobaccoeval/docs/sampchar.doc[15 March 2009]

Rowan, 2001, Kenya: School fire kills at least 59 [On line] Retrieved from studentshttp://www.wsws.org/articles/2001/mar2001/keny-m30.shtml [15 February 2009]

Sphere project, 2004. Humanitarian charter and Minimum standards in Disaster response, 4th Edition

School fire: How safe are our schools [On line] retrieved from http://otienoamisi.wordpress.com/2006/12/11/school-fires-hiw-safe-are-our-schools/ [29/8/2009]

Staff writer for safetyissues.com, s.a.Fire safety in Schools and Dorms, [Online]Retrieved from: http://www.safetyissues.com/site/fire_safety/fire_safety_in_schools_and_dorms.html [5th April 2009]

Tanzania school registration procedure, 1995. [Online]. Retrieved from: http:/www.moe.go.tz/ceo/schoolreg.html [3rd December 2008].

Tanker fire: One killed, several burnt, [On line] Retrieved from: http://www.ippmedia.com/ [24 August 2009]

The independent Newspaper, 2001. [Online] Retrieved from: http://www.independent.co.uk/news/world/africa/twenty-three-die-in-nigerian-high-school-dormitory-blaze-695320.html [25 March 2009]

The ILO/UNESCO, 1966.Recommendation concerning status of teachers, [Online] Retrieved from: http://unesdoc.unesco.org/images/0016/001604/160495e.pdf [5th April 2009]
United Republic of Tanzania, Education Act No 25 of 1995

URT, Education Act No 16 of 1978

URT Education Act No 10 of 1978

URT. Education Act of 1995 No 25 of 1978

URT, Education Act No 16 of 1978

URT. Education Act No 10 of 1978

URT. Fire and Rescue Act.2007

URT, The Disaster Relief Coordination Act 1990

URT, The Urban Planning Act .2007

URT, The Fire and Rescue Act 2007

URT, Occupational Health and safety Act 2003

URT, Land Act 1999

URT, Local Government Reform Act of 1998

URT, Country Profile, [Online] Retrieved from;
http://www.tanzania.go.tz/administrationf.html[23 March 2009,]

URT, Gazette Number 25Vol.88 2007

URT Website, Country Profile, 2009[Online] Retrieved from
http://www.tanzania.go.tz/administrationf.html [29 June2009]

USAID, URT, Introduction to Disaster Management Instructor Guide, 1999

United States Fire Administration, 2007. [Online] Retrieved from:
http://www.usfa.dhs.gov/fireservice/fatalities/statistics/report.shtm [1st April 2009]

United Nations, 2005. World Population trends. [Online] Retrieved from:
http://www.un.org/esa/population/unpop.htm [28 May 2009]

UNISDR Terminology on Disaster Risk Reduction, 2009. [Online] Retrieved from:
http://www.unisdr.org/eng/terminology/terminology-2009-eng.html[25th May 2009]

Wisconsin, Department of Public instructions, clarifying information for definition of school s.a. [Online] Retrieved from: http://dpi.state.wi.us/lbstat/defini.html [15 July 2009]

Wikipedia, The free encyclopedia s.a. [Online] Retrieved from:
http://dpi.wi.gov/lbstat/defini.html [14 March 2009].

Wikipedia, The free encyclopedia s.a. [Online] Retrieved from:
http://en.wikipedia.org/wiki/fire_safety [14 March 2009].

Wikipedia, The free encyclopedia s.a., [Online] Retrieved from:
http://en.wikipedia.org/wiki/Fire_protection [14 March 2009].

Wikipedia, The free encyclopedia s.a., [Online] Retrieved from:
http://en.wikipedia.org/wiki/Fire [14 March 2009].

Wise up to fire in school [Online] Retrieved from
http://www.wiseuptofire.org/schools/index.htm[29/8/2009]

Annex 1

THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KILIMANJARO REGION
Telegrams: **'REGCOM' KILIMANJARO**
Tel. No. 027-2754237
Fax No. 027-2753248
E-Mail: *raskilimanjaro@yahoo.co.uk*
In reply please quote:

REGIONAL COMMISSIONER'S OFFICE,
P.O. Box 3070,
MOSHI.
TANZANIA.

Ref. No. FA/191/228/01/85

28Th July, 2009

District Administrative Secretary,
MOSHI & HAI

RE: RESEARCH PERMIT FOR MR. RUGER J. KAHWA

Please refer to the heading subject.

I wish to introduce Mr. Ruger J. Kahwa , who is bonafide staff student of the University of Free State -South Africa, and at the moment he is conducting research in Kilimanjaro region.

The title of the research is "Fire emergency Preparedness at Secondary Schools-Kilimanjaro Region, Tanzania" as part of his course programme for the award of "Masters Degree in Disaster Risk management".

Permission has been granted to conduct the research from 30th July to 04th August, 2009.

=== Please give him required cooperation and make sure that they abide by all government regulations. The names of the sample school are attached.

Thank you for your cooperation.

Kawina K. Kawina

Annex 2

Bw. Ruger Kahwa
Kibali Kiko Ofisi ya RAS – Kilimanjaro. Ofisi Na. 5. Onana na Bw. Kawina K. Kawina.
AAS – APS
10/7/09.

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND VOCATIONAL TRAIN[illegible]

Cable: "ELIMU" DAR ES SALAAM
Telex: 41742 Elimu Tz.
Telephone: 2121287, 2110146
Fax: 2127763

Post Office B[illegible]
DAR ES SALA[illegible]

In reply please quote:

Ref. ED/EP/ERC/VOLII/ 110

Date: Wednesday, June 3, 2009

The: Regional Administrative Secretary -Kilimanjaro

ATT. Regional Education Officer:

RE: RESEARCH CLEARANCE FOR MR. RUGER J. KAHWA:

The captioned matter above refers. The mentioned is bonafide student of University of the Free State (South Africa) who is conducting research titled **"Fire Emergency Preparedness at Secondary Schools-Kilimanjaro Region, Tanzania."** as part of his course programme for the award of Masters Degree in Disaster Risk Ma[illegible]gement.

The researcher needs to collect data and necessary information from sampled secondary schools. He will also need to contact Moshi (R) District Education Officers (DEO) to collect information related to the research topic.

In line with the above information you are being requested to provide the needed assistance that will enable him to complete this task successfully.

The period by which this permission has been granted is from 3rd **June** to 30th **August** 2009.

By copy of this letter, **Mr.Ruger Kahwa** is required to submit a copy of the report (or part of it) to *the Permanent Secretary, Ministry of Education and Vocational Training* for documentation and reference.

Yours truly,

Dr. Emmanuel M. Nkumbi
For Permanent Secretary

CC: Mr. Ruger Kahwa

Annex 3

Sampled Secondary Schools

No.	SCHOOLS	REG. NO	STATUS	TYPE	ADDRESS	TYPE	DISTRICT	OWNER
1	Agape Luth. Jr. Sem.	S.745	Seminary	O-A	Box 8882 Moshi	Day, Coed	Moshi (V)	KKKT Dayosisi ya Kaskazini
2	Himo	S.1283	Community	O level	Box 271, Himo	Day, Coed	Moshi (V)	Community
3	Kindikati	S.1113	Community	O level	Box 1178 Moshi	Day, Coed	Moshi [V]	Community
4	Lombeta	S.180	Non governmental	O-A	Box 1953 Moshi	Day, Coed	Moshi (V)	RC Church Moshi Diocese
5	Kolila	S.124	Non governmental	O level	Box 16 Moshi	Day, Coed	Moshi (V)	YMCA
6	Mboni	S.630	Community	O level	Box 717 Marangu	Day, Coed	Moshi (V)	Community
7	Mwika	S.516	Community	O level	Box 855 Marangu	Day, Coed	Moshi (V)	Community
8	Pakula	S.546	Community	O level	Box 8757 Moshi	Day, Coed	Moshi (V)	Community
9	Weruweru	S.54	Government.	O-A	Box 575 Moshi	Day, Coed	Moshi (V)	Government
10	Bujiku Sakila	S. 3326	Community	O level	Moshi	Day, Coed	Moshi (V)	Community
11	Marangu	S.167	Non governmental	O level	Box 217 Marangu	Day, Coed	Moshi (V)	RC Church Moshi Diocese
12	Msiriwa	S. 3336	Community	O level	Moshi	Day, Coed	Moshi (V)	Community
13	Mieresini	S. 3346	Community	O level	Moshi	Day, Coed	Moshi (V)	Community
14	Ashira	S.58	Government.	O-A	Box 345 Marangu	Day, Boarding, Coed	Moshi (V)	Government
15	Umbwe	S.27	Government.	O-A	Box 718 Moshi	Day, Boarding, Coed	Moshi (V)	Government
16	St Margaret Girls'	S.569	Non governmental	O level	Box 85 Himo	Boarding, Boys	Moshi (V)	YMCA(NGO)
17	Kilema Sem. (St. James)	S.88	Seminary	O-A	Box 1927 Moshi	Day, Hostel, Coed	Moshi (V)	RC Church Moshi Diocese

Annex 4

UNIVERSITY OF FREE STATE

FIRE EMERGENCY PREPAREDNESS IN SCHOOL

EDUCATION DEPARTMENT MOSHI RURAL DISTRICT- QUESTIONNAIRE

IDENTIFICATION:

REGION NAME: KILIMANJARO

DISTRICT NAME: MOSHI RURAL

WARD NAME……

DATE OF INTERVIEW…… | | | | | | | |

Name/Type of Group interviewed……

NAME OF INTERVIEWER…… . ……

Result of Interview:

Complete…… 1

Not complete…… . 2

Interrupted….. . …. 3

Postponed…….. 4

NAME OF TEAM LEADER……..

PART 1: GENERAL

Q1 How many secondary schools are in Moshi rural district? ……

Q2 How many of them are registered?.....

Q3. How many cases of fire hazards happened in schools (primary and secondary) for the past ten years? 2008 .....

Q4. How many cases of fire hazards happened in secondary school only for the past ten years. (1999 -2008). (If the space is not enough use last page)

Year	Name of the School	People affected (death & injured)	Property affected (Costs)	Causes

Q5.What is the major causes of fire accidents in the secondary schools.

(i)Electrical faults ……1

(ii)Arson……...2

(iii)Others – explain……3

Q6. Is fire safety at school part of your normal school inspections before registration?

Yes [1] **No** [2]

Q7. What is the requirement area size for secondary school? (Average standard area per students in square meters))

Q8. Do you work with fire and rescue force in the day to day activities to ensure fire safety at secondary schools? **Yes** [1] **No**, [2] If Yes explain

……

……

……

Q9. Are you doing training/awareness for fire preparedness in secondary school? Yes [1]

No [2] **If No go to Q 11**

Q10. How many training/awareness sessions have been done by your department in secondary schools from 1999 -2009? Please mention the name of the school and dates.

……

……

……

Q11. Do you have any fire safety curricula for schools? **Yes** [1] **No** [2]

Q12. If yes, is it used in schools?

Q13. Are you involving other relevant department in the inspection of secondary schools?

Before registration is done by the ministry responsible for of education? **Yes** [1] **No**. [2]
If is No go to Q.15

Q14. If **Yes**, tick on the following:

(i) Lands department…….. 1
(ii) Fire and rescue services……..2
(iii) Public health department……..……..3
(iv) Comworks (Ujenzi)…..……4
(v) Others(mention)……..……5

15. Is it mandatory for the school building plans to get approval from relevant department mentioned in question 14 before they are construction? **Yes** [1] **No** [2]

16. If Yes, Explain the procedure:

…….

…….

……

Q17. Is the fire and rescue force approval a pre requisite before registration of the Secondary school, **Yes** [1] **No** [2]

Q18. Is the availability of fire protection equipments one of the requirements for any school to operate? **Yes** [1] **No** [2] **If No go to Q.20**

Q19. If yes, mention which fire protection gears,

……

……

……

Q20. Did the department of education in your district have capacity to timely inspect all secondary schools in the district **Yes** [1] **No**.[2] **If Yes go to Q. 23**

Q22. If No explain

……

……

……

Q.23. Have you ever received any complains from the public or students about the deliberate plans to start fire in schools. **Yes** [1] **No** [2]

Q.24. If yes what action your department normally take to solve the problem.

Annex 5

UNIVERSITY OF FREE STATE

FIRE EMERGENCY PREPAREDNESS IN SCHOOL

FIRE AND RESQUE SERVICE MOSHI DISTRICT QUESTIONNAIRE

IDENTIFICATION:

REGION NAME: KILIMANJARO

DISTRICT NAME: MOSHI RURAL

WARD NAME……

DATE OF INTERVIEW…… | | | | | | |

NAME/TYPE OF GROUP INTERVIEWED……

NAME OF INTERVIEWER…… . ……

Result of Interview:

Complete……1

Not complete……. .2

Interrupted….. . … .3

Postponed……4

NAME OF TEAM LEADER……

PART 1: GENERAL

Q1. In average how many cases of fire incidents are you attending annually?.....

Q2. How many of them happened in secondary school? (You can use percentage)

Q3 How many cases of fire happened in Moshi Rural district secondary schools for the past ten years. (1999 -2008). (If the space is not enough use last page)

Year	Name of the School	People affected (death & injured)	Property affected (Costs)	Causes

Q4. What are the major causes of the fire hazards in Moshi rural district?

(i) Electrical faults ……...1

(ii) Arson……2

(iii) Others – explain…….....3

Q5.What is the major causes of fire accidents in the secondary schools?.

(i) Electrical faults ……1

(ii) Arson……....2

(iii) Others – explain……..3

Q6. Do you have enough staff and equipments in your district? Yes [1] No [2]

(i) How many fire fighters……, what are the requirements…….

(ii) How many fire tenders…..... what is the requirements……..

(iii) Others……..

Q7. How many secondary schools have been inspected by your department in Moshi Rural district since 1999 and issued certificates for fire safety compliance?.....

Q8. How many did not qualify for fire safety certificates?..... Are they still operational? Yes [1] No [2]

Q9. Are you conducting training/awareness sessions for fire preparedness in secondary schools? Yes [1] No. [2] **If No go to Q. 11**

Q10 How many training/awareness have been done by your department in secondary schools? Please mention the name of the school and dates.

……

……

……

Q11. Do you have fire curriculum for the school? Yes [1] No, [2] **If No go to Q 13**

Q12. If yes, is it used in schools?

Q13. Is your department participating in the inspection of secondary schools before registration is done by the ministry responsible for education? Yes [1] No [2]

Q14. Do you have any access to building plans or drawings of secondary schools for comments before the construction started? Yes [1] No [2]

Q15. If yes, are the fires and rescue team comments .considered before registration of the school? Yes [1] No [2]

Q16. Does your department conduct simulation/Drills exercises with other departments or schools? Yes [1] No [2] **If No go to Q. 18**

Q17. If yes, how many times a year? And with whom (mention)

……

……

……

……

Q18. Do you have early warning system for fire emergency? Yes [1] No [1] If yes, explain

……

……

……

……

Q19. Do you have communication system :(Please tick)

(i) Internet……1

(ii) Telephone……...2

(iii) Radio call……3

(iv) Mega phone……..……4

(v) Fax……..……5

(vi) Mobile phone……...6

Q20. Did your emergency telephone number available to the public Yes [1] No [2]

Q.21. Is the fire and rescue force advising public institutions on the procurement of fire protection equipments. Yes [1] No [1] If **Yes** explain.

……

……

……

……

Annex 6

UNIVERSITY OF FREE STATE

FIRE EMERGENCY PREPAREDNESS IN SCHOOL

SCHOOL AUTHORITY QUESTIONNAIRE

IDENTIFICATION:

REGION NAME: KILIMANJARO

DISTRICT NAME: MOSHI RURAL DISTRICT

WARD NAME……

DATE OF INTERVIEW…… | | | | | | |

Name/Type of Group interviewed……

NAME OF INTERVIEWER…… . ……

NAME OF THE SCHOOL……

Result of Interview:

Complete…… .1

Not complete……. . 2

Interrupted….. . …. .3

Postponed…… 4

NAME OF TEAM LEADER……

PART 1: GENERAL

Q1. Is your school registered? Yes [1] No [2]

Q.2. When was it registered? Year ……., registration certificate number…….

Q3. What is the size of your school in square meters……..

Q4. How many students are in your school?

	Number of students
Boys	
Girls	
Total	

Q5. How many of them are coming from Kilimanjaro region?

Q.6. What is the percentage of the students in your school coming from the surrounding Villages.

Q.7. What is the population of the villages surrounding the school?

Q8. Does your school policy incorporate disaster management issues? Yes [1] No, [2] If No Go to Q. 10

Q9.If yes in which aspects?.....

Q10. Does your school inspected by fire and rescue team before start operating? Yes [1] No [2]

Q11. Does your school have fire certification from fire and rescue commissioner? Yes [1] No, [2] **No Go to Q. 14**

Q12. If Yes, what is your certificate number?.....

Q13. Are you renewing fire certification every year? Yes [1] No [2]

Q14. What means of communication do you have in school?

(i) Land line phone……1

(ii) Cell phone……2

(iii) Thuraya(satellite phone)……..3

(iv) Email……..4

Q15. What means of transport do you have at school?

(i) Vehicles(how many)……1

(ii) Motorbike……..2

(iii) Bicycles……3

Q16. Does the school have a laboratory? Yes [1] No [2]

Q17. If Yes, How many? ……

PART 2: FIRE EMERGENCIES:

Q18. Have your school experienced any fire emergency in the past 10 years? Yes [1]
No [2] **If the answer is No go to Q. No. 23**

Q.19 When did it happen, Mention the month and year…….

Q.20 Where did it happen?

(i) In classes…….. 1

(ii) Dormitory…… 2

(iii) Store……...3

(iv) Laboratory…… 4

(v) Others……5

Q.20. What was a cause of the fire?

(iv) Electrical faults ……..1

(v) Arson……...2

(vi) Others – explain……3

Q21. (i). How many people were affected? ……

(ii) How many buildings were affected……

(iii) What other properties were affected? Mention ……..

Q22. What action did you take when the fire happened?

(i) Reported to the management ……1

(ii) Called fire brigade, police……...2

(iii) Evacuated pupils from the building……..3

(iv) Gather pupils at assembly point …… 4

(v) Conducted a roll call ……..5

(vi) Other……6

Q23. Does the emergency telephone number of fire rescue team and police available for school community? Yes [1] No [2]

Q24. If Yes, where?.....

PART 3: <u>PREPAREDNESS</u>

Q25. Does the school have emergency plan? Yes [1] No [2]

Q26. Does school have emergency assembling point? Yes [1] No [2]

Q27. Are you teaching disaster preparedness in your school? Yes [1] No [2]

Q28 Does the school have fire fighting/protection equipments? No/Yes. **If the answer is No go to Q.32**

Q.29 Please tick the fire fighting and protection facilities you have in your school

Equipment/Facility	Available(1)	Not Available(2)	Quantity
Fire extinguishers			
Hose reels			
Sand buckets			
Fire beaters			
Fire blankets			
Fire smoke detectors			

Q30. Where are they located? Mention……..

Q31. Are the teachers and students know how to use them? Yes [1] No [2]

Q32. Does your school have escape routes or escape door incase of fire emergency? Yes [1] No [2]

Q33. Is the school community aware about these routes? Yes [1] No [2]

Q34 Are they accessible all the time? Yes [1] No [2]

Q35. Do you have simulation/Drills exercise in your school? Yes [1] No [2]

Q36. If yes, how many times a year?

Q37. Do you have alarm system/Warning system incase of emergency? Yes [1] No [2]

Q38. If yes, explain……..

Q39. Is your school insured? Yes [1] No [2]

Q40. Does the school have Red Cross club? Yes [1] No [2]

Q.41. If Yes, what are the activities of the club? Explains……..

Q42. Do you have First AID kits or Clinic in the school? Yes [1] No [2]

PART 3: SITE PLAN, INFRASTRUCTURE AND ACCOMODATION SET UP

Q 43. How many buildings are in your schools? (Draw a sketch map)

Q 44. How far are the dormitories from the laboratory, Kitchen, library and food store?

Facility	Distance from the dormitory(closest one)
Laboratory	
Kitchen	
Library	
Food store	
Boiler	

Q45. Are they accessible by vehicle to the door step? Yes [1] No [2] If No how far the vehicle can reach?

Q46. How many dormitories are in the school?

Q47 How many students are sleeping in one dormitory?

Q48. What types of doors/windows are in the dormitories?

(i) Grilled (steel) …….. 1

(ii) Aluminum – Glass……2

(iii) Wooden……..3

(iv) Other……...4

Q49. During the night are the door dormitories locked from outside or inside?

Q50. Who is locking the dormitories door and stay with the keys

(i) Teacher……..1

(ii) Prefect……2

(iii) Other……..……3

Q51. Does the school have toilet and bathroom inside the dormitories? Yes [1] No [2]

Q53. What is the source of water?

(i) Borehole……..1

(ii) Running water ……2

(iii) Open well/River etc……..….3

Q54. Do you have electricity in your dormitories? Yes [1] No [2] If Yes go to **Q.56,**

Q55. If **No**, what type of lighting are you using? - Explain.

Q56. Does the school use electricity for the following?

(i) Cooking……..1

(ii) Lighting……..2

(iii) Boiler ……3

(iv) Others- Mention ……..….4

Q.57. Does the school dormitories have main switch/ circuit breaker inside?

Annex 7

UNIVERSITY OF FREE STATE

FIRE EMERGENCY PREPAREDNESS IN SCHOOL

STUDENTS FOCUS GROUP DISCUSSION QUESTIONNAIRE

IDENTIFICATION:

REGION NAME: KILIMANJARO

DISTRICT NAME: MOSHI RURAL

WARD NAME……..

DATE OF INTERVIEW……. | | | | | | |

Name/Type of Group interviewed……..…….

NAME OF INTERVIEWER…….. . ……..

Result of Interview:

Complete……1

Not complete……. 2

Interrupted….. . ….3

Postponed……..4

NAME OF TEAM LEADER……

PART 1: GENERAL

Q1. Are you aware that fire can happen anytime anywhere? **Yes** [1] **No** [2]

Q2. Have you experienced any fire emergency in your school? **Yes** [1] **No**, [2] If **No** go to Q. 8

Q3 When?……..

Q4. Where did it happen?

(i) In classes…… ……..1
(ii) Dormitory…….. ...2
(iii) Store……..3
(iv) Laboratory……... 4
(v) Others……...5

Q5. What was a cause of the fire?

(vii) Electrical faults ……..1
(viii) Arson……...2
(ix) Others – explain……..3

Q6. (i). How many pupils were affected? …….

(ii) How many buildings were affected……..
(iii) Others…….

Q7. What action did you take when fire happened?

(vii) Reported to the management ……1
(viii) Switched off all electrical equipments…….2
(ix) Evacuated the place……..3
(x) Fought the fire…….....4
(xi) Raised an alarm (shouted)……..5
(xii) Gathered in assemble point……....6

PART 2: PREPAREDNESS

Q8.To what extent are you prepared for fire emergency? **1 2 3 4 5** *(please tick on the range , 1 being lowest and 5 highest level of preparedness)*

Q.9 Explain……..

……

……

……

Q10. Do you have emergency plan in your school? **Yes** [1] **No** [2]

Q11. Do you have emergency assembling point? **Yes** [1] **No** [2]

Q12. Are you taught disaster preparedness in your school? **Yes** [1] **No** [2]

Q13.Do you have fire fighting equipment in your school? **Yes** [1] **No** [2]

Q14. If yes select the following:

(i) Fire extinguishers……..1
(ii) Hose reels……..2
(iii) Sand buckets……3
(iv) Fire beaters……4
(v) Fire blankets……..5
(vi) Others(explain)……..6

Q15 Where are they placed?.....

Q16 Do you know how to use them? **Yes** [1] **No** [2] If Yes, Mention which ones?.....

Q17 Do you have escape routes or escape door incase of fire emergency? **Yes** [1]
No [2]

Q18 How many of you knows these routes? (In percentage)

Q19. Are they accessible? **Yes** [1] **No** [2]

Q20 Do you have simulation/Drills exercise in your school? **Yes** [1] **No** [2]

Q21 If yes, how many times a year?.....

Q22Do you have alarm system/Warning system incase of emergency? **Yes** [1] **No**, [2]
If No go to Q. 24
Q23 If yes,
explain……

Q24 Do you know the emergency telephone number of fire services and police?. **Yes** [1]
No, [2] If yes how many (percentage)

PART 3: SITE PLAN AND ACCOMODATION SET UP

Q25.How many dormitories are in your schools?

Q 26 What is the average size of the dormitories in square meters?

Q27. How far are the dormitories from the laboratory, Kitchen, library and food store?

Facility	**Distance from the dormitory(closest one)**
Laboratory	
Kitchen	
Library	
Food store	
Boiler	

Q28 Are they accessible by vehicle? Yes/No. If yes, how far from the door step?

Q29 How many students are sleeping in one dormitory?

Q30. What types of the doors/Windows are in the dormitories?

(v) Grilled (steel) ……..1

(vi) Aluminum – Glass……..…2

(vii) Wooden……..……3

(viii) Other……4

Q31 Are your dormitories having enough ventilation **Yes** [1] **No** [2]

Q32. If No, explain…….....

.Q33. During the night are the door locked from outside or inside?

Q34 Who is locking the door and stay with the keys?

(iv) Teacher……1

(v) Prefect……..2

(vi) Other……3

Q35. Do you have toilet and bathroom inside the dormitory? **Yes** [1] **No** [2]

Q36. What is the source of water?

(iv) Borehole……..1

(v) Running water……2

(vi) Open well/River ……..…3

Q37. Do you have electricity in your dormitory? **Yes** [1] **No**, [2] **If Yes** go to Q.39

Q38. If **No**, what type of lights are you using?. - Explain

Q.39 Are you using electricity in your dormitories for the following activities (Please use percentage)

(i) Lighting……1

(ii) Ironing ……2

(v) Boiling water ……..……...3

(vi) Cooking……..……....4

(vii) Others……..……..…5

Q.40. Do you have main switch/ circuit breaker in your dormitories? **Yes** [1] **No** [2]

Q41 Are some of you smoking cigarette or other stuff? **Yes** [1] **No** [2]

Q42 If Yes, what is the percentage?

Q43 Are they smoking in the dormitories/Classes? **Yes** [1] **No** [2]

Q.44. If Yes, How many are they smoking in the dormitory? Use percentage

Q45. How many of you do have electricity in your homes (where you're coming from)- use percentage.

Annex 8

UNIVERSITY OF FREE STATE- SOUTH AFRICA

EMERGENCY PREPAREDNESS IN SCHOOL- CHECKLIST

(OBSERVATIONS AT SCHOOL)

1. Fire certification (certificate number)……...

2. Emergency assembly point, Yes/No, estimate the size in square metres.

3. Emergency assembly point, Is it easily accessible by vehicle and free from fire emergency?

5. Protection gears (how many are functional):

(i) Fire smoke detectors
(ii) Fire extinguishers
(iii) Sprinklers
(iv) Evacuation/Emergency doors
(v) Hose reels
(vi) Sand buckets
(vii)Fire blankets
(viii) Fire beaters

6 Check protection gears in the Classes, Dormitory, Laboratory, Stores and dining room.

7. Estimated distance from one dormitory to another.

8. Estimated distance from Dormitory to Laboratory (Closest dormitory)

9. Estimated distance from dormitory to the kitchen (closest dormitory)

10. Estimated distance from the dormitory to the store (Closest dormitory)

11. Water supply – (tap, borehole, well)

12. Water hydrant within the school (How many).

13. Estimated distance from the garbage pit to the dormitory, class room, laboratory

14. How many circuit breakers (check availability and locations?)

Annex: 9

Frequencies
Frequency Table

questionnaire number

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	5.9	5.9
	2.00	1	5.9	5.9	11.8
	3.00	1	5.9	5.9	17.6
	4.00	1	5.9	5.9	23.5
	5.00	1	5.9	5.9	29.4
	6.00	1	5.9	5.9	35.3
	7.00	1	5.9	5.9	41.2
	8.00	1	5.9	5.9	47.1
	9.00	1	5.9	5.9	52.9
	10.00	1	5.9	5.9	58.8
	11.00	1	5.9	5.9	64.7
	12.00	1	5.9	5.9	70.6
	13.00	1	5.9	5.9	76.5
	14.00	1	5.9	5.9	82.4
	15.00	1	5.9	5.9	88.2
	17.00	1	5.9	5.9	94.1
	18.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

ward name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAKUYUNI	2	11.8	11.8	11.8
	KINDI	2	11.8	11.8	23.5
	KIBOSHO WEST	1	5.9	5.9	29.4
	MARANGU EAST	2	11.8	11.8	41.2
	KIRUWA VUNJO	2	11.8	11.8	52.9
	KIRUWA VUNJO WEST	1	5.9	5.9	58.8
	MAMBA NORTH	1	5.9	5.9	64.7
	URU NORTH	1	5.9	5.9	70.6
	ARUSHA CHINI	1	5.9	5.9	76.5
	KILEMA NORTH	2	11.8	11.8	88.2
	KIMOCHI	1	5.9	5.9	94.1
	OLD MOSHI EAST	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

date of interview

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	01.07.2009	1	5.9	5.9	5.9
	30.07.2009	7	41.2	41.2	47.1
	31.07.2009	8	47.1	47.1	94.1
	01.08.2009	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Name/Type of Group interviewed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HEAD OF SCHOOL	17	100.0	100.0	100.0

name of interviewer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	R KAHWA	2	11.8	11.8	11.8
	C KAHWA	3	17.6	17.6	29.4
	D KAHWA	2	11.8	11.8	41.2
	LILIAN NATHAN	5	29.4	29.4	70.6
	ELIAS MANYAMA	5	29.4	29.4	100.0
	Total	17	100.0	100.0	

name of school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	5.9	5.9
	2.00	1	5.9	5.9	11.8
	3.00	1	5.9	5.9	17.6
	4.00	1	5.9	5.9	23.5
	5.00	1	5.9	5.9	29.4
	6.00	1	5.9	5.9	35.3
	7.00	1	5.9	5.9	41.2
	8.00	1	5.9	5.9	47.1
	9.00	1	5.9	5.9	52.9
	10.00	1	5.9	5.9	58.8
	11.00	1	5.9	5.9	64.7
	12.00	1	5.9	5.9	70.6
	13.00	1	5.9	5.9	76.5
	14.00	1	5.9	5.9	82.4
	15.00	1	5.9	5.9	88.2
	17.00	1	5.9	5.9	94.1
	18.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

name of team leader

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	5.9	5.9
	3.00	5	29.4	29.4	35.3
	5.00	5	29.4	29.4	64.7
	6.00	5	29.4	29.4	94.1
	9.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Is your school registered?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	17	100.0	100.0	100.0

Year of registration, if registerd

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1925.00	1	5.9	5.9	5.9
	1949.00	1	5.9	5.9	11.8
	1961.00	1	5.9	5.9	17.6
	1970.00	1	5.9	5.9	23.5
	1976.00	1	5.9	5.9	29.4
	1978.00	1	5.9	5.9	35.3
	1985.00	1	5.9	5.9	41.2
	1992.00	1	5.9	5.9	47.1
	1995.00	3	17.6	17.6	64.7
	1996.00	1	5.9	5.9	70.6
	2003.00	1	5.9	5.9	76.5
	2004.00	1	5.9	5.9	82.4
	2007.00	2	11.8	11.8	94.1
	2008.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Registration number, if registerd

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	S.	1	5.9	5.9	5.9
	S.1113	1	5.9	5.9	11.8
	S.121	1	5.9	5.9	17.6
	S.124	1	5.9	5.9	23.5
	S.1283	1	5.9	5.9	29.4
	S.167	1	5.9	5.9	35.3
	S.27	1	5.9	5.9	41.2
	S.3334	1	5.9	5.9	47.1
	S.3336	1	5.9	5.9	52.9
	S.3346	1	5.9	5.9	58.8
	S.474	1	5.9	5.9	64.7
	S.54	1	5.9	5.9	70.6
	S.546	1	5.9	5.9	76.5
	S.569	1	5.9	5.9	82.4
	S.58	1	5.9	5.9	88.2
	S.592	1	5.9	5.9	94.1
	S.630	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Size of your school in square metres

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1000.00	1	5.9	11.1	11.1
	3000.00	1	5.9	11.1	22.2
	5000.00	2	11.8	22.2	44.4
	14700.00	1	5.9	11.1	55.6
	40025.00	1	5.9	11.1	66.7
	49000.00	2	11.8	22.2	88.9
	94866.00	1	5.9	11.1	100.0
	Total	9	52.9	100.0	
Missing	System	8	47.1		
Total		17	100.0		

Number of boys in your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	3	17.6	17.6	17.6
	138.00	1	5.9	5.9	23.5
	149.00	1	5.9	5.9	29.4
	190.00	1	5.9	5.9	35.3
	205.00	1	5.9	5.9	41.2
	214.00	1	5.9	5.9	47.1
	221.00	1	5.9	5.9	52.9
	229.00	1	5.9	5.9	58.8
	259.00	1	5.9	5.9	64.7
	263.00	1	5.9	5.9	70.6
	267.00	1	5.9	5.9	76.5
	313.00	1	5.9	5.9	82.4
	329.00	1	5.9	5.9	88.2
	508.00	1	5.9	5.9	94.1
	875.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Number of girls in your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	11.8	11.8	11.8
	126.00	1	5.9	5.9	17.6
	192.00	1	5.9	5.9	23.5
	198.00	1	5.9	5.9	29.4
	200.00	1	5.9	5.9	35.3
	201.00	1	5.9	5.9	41.2
	250.00	1	5.9	5.9	47.1
	279.00	1	5.9	5.9	52.9
	310.00	1	5.9	5.9	58.8
	360.00	1	5.9	5.9	64.7
	364.00	1	5.9	5.9	70.6
	379.00	1	5.9	5.9	76.5
	401.00	1	5.9	5.9	82.4
	456.00	1	5.9	5.9	88.2
	750.00	1	5.9	5.9	94.1
	914.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Ownership of the school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GOVERNMENT	3	17.6	17.6	17.6
	NON-GOVERNMENT	7	41.2	41.2	58.8
	COMMUNITY	7	41.2	41.2	100.0
	Total	17	100.0	100.0	

Total number of students in your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	221.00	1	5.9	5.9	5.9
	275.00	1	5.9	5.9	11.8
	339.00	1	5.9	5.9	17.6
	397.00	1	5.9	5.9	23.5
	414.00	1	5.9	5.9	29.4
	440.00	1	5.9	5.9	35.3
	456.00	1	5.9	5.9	41.2
	527.00	1	5.9	5.9	47.1
	538.00	1	5.9	5.9	52.9
	577.00	1	5.9	5.9	58.8
	630.00	1	5.9	5.9	64.7
	642.00	1	5.9	5.9	70.6
	677.00	1	5.9	5.9	76.5
	750.00	1	5.9	5.9	82.4
	868.00	1	5.9	5.9	88.2
	875.00	1	5.9	5.9	94.1
	914.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

How many of the students in your school are coming from Kilimanjaro region?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5.00	1	5.9	5.9	5.9
	46.00	1	5.9	5.9	11.8
	100.00	1	5.9	5.9	17.6
	121.00	1	5.9	5.9	23.5
	150.00	1	5.9	5.9	29.4
	213.00	1	5.9	5.9	35.3
	214.00	1	5.9	5.9	41.2
	238.00	1	5.9	5.9	47.1
	275.00	1	5.9	5.9	52.9
	339.00	1	5.9	5.9	58.8
	414.00	1	5.9	5.9	64.7
	538.00	1	5.9	5.9	70.6
	565.00	1	5.9	5.9	76.5
	577.00	1	5.9	5.9	82.4
	585.00	1	5.9	5.9	88.2
	608.00	1	5.9	5.9	94.1
	677.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

What percentage of the students in your school come from the surrounding villages?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	5.9	5.9	5.9
	.50	1	5.9	5.9	11.8
	1.60	1	5.9	5.9	17.6
	5.00	1	5.9	5.9	23.5
	16.00	1	5.9	5.9	29.4
	20.00	1	5.9	5.9	35.3
	21.00	1	5.9	5.9	41.2
	30.00	1	5.9	5.9	47.1
	79.00	1	5.9	5.9	52.9
	93.00	1	5.9	5.9	58.8
	95.00	1	5.9	5.9	64.7
	100.00	6	35.3	35.3	100.0
	Total	17	100.0	100.0	

What is the total population of the villages surrounding the school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	800.000	1	5.9	11.1	11.1
	2000.000	2	11.8	22.2	33.3
	2500.000	1	5.9	11.1	44.4
	6000.000	1	5.9	11.1	55.6
	12589.000	1	5.9	11.1	66.7
	12663.000	1	5.9	11.1	77.8
	13800.000	1	5.9	11.1	88.9
	60000.000	1	5.9	11.1	100.0
	Total	9	52.9	100.0	
Missing	System	8	47.1		
Total		17	100.0		

Does your school policy incorporate disaster management issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	5	29.4	29.4	29.4
	NO	12	70.6	70.6	100.0
	Total	17	100.0	100.0	

If school policy incorporate disaster management issues, in which aspects?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IF THE SCHOOL POSSESSES PROTECTION EQUIPMENT	2	11.8	40.0	40.0
	IF THE SCHOOL HAS EMERGENCY PLAN AND CONDUCTS DRILLS	2	11.8	40.0	80.0
	IF THE SCHOOL PERFORMS ROUTINE MAINTENANCE OF THE EQUIPMENTS	1	5.9	20.0	100.0
	Total	5	29.4	100.0	
Missing	System	12	70.6		
Total		17	100.0		

Were your school inspected by fire and rescue team before start operating?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	2	11.8	11.8	11.8
	NO	15	88.2	88.2	100.0
	Total	17	100.0	100.0	

Does your school have fire certification from fire and rescue commissioner?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	17	100.0	100.0	100.0

Do you use land line as means of communication at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	7	41.2	43.8	43.8
	NO	9	52.9	56.3	100.0
	Total	16	94.1	100.0	
Missing	System	1	5.9		
Total		17	100.0		

Do you use cell phone as means of communication at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	9	52.9	52.9	52.9
	NO	8	47.1	47.1	100.0
	Total	17	100.0	100.0	

Do you use Thuraya(satellite phone) as means of communication at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	5.9	5.9
	NO	16	94.1	94.1	100.0
	Total	17	100.0	100.0	

Do you use email as means of communication at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	5	29.4	29.4	29.4
	NO	12	70.6	70.6	100.0
	Total	17	100.0	100.0	

Do you use vehicles as means of transport at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	17	100.0	100.0	100.0

If you use vehicles as means of transport at your school, how many vehicles does the school have?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	8	47.1	47.1	47.1
	1.00	7	41.2	41.2	88.2
	2.00	1	5.9	5.9	94.1
	3.00	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

Do you use motorbikes as means of transport at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	5.9	5.9
	NO	16	94.1	94.1	100.0
	Total	17	100.0	100.0	

Do you use bicycles as means of transport at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	5.9	5.9
	NO	16	94.1	94.1	100.0
	Total	17	100.0	100.0	

Does the school have a laboratory?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	13	76.5	76.5	76.5
	NO	4	23.5	23.5	100.0
	Total	17	100.0	100.0	

If your school has laboratories, how many are they?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	29.4	38.5	38.5
	2.00	5	29.4	38.5	76.9
	3.00	2	11.8	15.4	92.3
	4.00	1	5.9	7.7	100.0
	Total	13	76.5	100.0	
Missing	System	4	23.5		
Total		17	100.0		

Has your school experienced any fire emergency in the past 10 years?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	5	29.4	29.4	29.4
	NO	12	70.6	70.6	100.0
	Total	17	100.0	100.0	

Mention the month and year when the fire emergency happened for the first time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AUG 2003	2	11.8	40.0	40.0
	AUG 2004	1	5.9	20.0	60.0
	AUG 2006	1	5.9	20.0	80.0
	MAR 2008	1	5.9	20.0	100.0
	Total	5	29.4	100.0	
Missing	System	12	70.6		
Total		17	100.0		

Where did it happen?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN CLASSES	1	5.9	20.0	20.0
	IN DORMITORIES	2	11.8	40.0	60.0
	OTHERS	2	11.8	40.0	100.0
	Total	5	29.4	100.0	
Missing	System	12	70.6		
Total		17	100.0		

Where did it happen?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN DORMITORIES	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

Where did it happen?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OTHERS	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

What was the cause of the fire?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ELECTRIC FAULTS	4	23.5	80.0	80.0
	OTHERS	1	5.9	20.0	100.0
	Total	5	29.4	100.0	
Missing	System	12	70.6		
Total		17	100.0		

How many people were affected the first time the fire happened?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

How many buildings were affected the first time the fire happened?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	33.3	33.3
	4.00	1	5.9	33.3	66.7
	6.00	1	5.9	33.3	100.0
	Total	3	17.6	100.0	
Missing	System	14	82.4		
Total		17	100.0		

What other properties were affected?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STUDENTS BELONGINGS/ PROPRTIES	2	11.8	100.0	100.0
Missing	System	15	88.2		
Total		17	100.0		

When the fire happened, did you report to the management?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	4	23.5	100.0	100.0
Missing	System	13	76.5		
Total		17	100.0		

When the fire happened, did you call fire brigade/police?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	4	23.5	100.0	100.0
Missing	System	13	76.5		
Total		17	100.0		

When the fire happened, did you evacuate pupils from the building?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	3	17.6	100.0	100.0
Missing	System	14	82.4		
Total		17	100.0		

When the fire happened, did you gather pupils at assembly point?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	4	23.5	100.0	100.0
Missing	System	13	76.5		
Total		17	100.0		

When the fire happened, did you conduct a roll call?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	4	23.5	100.0	100.0
Missing	System	13	76.5		
Total		17	100.0		

Does the emergency telephone number of fire rescue team and police available for school community?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	3	17.6	17.6	17.6
	NO	14	82.4	82.4	100.0
	Total	17	100.0	100.0	

If yes, where is the emergency number available from?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ON THE NOTICE BOARD	1	5.9	33.3	33.3
	IN THE GENERAL OFFICE	2	11.8	66.7	100.0
	Total	3	17.6	100.0	
Missing	System	14	82.4		
Total		17	100.0		

Does the school have emergency plan?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	10	58.8	62.5	62.5
	NO	6	35.3	37.5	100.0
	Total	16	94.1	100.0	
Missing	System	1	5.9		
Total		17	100.0		

Does school have emergency assembling point?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	15	88.2	93.8	93.8
	NO	1	5.9	6.3	100.0
	Total	16	94.1	100.0	
Missing	System	1	5.9		
Total		17	100.0		

Are you teaching disaster preparedness in your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	8	47.1	47.1	47.1
	NO	9	52.9	52.9	100.0
	Total	17	100.0	100.0	

Does the school have fire fighting/protection equipments?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	11	64.7	64.7	64.7
	NO	6	35.3	35.3	100.0
	Total	17	100.0	100.0	

Are fire extinguishers available?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	11	64.7	64.7	64.7
	NO	6	35.3	35.3	100.0
	Total	17	100.0	100.0	

If fire extinguishers are available in what quantities (how many are they)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	7.7	7.7
	2.00	3	17.6	23.1	30.8
	3.00	1	5.9	7.7	38.5
	4.00	1	5.9	7.7	46.2
	5.00	2	11.8	15.4	61.5
	7.00	1	5.9	7.7	69.2
	11.00	1	5.9	7.7	76.9
	14.00	1	5.9	7.7	84.6
	15.00	1	5.9	7.7	92.3
	30.00	1	5.9	7.7	100.0
	Total	13	76.5	100.0	
Missing	System	4	23.5		
Total		17	100.0		

Location where fire extinguishers are placed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN DORMITORIES	2	11.8	18.2	18.2
	IN CLASSES	1	5.9	9.1	27.3
	IN STAFF OFFICES	1	5.9	9.1	36.4
	IN LABORATORIES	6	35.3	54.5	90.9
	IN THE KITCHEN	1	5.9	9.1	100.0
	Total	11	64.7	100.0	
Missing	System	6	35.3		
Total		17	100.0		

Do teachers and students know how to use fire extinguishers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, BOTH STUDENTS AND TEACHERS KNOW	9	52.9	90.0	90.0
	YES, TEACHERS KNOW, STUDENTS DON'T KNOW	1	5.9	10.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

Are hose reels available?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	17	100.0	100.0	100.0

Are sand buckets available?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	7	41.2	41.2	41.2
	NO	10	58.8	58.8	100.0
	Total	17	100.0	100.0	

If sand buckets are available in what quantities (how many are they)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	1	5.9	16.7	16.7
	3.00	1	5.9	16.7	33.3
	6.00	1	5.9	16.7	50.0
	7.00	1	5.9	16.7	66.7
	10.00	1	5.9	16.7	83.3
	20.00	1	5.9	16.7	100.0
	Total	6	35.3	100.0	
Missing	System	11	64.7		
Total		17	100.0		

Location where sand buckets are placed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN DORMITORIES	4	23.5	57.1	57.1
	IN DINING ROOMS	1	5.9	14.3	71.4
	IN LABORATORIES	2	11.8	28.6	100.0
	Total	7	41.2	100.0	
Missing	System	10	58.8		
Total		17	100.0		

Do teachers and students know how to use sand buckets?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, BOTH STUDENTS AND TEACHERS KNOW	5	29.4	100.0	100.0
Missing	System	12	70.6		
Total		17	100.0		

Are fire beaters available?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	17	100.0	100.0	100.0

Are fire blankets available?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	5.9	5.9
	NO	16	94.1	94.1	100.0
	Total	17	100.0	100.0	

If fire blankets are available in what quantities (how many are they)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

Location where fire blankets are placed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN DORMITORIES	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

Do teachers and students know how to use fire blankets?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, BOTH STUDENTS AND TEACHERS KNOW	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

Are fire smoke detecters available?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	2	11.8	11.8	11.8
	NO	15	88.2	88.2	100.0
	Total	17	100.0	100.0	

If fire smoke detecters are available in what quantities (how many are they)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7.00	1	5.9	50.0	50.0
	10.00	1	5.9	50.0	100.0
	Total	2	11.8	100.0	
Missing	System	15	88.2		
Total		17	100.0		

Location where smoke detecters are placed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN DORMITORIES	1	5.9	50.0	50.0
	IN LABORATORIES	1	5.9	50.0	100.0
	Total	2	11.8	100.0	
Missing	System	15	88.2		
Total		17	100.0		

Do teachers and students know how to use fire detecters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, BOTH STUDENTS AND TEACHERS KNOW	1	5.9	50.0	50.0
	YES, TEACHERS KNOW, STUDENTS DON'T KNOW	1	5.9	50.0	100.0
	Total	2	11.8	100.0	
Missing	System	15	88.2		
Total		17	100.0		

Does your school have escape routes or escape door incase of fire emergency?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	6	35.3	35.3	35.3
	NO	11	64.7	64.7	100.0
	Total	17	100.0	100.0	

Is the school community aware about these routes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	6	35.3	100.0	100.0
Missing	System	11	64.7		
Total		17	100.0		

Are they accessible all the time?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	6	35.3	100.0	100.0
Missing	System	11	64.7		
Total		17	100.0		

Do you have simulation/Drills exercise in your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	3	17.6	17.6	17.6
	NO	14	82.4	82.4	100.0
	Total	17	100.0	100.0	

If you have simulation/drills excercise in your school, how many times a year?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FREQUENTLY	3	17.6	100.0	100.0
Missing	System	14	82.4		
Total		17	100.0		

Do you have alarm system/Warning system incase of emergency?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	16	94.1	94.1	94.1
	NO	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

If you have alarm system/Warning system incase of emergency, explain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MANUAL ALARM/BELL	14	82.4	87.5	87.5
	MANUAL PLUS ELECTRONIC ALARM	2	11.8	12.5	100.0
	Total	16	94.1	100.0	
Missing	System	1	5.9		
Total		17	100.0		

Is your school insured?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	17	100.0	100.0	100.0

Does the school have Red Cross club?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	5.9	5.9
	NO	16	94.1	94.1	100.0
	Total	17	100.0	100.0	

If the school has the Red Cross club, what are the activities of the club?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SUPPLY OF FIRST AID KITS	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

Do you have First AID kits or Clinic in the school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	10	58.8	58.8	58.8
	2.00	7	41.2	41.2	100.0
	Total	17	100.0	100.0	

How many buildings are in your schools?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	7.1	7.1
	4.00	2	11.8	14.3	21.4
	5.00	2	11.8	14.3	35.7
	7.00	2	11.8	14.3	50.0
	11.00	1	5.9	7.1	57.1
	12.00	1	5.9	7.1	64.3
	14.00	2	11.8	14.3	78.6
	21.00	1	5.9	7.1	85.7
	25.00	1	5.9	7.1	92.9
	54.00	1	5.9	7.1	100.0
	Total	14	82.4	100.0	
Missing	System	3	17.6		
Total		17	100.0		

How far are the dormitories from the Laboratories?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10.00	2	11.8	25.0	25.0
	20.00	2	11.8	25.0	50.0
	30.00	1	5.9	12.5	62.5
	100.00	1	5.9	12.5	75.0
	200.00	1	5.9	12.5	87.5
	400.00	1	5.9	12.5	100.0
	Total	8	47.1	100.0	
Missing	System	9	52.9		
Total		17	100.0		

How far are the dormitories from the Kitchen?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	1	5.9	11.1	11.1
	10.00	2	11.8	22.2	33.3
	12.00	1	5.9	11.1	44.4
	20.00	2	11.8	22.2	66.7
	100.00	2	11.8	22.2	88.9
	200.00	1	5.9	11.1	100.0
	Total	9	52.9	100.0	
Missing	System	8	47.1		
Total		17	100.0		

How far are the dormitories form Library?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5.00	1	5.9	16.7	16.7
	25.00	1	5.9	16.7	33.3
	50.00	1	5.9	16.7	50.0
	150.00	1	5.9	16.7	66.7
	200.00	1	5.9	16.7	83.3
	400.00	1	5.9	16.7	100.0
	Total	6	35.3	100.0	
Missing	System	11	64.7		
Total		17	100.0		

How far are the dormitories from the Food store?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10.00	2	11.8	22.2	22.2
	12.00	1	5.9	11.1	33.3
	25.00	1	5.9	11.1	44.4
	40.00	1	5.9	11.1	55.6
	80.00	1	5.9	11.1	66.7
	100.00	2	11.8	22.2	88.9
	200.00	1	5.9	11.1	100.0
	Total	9	52.9	100.0	
Missing	System	8	47.1		
Total		17	100.0		

Are the dormitories accessible by the vehicles to the door step?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	8	47.1	72.7	72.7
	NO	3	17.6	27.3	100.0
	Total	11	64.7	100.0	
Missing	System	6	35.3		
Total		17	100.0		

If the dormitories are not accessible by the vehicles to the door step, how far can the vehicles reach?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	25.0	25.0
	3.00	1	5.9	25.0	50.0
	10.00	2	11.8	50.0	100.0
	Total	4	23.5	100.0	
Missing	System	13	76.5		
Total		17	100.0		

How many dormitories are in the school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	5.9	10.0	10.0
	2.00	2	11.8	20.0	30.0
	3.00	1	5.9	10.0	40.0
	6.00	1	5.9	10.0	50.0
	7.00	1	5.9	10.0	60.0
	11.00	1	5.9	10.0	70.0
	12.00	1	5.9	10.0	80.0
	15.00	1	5.9	10.0	90.0
	21.00	1	5.9	10.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

How many students, on average, are sleeping in one dormitory?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12.00	1	5.9	10.0	10.0
	20.00	1	5.9	10.0	20.0
	30.00	1	5.9	10.0	30.0
	40.00	1	5.9	10.0	40.0
	50.00	3	17.6	30.0	70.0
	52.00	1	5.9	10.0	80.0
	80.00	1	5.9	10.0	90.0
	144.00	1	5.9	10.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

Types of school doors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	WOODEN	11	64.7	100.0	100.0
Missing	System	6	35.3		
Total		17	100.0		

Types of school windows

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GRILLED (STEEL)	3	17.6	27.3	27.3
	ALUMINIUM/GLASS	2	11.8	18.2	45.5
	WOODEN	5	29.4	45.5	90.9
	SOME WOODEN, OTHERS STEEL	1	5.9	9.1	100.0
	Total	11	64.7	100.0	
Missing	System	6	35.3		
Total		17	100.0		

During the night are the door dormitories locked from outside or inside?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	INSIDE	8	47.1	80.0	80.0
	OUTSIDE	2	11.8	20.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

Who is locking the dormitories door and stay with the keys?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PREFECT	7	41.2	77.8	77.8
	SOMETIMES TEACHERS, OTHER TIMES PREFECT	2	11.8	22.2	100.0
	Total	9	52.9	100.0	
Missing	System	8	47.1		
Total		17	100.0		

Does the school have toilets and bathrooms inside the dormitories?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	10.0	10.0
	NO	9	52.9	90.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

Is the school water source borehole?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	6.3	6.3
	NO	15	88.2	93.8	100.0
	Total	16	94.1	100.0	
Missing	System	1	5.9		
Total		17	100.0		

Is the school water source running water?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	17	100.0	100.0	100.0

Is the school water source river/open well?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	5	29.4	29.4	29.4
	NO	12	70.6	70.6	100.0
	Total	17	100.0	100.0	

Do you have electricity in your dormitories?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	10	58.8	58.8	58.8
	NO	7	41.2	41.2	100.0
	Total	17	100.0	100.0	

f no electricity in school dormitories, what source of lighting are you using?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NONE	1	5.9	100.0	100.0
Missing	System	16	94.1		
Total		17	100.0		

Does the school use electricity for cooking?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	1	5.9	7.1	7.1
	NO	13	76.5	92.9	100.0
	Total	14	82.4	100.0	
Missing	System	3	17.6		
Total		17	100.0		

Does the school use electricity for lighting?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	15	88.2	93.8	93.8
	NO	1	5.9	6.3	100.0
	Total	16	94.1	100.0	
Missing	System	1	5.9		
Total		17	100.0		

Does the school use electricity for boiler?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	15	88.2	100.0	100.0
Missing	System	2	11.8		
Total		17	100.0		

Mention any other uses of electricity at your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IN OPERATING COMPUTERS	3	17.6	60.0	60.0
	IN SEWERAGE PUMPING	1	5.9	20.0	80.0
	IN OPERATING GRINDING MACHINE	1	5.9	20.0	100.0
	Total	5	29.4	100.0	
Missing	System	12	70.6		
Total		17	100.0		

Does the school dormitories have main switch/ circuit breaker inside?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES, BOTH MAIN SWITCH AND CIRCUIT BREAKER	9	52.9	90.0	90.0
	YES, MAIN SWITCH, NO CIRCUIT BREAKER	1	5.9	10.0	100.0
	Total	10	58.8	100.0	
Missing	System	7	41.2		
Total		17	100.0		

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		Frequency	Percent
Missing	System	17	100.0