

**FIRE INCIDENCE PREPAREDNESS BY MAZABUKA MUNICIPAL  
COUNCIL: A CASE STUDY OF URBAN MARKETS.**

**Hansel Maimbolwa Mweetwa**

**FIRE INCIDENCE PREPAREDNESS BY MAZABUKA  
MUNICIPAL COUNCIL: A CASE STUDY OF URBAN  
MARKETS.**

**Mweetwa Maimbolwa Hansel**

A Research Report Submitted in Partial Fulfilment of the Requirements  
for the Award of Master's Degree in Disaster Studies of Mulungushi  
University

## CERTIFICATION

The undersigned hereby certify that they (he/she) have read and recommend the Report to be accepted by Mulungushi University in (partial) fulfilment of the requirements for the award of the Master's degree of Mulungushi University.

Dr.: Chansa Chomba  
(Supervisor)

Date:.....

.

## DECLARATION AND COPYRIGHT

I Mweetwa Maimbolwa Hansel, National Registration Card number 380686/74/1 declare that although I may have conferred with others in preparing this report and drawn upon a range of sources cited in it, it is exclusively my own original work and has not and will not be presented to any other university for a similar or any other degree award.

Signature:.....

Date:.....

## **ACKNOWLEDGEMENT**

I wish to thank my supervisor Dr. Chansa Chomba for his guidance and tireless support during the course of my research development and writing, Mr. Obrey Michelo and Mr Siana Moono for the inspiring guidance on this work.

I am so thankful and humbled to my examiner Mr Francis Sichilima who made sure that I did the right thing.

Furthermore, I wish to extend a special appreciation to the fire department at Mazabuka Municipal Council, the market committee executive members in Mazabuka urban and my course mates.

## **DEDICATION**

This work is dedicated to my parents Mr Samuel Mweetwa and Mrs J L Mate Mweetwa for their endless love. They have been very supportive and instrumental in my education and entire life.

## DISCLAMER

The research report describes the work carried out as a (part of) of study at Mulungushi University. Therefore, all views and opinions expressed herein remain the exclusive responsibility of the author and not necessarily those of Mulungushi University.

.....

Mweetwa Maimbolwa Hansel

.....

Date

## **ABSTRACT**

Fire incidents have been on the rise in the country with urban markets experiencing devastating property loss and business disturbances. However, the public has been putting the blame on the local authority as it the one mandated to prevent and respond to fire outbreaks. This report presents a study conducted in Mazabuka at the municipal council and urban markets from February to May 2018. The aim of the study was investigate fire incidence preparedness by Mazabuka municipal council in urban markets. This was done by establishing human capacity and equipment, determining major preparedness projects undertaken in Mazabuka urban markets and challenges faced by the fire department. The research design used was a descriptive and the major approach was qualitative. The sampling techniques used included; purposive sampling, convenience sampling and simple random sampling. Fire officers at the department and the market committee members from urban markets were interviewed through focus group discussions to examine current information on fire incidence preparedness whereas the chief fire officer and the market master were administered with questionnaires and also interviews were done. The findings indicated that the majority of the personnel at Mazabuka municipal council fire department were still mere fire officers whereas four officers had other ranks and they had only 14 officers at the department. The council also had a water tender with modern equipment, a good conditioned ambulance and utility van. To propel preparedness the following projects were being implemented and these were; fire drills in markets, trainings in markets and private institutions, public awareness, fire inspections and stakeholder collaboration .However, the following challenges were being faced; lack of adequate man power, erratic water supply, and lack of effective communication system and unavailability of a substation for quick response in areas far from the station in urban district. The general situation indicated that Mazabuka municipal council fire department was not well prepared to manage fire outbreaks meaning that plans to rectify the situation are cardinal.



## TABLE OF CONTENTS

CERTIFICATION .....	i
DECLARATION AND COPYRIGHT .....	ii
ACKNOWLEDGEMENT .....	iii
DEDICATION .....	iv
DISCLAMER.....	v
ABSTRACT .....	v
LIST OF FIGURES .....	x
ABBREVIATIONS AND ACRONYMS .....	xi
CHAPTER ONE .....	2
INTRODUCTION .....	2
1.1 Background .....	2
1.2 Problem Statement .....	3
1.3 Aim.....	4
1.4 Research Objectives .....	4
1.5 Research Questions .....	4
1.6 Significance of the Study .....	4
1.7 Limitations.....	5
1.8 Conceptual and Theoretical Framework .....	5
1.8.1 Conceptual Framework.....	5
1.8.2 Theoretical Framework.....	6
CHAPTER TWO .....	8
LITERATURE REVIEW.....	8
2.1. Introduction .....	8
2.2. Empirical literature review .....	8
2.2.1 Disaster management.....	8
2.2.2. Fire disasters .....	8
2.2.3 Disaster Preparedness .....	9
2.2.4 Fire disaster preparedness .....	9
2.2.5 Fire safety awareness .....	10
2.2.6 Role of local government.....	10
2.2.7 Local government challenges .....	11
2.2.8 Preparedness requirements .....	11
i. Planning .....	11

ii. Finances .....	11
iii. Human Resource and Location .....	12
iv. Education and training .....	12
v. Equipment .....	12
vi. Communication.....	13
CHAPTER THREE.....	15
MATERIALS AND METHODS .....	15
3.1 Introduction .....	15
3.2 Study Area and Description .....	15
3.2.1 Study Area Location .....	15
3.2.2 Study Description .....	16
3.3 Research design .....	16
3.4 Target population .....	16
3.5 Sample Selection .....	16
3.6 Sampling procedure.....	17
3.7 Instruments for data collection .....	17
3.8 Data analysis.....	18
3.9 Ethical consideration .....	18
CHAPTER FOUR.....	19
RESEARCH FINDINGS .....	19
4.1 Introduction .....	19
4.2 Human capacity and equipment in the fire department at Mazabuka Council. 19	
4.2.1 Human Capital .....	19
4.2.2 Equipment.....	20
4.3 Major preparedness projects undertaken by Mazabuka Council in Mazabuka Urban markets. ....	22
4.3.1 Fire Drills .....	22
4.3.2 Fire prevention Training .....	23
4.3.3 Deliberate fire Expo.....	23
4.3.4 Fire inspection.....	24
4.4 Challenges faced by Mazabuka Council in responding to Fire incidents. ....	24
4.4.1 Lack of man power .....	24
4.4.2 Erratic water supply .....	25
4.4.3 Lack of effective communication .....	25
CHAPTER FIVE.....	27

DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS.....	27
5.1 Introduction .....	27
5.2 Discussion .....	27
Human capacity and equipment in the fire department at Mazabuka Municipal Council fire department.....	27
5.2.1 Human Capital .....	27
5.2.2 Equipment Capacity.....	29
Major preparedness projects undertaken by Mazabuka Municipal Council in Mazabuka urban market. ....	30
5.2.2.1 Fire Drills.....	30
5.2.2.2 Fire prevention Training .....	31
5.2.2.3 Deliberate fire Expo.....	32
5.2.2.4 Fire inspection.....	32
5.2.2.5 Collaboration .....	33
Challenges are faced by Mazabuka Municipal Council in responding to fire incidents in Mazabuka urban.....	34
5.2.3.1 Lack of man power .....	34
5.2.3.2 Erratic water supply .....	34
5.2.3.3 Lack of effective communication system .....	35
5.3 Conclusion.....	37
5.4 Recommendations .....	38
REFERENCES.....	40
APPENDICES .....	44
Appendix I: Focus group discussion guide for fire officers .....	44
Appendix II: Focus group discussion guide for market committee .....	45
Appendix III: Face to face interview guide for the chief fire officer .....	46
Appendix IV: Questionnaire for market master .....	47
Appendix V: Questionnaire for Chief fire officer .....	49

## LIST OF FIGURES

Figure 1.0 : Conceptual framework .....	5
Figure 2.0: Map showing Mazabuka .....	15
Figure 3.0: Water tender .....	21
Figure 4.0: Ambulance .....	21
Figure 5.0: Utility van .....	22
Figure 6.0: Water hydrant .....	25
Figure 7.0: Office handset .....	26
Figure 8.0: Ambulance .....	29
Figure 9.0: Mazabuka Municipal fire brigade .....	36

## ABBREVIATIONS AND ACRONYMS

CSO	-	Central Statistical Office
DMMU	-	Disaster Management and Mitigation Unit
DREF	-	Disaster Relief Emergency Fund
DRR	-	Disaster Risk Reduction
FGDs	-	Focus Group Discussions
GON	-	Government of Nepal
ISDR	-	International Strategy for Disaster Reduction
NEMA	-	National Emergency Management Agency
NFA	-	National Fire Association
NFPA	-	National Fire Protection Association,
NRC	-	National Research Council
UN	-	United Nations
UNDP	-	United Nations Development Programme
UNISDR	-	United Nations International Strategy for Disaster Reduction
USFA	-	United States Fire Association
WHO	-	World Health Organisation
ZESCO	-	Zambia Electricity Supply Corporation

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1Background**

The world has experienced fatal disasters in several countries and these include the fire that occurred in Mexico, the Mozambican floods in 2000 and the 2010 Chilean earthquake (Victoria, 2011). Disasters have claimed a lot of lives, material losses and have inflicted a tangible toll on developing countries because they divert attention and resources from development needed desperately to escape poverty (Marjanovic and Nimpuno, 2002).

In this era of globalization there is massive urbanization and according to (Dynes and Russell, 2002), there is a fast growth in urban places. Therefore, this speed in development interactions increase the risk of fire incidents as a result stakeholders especially in high risk environments ought to be well equipped in terms of knowledge on prevention and reaction .However, this can only be possible if awareness levels can be enhanced.

Fire outbreaks have occurred in several parts of Africa in the recent past. According to (NEMA, 2006), in Nigeria many major markets have been gutted by fire destroying lives and properties worth several billions of Naira. Not only that but It is also alleged that fires have contributed to the toll of manmade disasters in Kenya with varying loss of property and life for instance ,the 2001, fire at the Free Market at Uhuru Park Nairobi which razed down the entire market with merchandise worth millions of shillings destroyed (DREF, 2010).

South Africa also has had a share of fire incidents. (Laura, 2009) discussed that between January 2005 and March 2009 in the Joe Slovo informal settlement in Cape Town, fire destroyed over 3600 homes and made more than 13000 people homeless.

Zambia is not an exception to fire incident and according to (DMMU, 2008), the country has experienced fire incidents in diverse sectors of the economy. Lives have been lost due to the fires and damage to property worth billions of Kwacha has been experienced .The following among others are; the gutting of Society House, Cabinet Office, Chisokeni Market in Kitwe in 1998, Indeni Oil Refinery in 2008.

The local government through its councils countrywide is an institution that has the mandate to foster fire awareness, prevention and management. According to the (Local government Act, 1991) every council is declared to be a fire authority for its respective area for fire-fighting purposes. Therefore, the council has to be well equipped to prevent and respond to fires.

Fire management can only be effective if councils are updated with new skills and resources in terms of finances, equipment and human capital. The (UNISDR, 2015) guides that the Sendai framework of 2015 -2030 prioritises reduction to response, therefore, much effort in incident prevention and preparedness has to be considered.

## **1.2 Problem Statement**

Disaster preparedness is one of the cardinal elements in disaster risk reduction and it consists of; community awareness, readiness to render appropriate responses and quick recovery (Ejeta et al., 2015). However, despite its importance, less has been done globally to improve the levels of disaster preparedness according to (Paton, 2003). Not only that but also little has been documented on the levels of preparedness for specific types of disasters such as fires especially in third world countries.

According to (DMMU, 2008), the frequency of natural and human induced fires in Zambia has been on the increase and the Fire and Rescue Services Organizations' abilities to save property and lives in locations where fires have occurred have been inadequate. Consequently, public opinion on the services from such institutions has reduced with most people claiming that the institutions have failed to carry out their mandates.

Looking at the recent incidents in the few past years, market fire outbreaks have continued in Zambia. According to (DMMU, 2017) 1,908 stands that were gutted and looted with an estimation total cost of the items that were burnt and looted being ZMK63, 482,916.00. Other markets that have been burnt before include; Luburma Market in Lusaka where 120 stalls were destroyed, Kapalala Market an extension of Ndola's main Masala market and Nakambala market in Mazabuka District destroying property worth K284, 680.

The main institution mandated to offer fire services in Zambia is the local government through its various councils. However (Phiri,2016) argued that that

several councils have been unable to adequately manage fire outbreaks from markets with possibilities such as lack of financial resources and modern equipment to quickly address such incidence as soon as they are reported. Due to these seemingly challenges faced by the local authorities, their response to fire incidents has not been satisfactory as evidenced in the past fire incidents.

Despite these fire incidents and lack of proper emergency response from the local authorities, very little research work has been done around the subject matter to inform policy makers and also for public discussions.

### **1.3. Aim**

The aim of the study was to investigate fire incidence preparedness by Mazabuka Municipal Council in urban Markets.

### **1.4. Research Objectives**

The objectives were to;

- i. Establish human capacity and equipment in the fire department at Mazabuka Council.
- ii. Determine major preparedness projects undertaken by Mazabuka Council in urban markets.
- iii. Find out challenges faced by Mazabuka Council in responding to Fire incidents at urban markets.

### **1.5. Research Questions**

- i. How is the human capacity and equipment in the fire department at Mazabuka Council?
- ii. What is the major preparedness project undertaken by Mazabuka Council in urban markets?
- iii. What are the challenges faced by Mazabuka Council in responding to Fire incidents at urban markets?

### **1.6 Significance of the Study**

Fires are frequent and significant risk in urban environments possibly because there has been a continuous improvement and development of market economy according to (Jun-Tao, 2014). However this increase has potential to humper the process of fostering development due to the diversion of resources and loss of natural resources and environment.



Therefore, this study was undertaken after a number of fire outbreaks that have been reported in different parts of the country. It is expected that it will be beneficial to various stakeholders and indeed the major stakeholder in the management of fires. It will provide data and recommendations on the areas of interests and it will also be valuable and key to further researchers in identifying other areas that would be required to research on.

The further the findings and recommendations would give policy markers the information that can be of great importance in propelling fire safety, risk reduction and preparedness.

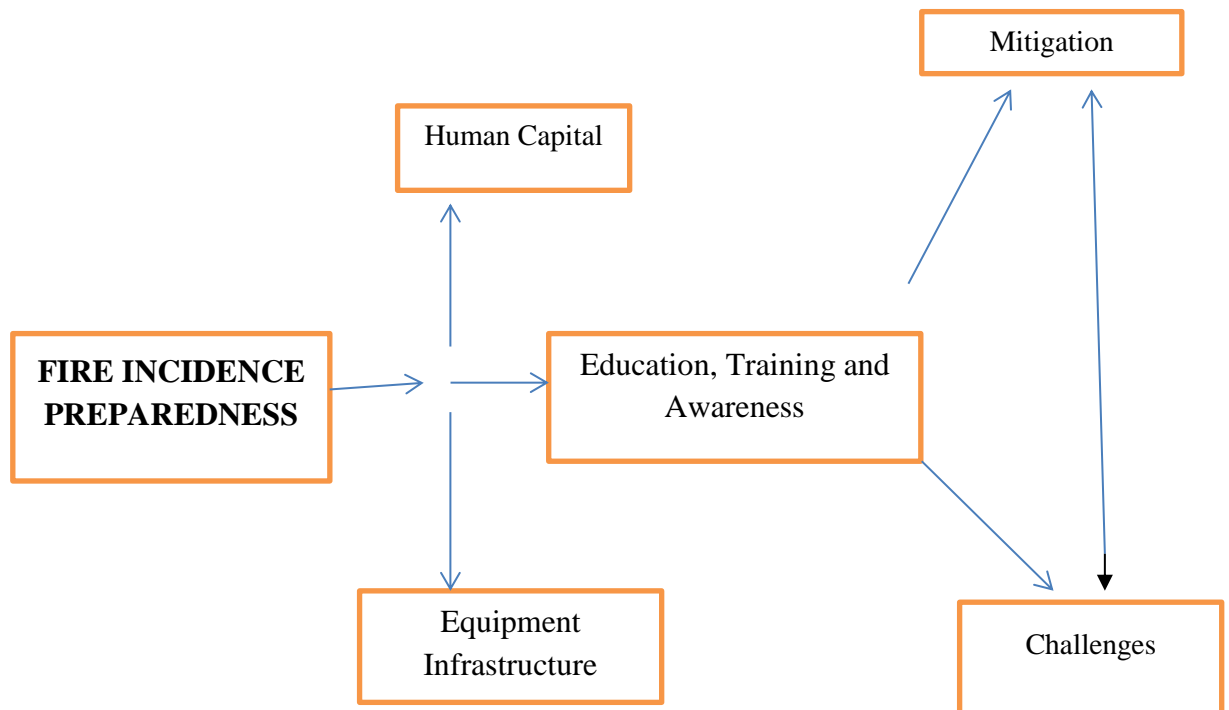
### 1.7 . Limitations

The research was not without some limitations. There was a problem of finding the best time in which to collect data from the respondents. Most of the times respondents were found busy with their work. However the researcher had to constantly make follow ups to cover up on the time for the respondents.

## 1.8 Conceptual and Theoretical Framework

### 1.8.1 Conceptual Framework

The concept below shows that fire incidence preparedness by the council can be effective if the discussed issued are considered.



**Figure 1.0 :** Conceptual framework

Preparedness involves a lot of things for instance (NRC, 2006) stated that it is about ensuring that all concerned stakeholders acquire needed skills and competences to realize effective disaster risk reduction. Therefore, fire incidence preparedness by the municipal council would mean the availability of adequate, skilled and capacity building prone personnel. This would make very good human capital competent to install fire incidence preparedness.

The availability of competent human capital coupled with very good equipment at the station is also vital. The need for adequate firefighting equipment at the station gives confidence both to the fire officers and the general public.

Preparedness is how people change behaviour to limit the impact of disaster events on people by planning and being prepared for a disaster. According to (Lai et al., 2009), education and training is a major pillar of disaster preparedness. This is because it triggers change of attitude and perception on fire safety management by alerting the stakeholders on the risk that they are associated with that might cause fires. It will also make them realise the need for preparedness based on factors such as areas of operation, value of goods around and the reporting process.

**Figure 1.0** above shows a model for ideal fire preparedness by the council which hinges; adequate human capacity, equipment and education and awareness. When education and awareness is enhanced it would have a positive influence on human capacity through capacity building of the human resource. A council with good human resource will have a meaningful awareness of fire preparedness in their area of operations.

### **1.8.2 Theoretical Framework**

The study used systems theory as a guide frame. Systems theory is also called social systems theory and it is basically the study of society as a complex arrangement of elements as they relate to a whole (Stratton, 2011).

According to (Mele and Polese, 2010), systems which can be natural or man-made and living or non-living, are found in many aspects of human life. (Adams and Bradley, 2013) further stated that systems may also have feedback loops, which occur when outputs of a system return as inputs, forming a circuit. Changes in one

component of a system will affect other components as well as the overall entity. This dynamic makes it possible to predict what might happen when a system experiences a known change. Therefore, systems theory investigates phenomena from a holistic approach.

The (UN, 2011) defines disaster risk reduction (DRR) as the practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters. Therefore, systems theory helps to explain fire incidence preparedness as a disaster risk reduction measure in which disaster preparedness is one of the basic components of disaster risk reduction.

Preparedness efforts focus predominantly on human behaviours change. According to (Dwomoh, 2015) fire outbreaks can be understood in terms of vulnerability and that the low participation of all key stakeholders in fire management processes creates vulnerability. This condition is then translated to poor fire management approach as a result of the poor level of sensitization and education on fire management as well as inadequate resources to prevent or reduce the adverse impact of fire outbreaks.

Therefore, preparedness can be enhanced through strengthening the community capacities, education and training and improving the preventive mechanisms (Mathbor, 2007). This is because preparedness identifies the steps necessary to increase the chances of avoiding or reducing hazard effect consequences due to behaviour change strategies which can translate into protective actions. Therefore, effective preparedness reduces; vulnerability, increases mitigation levels, it enables timely and effective response to a hazardous event and it shortens the recovery period from a disaster while increasing societal resilience.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. Introduction

This chapter reviews and presents the various literature expositions by different scholars concerning fire incidences and the responsibility of the local government in fires prevention and response. It highlights disaster management, fire preparedness and disaster risk reduction.

#### 2.2. Empirical literature review

##### 2.2.1 Disaster management

Disaster Management is the coordination and integration of all activities necessary to build, sustain and improve the capability to prepare for, protect against, respond to and recover from threatening or actual natural or human-induced disasters (ISDR, 2012).

According to the (UNISDR, 1994) disaster prevention, mitigation and preparedness are better than disaster response. Therefore, since disasters are unpredictable, it is important to look into what can be done before a disaster happens (Helmer and Van Aalst, 2003).

##### 2.2.2. Fire disasters

The (RoU, 2010) explained fire disasters as; all unplanned and massive burning which may cause destruction of equipment, settlements, property and life. Fire as a hazard has caused over 300 000 deaths annually and are the fourth largest cause of accidental injury just after; road accidents, falls and drowning around the world. However, according to (WHO,2011) over 95% of the deaths and burns injuries are in low and middle income countries, the death rate is 6 times higher than in highly income countries.

According to (Brown and Smith,2000), fire incidents can be divided in many ways depending on the cause of fire outbreak, but broadly there are two types of fires and these are; natural and manmade. Natural fires are in form of lightning and earthquake related while man made include electrical, accidental and domestic fires.

Fire incidents have been prominent in Ghana, Nigeria, Kenya, Tanzania and Zambia. (Laura, 2009) guided that in May 2009, a fire gutted Ghana's biggest market, Kumasi Central Market and was estimated to have destroyed over 400 market stalls

as well as a significant amount of goods and cash. The Takoradi Market also suffered a number of devastating fires. The majority of fires have been due to the carelessness and electrical faults.

In Kenya fires have contributed to the toll of manmade disasters in with varying loss of property and life for instance; fire at the Free Market at Uhuru Park Nairobi which razed down the entire market with merchandise worth millions of shillings destroyed (DREF, 2010).

In Zambia according to (DMMU, 2017) city market was gutted with 1089 affected through fire and looted. Also 4000 traders at Kapalala Market lost goods and efforts by the fire brigade to quench the fast spreading inferno were hampered by lack of access into the market for the tenders.

### **2.2.3 Disaster Preparedness**

According to (Masellis *et al.*, 1999) disaster preparedness, is a collection of measures to be taken in view of disasters including; prevention, plans and action programmes designed to minimize loss of life and damage, to organize and facilitate effective response, and to rehabilitation after a disaster.

There is a wide range of mechanisms that can be used to foster disaster preparedness and these include; forecasting, construction and equipping emergency Operating Centres with warning and communications systems, recruitment and training of personnel and the general public, development of plans, procedures, arrangements, and agreements, and exercises of personnel and systems, the stock piling of supplies, and ensuring the needed funds and other resources (Masellis *et al.*, 1999).

(Lai *et al.*, 2009) argued that education and training is a major pillar of disaster preparedness to empower an individual because increased knowledge will improve the efficiency. The motive for preparedness is to minimize damage (Dyne, 1982) and prevent disaster where possible.

### **2.2.4 Fire disaster preparedness**

Fire disaster preparedness is a collection of activities designed to increase the level of readiness or improve operational capability, for responding to a fire emergency or incident. According to (Brewerton,1999) fire disaster preparedness involves planning, equipping, training and exercising in order to create or sustain capabilities in order to prevent, protect against, mitigate and respond to any fire emergency.

(Colonna, 2001), guides that one of the universally followed guidelines in fire disaster preparedness is that firefighting equipment should be kept wherever necessary. These equipment and facilities must be maintained regularly and if any problem is detected there should immediate repair.

A contribution by (Ndetu and Kaluyu, 2016) directed that provision of fire safety support resources has a significant effect on fire disaster management preparedness and stakeholders should therefore be trained on fire disaster for effectiveness.

In addition to above, fire disaster preparedness involves fire prevention method through education to teach people how to avoid causing fires (McFadden, 1989). It influences behaviour on the strategic goal of minimizing loss of life, property and enhance resilience. Therefore Markets, buildings, schools and tall buildings, are expected to often conduct fire drills to inform and prepare people on how to react to a fire.

#### **2.2.5 Fire safety awareness**

Fire safety awareness is the ability to recognize the danger of fire in order to know, what to do to prevent fire and action to be taken in response. fire disaster preparedness is based on the knowledge about fire hazards, the likelihood of different causes of fire outbreaks and the likely effects on the built and natural environment (Comolotti, 2004).Therefore when people are knowledgeable about fire disasters they would be in possess of equipment's such as fire extinguishers and others to support response activities.

According to a study which was conducted by (Wood ,1990), levels of awareness and preparedness for fire disaster in community members in Queensland and the level of fire safety awareness had direct influence on the level of preparedness. It was found that poor awareness of fire caused a lot of fire outbreaks while good knowledge enabled people to know the possible fire risks in one's premises.

Another study by (Mfinanga, 2007) showed that most people do not know that it is their responsibility to prevent fire outbreaks but that it is the duty of the fire fighters and concluded that incidents of fire outbreaks in Tanzania will not go down unless people's level of awareness of their duties to prevent fire is raised.

#### **2.2.6 Role of local government**

According to the Local Government Act (1991) every district council is declared to be a fire authority for its respective area for fire-fighting purposes and shall establish

and maintain a fire brigade in the area. The act asserts that the fire-fighting equipment required to be provided by the occupier under sub-regulation and shall include one or more of the following and these are; hydrants, hose, hose reels and rising mains, portable fire-fighting equipment, automatic fixed fire-fighting installations to deliver water, gas, foam or dry powder. Despite that no person shall occupy or use any designated premises in respect of which there is no fire certificate.

### **2.2.7 Local government challenges**

A lot of local authorities have challenges in budget crises, personnel and equipment shortages, security issues and the overall expectation to do more with less. Failing to manage these challenges can leave individuals, a fire department and a community vulnerable to undesirable events (NFPA, 2008).

According to (UNDP,2011), a survey conducted in Nepal shows fire mitigation and preparedness in several municipalities but the management capacities of municipalities in terms of fire prevention and fire extinguishing were inadequate. Fire-fighters have limited skills and knowledge and other municipals have never had the opportunity to participate in trainings and orientations on fire-fighting. Not only that none of the municipalities have made fire response, contingency, fire safety or emergency plans.

### **2.2.8 Preparedness requirements**

#### **i. Planning**

A plan is a set of suggestions aiming at achieving set goals in future by selecting best alternatives. In disaster preparedness the most important plan is the contingency plan. This plan involves making decisions in advance about the management of human and financial resources, coordination and communications procedures, and being aware of a range of technical and logistical responses. (IFRC,2012) described a contingency plan as a management tool which can help ensure timely and effective provision of aid to victims of disasters and that it involves all sectors. This plan has to do with existing procedures and improving where the gaps to perfect response operations practically when disasters strike.

#### **ii. Finances**

Councils are supposed to budget properly because inadequately prepared budgets can lead to serious monetary shortfalls which can hinder smooth preparedness

operations. According to (Cote, 2003) the funds meant for disaster prevention, response and recovery must be estimated realistically and expenditures monitored on regular basis. Therefore, the budget should develop a long range plan that projects capital replacement funding for; vehicles, fire equipment, fire station maintenance and other related tools.

A report on Nepal's capacity for disaster preparedness recommends that local governments carry out functional coordination for resource sharing. It was advised that local governments should coordinate with national government offices, which allocate resources for fire disaster management, as well as with other relevant offices to help generate funds (UNDP and GoN, 2011).

### **iii. Equipment ability and Location**

According to international standards, there should be one fire-fighter in every 2,000 people and one engine for a population of 28,000 (UNDP and GoN, 2011). As far as equipment is concerned (Wilson, 2009) noted that a fire department in a large city may operate one engine company per 15,000 to 20,000 populations.

However, Fire stations or department rather should be located in strategically appropriate areas because it is crucial to the efficiency of fire response work. Therefore, with the rapid rate of urbanization in most cities it is recommended that fire brigades be decentralized and thus be established at the outer space of the Central Business District to avoid heavy traffic and facilitate quick response.

### **iv. Education and training**

Education and training is very cardinal in preparedness. The municipality must always ensure that fire department's training system prepares personnel to perform safely and effectively in the variety of fire disaster scenarios they will face. This has to be done frequently and needs to be extended to the members of the public in various public and private premises. Therefore, (Coley, 2010) adds that the training and education of fire brigades requires that brigade members be provided with training in all duties which they are expected to perform and this training must be provided by instructors with a comprehensive knowledge of the subject.

### **v. Equipment**

The fire department need well maintained vehicles, machinery and equipment. In this regard, the parameters to be considered include their status, the physical condition of fire engines, the availability of spare parts, the servicing of fire engines



and fuel management as well as the availability of search and rescue tools (UNDP and GoN, 2011).

Fire stations require fire engines with extension ladders and elevators especially for suppression of fires in high rise buildings and since the use of fire engines is seasonal and unpredictable, it is important to make provision for their periodic servicing (IFSTA, 2008).

In addition to the above, to be properly prepared for fire hazards, each fire brigade should keep engines at international standards operations by establishing repair and maintenance workshops within the municipalities themselves (UNDP and GoN, 2011). Fire stations are also required to safely store fuel to run engines for use in emergencies. It is recommended that after every fire response, engines should be refuelled fully. It is also important to stock other forms of fire suppression materials such as hydrogen gas, liquid fuel, and platinum chemical foams.

Further it is important for fire stations to have adequate water storage facilities on their premises as it plays a crucial role in fire response. Harvesting rainwater and pumping underground water are examples of supplementing main water sources for fire stations. A water-lifting system using portable generators should also be arranged therefore, local authorities and other stakeholders should also ensure that fire hydrants are strategically placed and well supplied with water (Menya, 2016).

#### **vi. Communication**

According to (USFA and FEMA, 1995), communications systems are critical to safe and effective fire ground performance .The basic elements of a communications system include transmitters, antennas, receivers, and their power supplies and other ancillary equipment.

It is important for local governments to establish a communications centre or the dispatch centre as others call it. This is the hub centre of fire department operations and usually the first point of contact the public. The dispatch centre must manage and allocate the fire and rescue resources of the fire department in a way that ensures that the proper resources are dispatched in a quick, efficient, and professional manner to emergency incidents (Menya, 2016).

According to (USFA and FEMA, 1995), fire departments should aim at embracing new technology to enhance their efficiency and effectiveness. It should also provide support to field operations personnel and units in carrying out many routine tasks and

responses to non-emergency incidents. Therefore, it is critical that the communications centre be managed in a way that gains the confidence of the public and the department served.

## CHAPTER THREE

### MATERIALS AND METHODS

#### 3.1 Introduction

This chapter discusses the research method the researcher applied to investigate fire incidence preparedness by Mazabuka Municipal Council in urban Markets. The chapter presents the research design used, target population, sample size, sampling techniques and data collection instruments employed in the study. It also discusses the characteristics of participants, data collection procedure, data analysis process and the ethical considerations.

#### 3.1 Study Area and Description

##### 3.1.1 Study Area Location

Mazabuka is one of the towns in the Southern Province of Zambia, lying south west of Lusaka, along the Great North Road, 125 kilometres from Lusaka and about 360 kilometres from Livingstone. The district is strategically positioned as it is the entrance into Southern Province as one travels south from Lusaka and is at the same time, an exit from southern. It is situated in the north-eastern part of the Southern Province and its geographical coordinates are;  $290^{\circ}$  and  $270^{\circ}$  East and  $150^{\circ}$  and  $170^{\circ}$  south respectively (Figure 2.0).

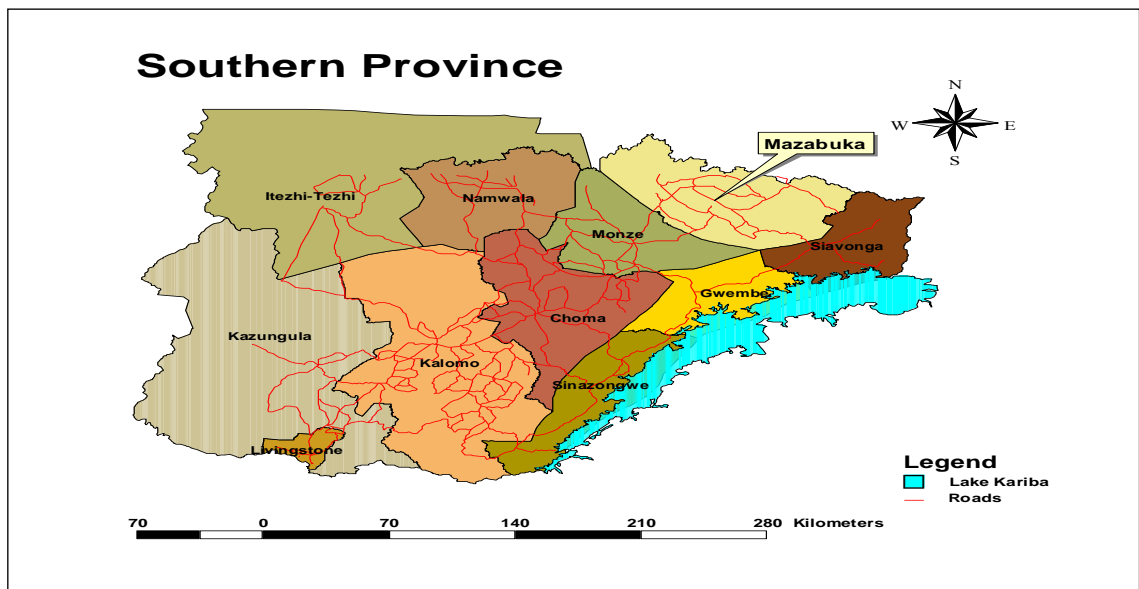


Figure 2.0: Map showing Mazabuka (Source: CSO Zambia info 2005)

### **3.1.2 Study Description**

The study was conducted at Mazabuka Municipal Council fire department and three (3) selected urban markets of Mazabuka District in Southern Province of Zambia. These markets were purposively picked from urban they are the biggest and accommodate a lot of people. Mazabuka District has a total population of 221,893 people with an annual growth rate of 4%. Out of the total population, 109,876 (49.5%) are males and 112,017 (50.4%) are females. The district holds about 14% of the total provincial population and about 2% of the national total (Central Statistical Office, 2012). The district has six (6) gazetted markets in urban area.

### **3.2 Research design**

This research was a descriptive study and qualitative in nature. Descriptive research design was employed so as to precisely capture the respondent's views and opinions. Respondents were located after which consent was asked from them to take part in the study. The market master and chief fire officer were administered semi structured questionnaires while the market committee members and fire officers were engaged in focus group discussions.

### **3.3 Target population**

The target population is an entire group of persons or elements that have at least one thing in common (Chabala, 2014). The target population for this study was composed of all the fire officers at the department and all marketers represented by their committees in three selected markets and the Market master.

### **3.4 Sample Selection**

The sample selection for this study included nine (9) members of the market committee comprising of three members from each of the selected markets, eleven (11) district fire officers, one (1) Market Master and one (1) chief fire officer. In total, the sample size comprised of 22 respondents. (Sandelowski, 1995) points out that determining adequate sample size in qualitative research is ultimately a matter of

judgment and experience on the part of the researcher, and researchers need to evaluate the quality of the information to be collected in light of the uses to which it will be put.

### **3.5 Sampling procedure**

The study being qualitative in nature, non-probability sampling techniques were used to come up with the sample size. Both the chief fire officer and the Market Master were selected purposively while the fire officers were selected by simple random sampling and the market committee representatives were selected through convenience sampling.

### **3.6 Instruments for data collection**

The study used both primary and secondary data collection methods. In collecting primary data the following tools were used in the field; semi-structured questionnaires, Focus Group Discussions (FGDs) guide and a voice recorder. The researcher used the semi-structured questionnaire for the chief fire officer and market master. The questionnaire was more appropriate for these respondents because they could easily be located and had time to answer the questionnaires. The focus group discussions were used for the market committee members and fire officers at the station. FGDs were beneficial because varied opinions on the topic can be obtained from the respondents. The structured interviews were used because they gave reliable and quality information as the researcher was allowed to probe and get clarifications where necessary from the chief fire officer, Market master and committee chairpersons. (Kombo and Tromp, 2009) stated that, structured interviews are reliable and quality information can be obtained because each informant is subjected to similar questions with others. The voice recorder was used to record all the interviews and discussions so as to get the verbatim from the participants. For secondary data, the researcher used reports, journals, dissertations and theses and other written literature.

### **3.7 Data analysis**

The method of data analysis was narrative, therefore, having completed gathering of the data from the field, the scripted information from semi structured questionnaires was read through so as to be familiar with the data. Responses were put in categories and given themes. The transcription of the recordings of the interviews with the market committee representative focus group discussions was done by taking note of the key information that emerged from the participants and so was the recording from the fire officers. Main ideas that repeated themselves throughout the data were labelled with a single word or phrase. After all the information was coded, patterns or themes that emerged were put into major and sub-themes. The themes were then renamed and put according to the research questions and those which were unnecessary were discarded. Lastly, conclusions were drawn based on the findings according to each objective of the study.

### **3.8 Ethical consideration**

To guarantee ethical handling of all the issues that might be raised during the data collection, the researcher used proper channels of study authorization.

The researcher ensured that all information was held in strict confidence and ensured anonymity of the respondents. The researcher approached the participants or rather respondents with respect to make sure that the inadequacies of the respondents were not exposed.

Lastly all the respondents were given a free will to participate and contribute voluntarily to the study. This was done in an effort to ensure the right of information.

## CHAPTER FOUR

### RESEARCH FINDINGS

#### 4.1 Introduction

This chapter presents the findings of the study on the fire incidence preparedness by Mazabuka Municipal Council in urban markets, Southern Province Zambia. The research findings are in line with the following objectives;

#### 4.2 Human capacity and equipment in the fire department at Mazabuka Council.

Research question number one was about the human capital and equipment at Mazabuka Municipal Council. In order to establish this, a number of questions were asked on the normal establishment of a municipal council fire brigade, fire tenders services and levels of qualifications for the establishment of the Municipal council.

##### 4.2.1 Human Capital

To answer the question on the standard establishment of a Municipal Council, it was established that a municipal council fire department needs to have a total of 60 or more fire officers. The administrator explained that the department has one chief fire officer, one deputy chief fire officer, one division fire officer, assistant division fire officer, three station fire officers assigned to administration, fire prevention and operations, three sub officers, three leading fire fighters and ten fire fighters to operate for 24 hours .

A follow up question was asked on the establishment of the Mazabuka Municipal council fire department and it was established that the department was understaffed. It was explained that the number of personnel at the fire department did not even meet the requirement of a district council normal establishment. It was explained that there is lack of man power with a total number of staff to fourteen (14) which is also less than the standard of a district council establishment which is at 30 personnel.

Another question was asked on the qualification of the fire officers at Mazabuka Municipal Council fire department revealed that fire officers operate more practically than academically. Therefore, officers are recruited as grade 12 school leavers and are encouraged to sit for promotion examinations after two years of service upon recommendation by the department. All fire officers are trained at the Zambia

National Fire Training School in Kabwe in various courses. The examinations are conducted by the fire service examination board conducts examinations every year in July in the following promotions;

- i. Leading firefighting examinations
- ii. Sub officers examinations
- iii. Station officer examination as the highest promotion.

In addition, it was revealed in as much as capacity building was very important to meet new requirement and competency of the officers. It was revealed that out of 14 officers; one officer in sub officer examination, station office examination and leading fire examination. However, the rest are still fire fighters.

#### **4.2.2 Equipment**

On the equipment capacity in the fire department at Mazabuka Municipal council fire department it was revealed that that the available equipment is sufficient but chance given the department would appreciate having more.

The fire department just like any other in Zambia uses the British standard in the equipment requirement but according to Zambia as a developing nation the availability of the following equipment at municipal level would be sufficient and these are; two water tenders, one foam tender for petroleum related hazards, ambulance, utility van and turntable ladder tenders.

It was also revealed that the water tender and the foam tender usually have all small tools that are needed by the fire fighters to work on either small or big operation.

A follow up question was asked if the equipment was adequate enough to respond to fire incidents in Mazabuka urban. The researcher was told that the department is read and prepared in terms of equipment to respond to fires. This is because the department had received a new water tender outside and the good thing is that it has also provision for the form hence petroleum related hazards can be responded too.





**Figure 3.0: Water tender (Source: Author's field work, 2018)**



**Figure 4.0: Ambulance (Source: Author's field work, 2018)**



**Figure 5.0:** Utility van (Source: Author’s field work (2018)).

It was revealed that the department has an ambulance and a utility vehicle in good conditions. There is enough protective clothing and cutting equipment for road traffic accidents. A female officer in her mid-thirties explained that; they have enough driver fire fighters. The department used to request a driver from the main officer at the council but now all drivers that are licensed were recommended to drive.

#### **4.3 Major preparedness projects undertaken by Mazabuka Municipal Council in urban markets.**

To implement the second objective the researcher asked what preparedness projects are undertaken by the Municipal council fire department.

The following preparedness projects in Mazabuka urban by the municipal council were revealed. One male participant emphasized on the need to work tirelessly in preventing fires because prevention was always better than response.

##### **4.3.1 Fire Drills**

The study established that Mazabuka municipal council had intensified fire drills within the community. An administrator explained that the department had intensified fire drills to prepare for any eventuality both at brigade level and district as a whole. The drills were designed in such a way that they were accompanied by

the lectures in markets by the fire officers to alert people on the dangers of fire and how to operate domestic fire prevention equipment like a fire extinguisher.

The researcher during interview with fire officers noticed that fire prevention awareness was very important in fire incidence preparedness. A female officer explained that alerting people about fire was a good move that participants appreciated especially at Kabobola Market.

Even though the council has made strides in fire drills and public awareness campaigns, during the focus group discussion with market it was argued by most of them that awareness campaigns must be done more often because people in markets are not permanent. It is asserted that seasonal marketers have a chance to miss the trainings and if they take long to be conducted people will be deprived of key information.

The fire department revealed that the fire lectures had been successful and they wanted to carter several public and private premises apart from market .They also have a special provision where schools can access us upon request.

The study revealed that fire officers also endeavoured to teach clients during fire inspections in various premises.

### **3.3.2 Fire prevention Training**

Fire prevention training has been a pillar of effecting preparedness of Mazabuka Municipal council fire department. According to the interview, a male officer said that Training was done in main markets targeting market committee .It was revealed that the training was extended to other institutions such as Mazabuka general hospital where trained administrative workers at in fire prevention and communication. As if that was enough a number of members from YARA fertilizer Mazabuka where they even formed a fire committee at their centre.

### **3.3.3 Deliberate fire Expo**

The participants argued that they hope for a time when the people would have confidence in the operations of the Mazabuka fire brigade .It was explained that the only way people can know and have a questioning spirit was by them being abreast with information concerning the department .

A female participant said that the department has been having deliberate fire brigade shows and expo. This was done to show operations in public holiday gatherings to showcase their abilities. Sometimes the water tender is driven into areas like the market and people come to see it and ask questions about its ability and worthiness.

#### **3.3.4 Fire inspection**

The study revealed that the department had intensified fire inspections in the district. At the time of the research (February), 356 premises had already been inspected with recommendations given.

Fire inspection and in business and public premises is very cardinal in fire incidence preparedness. It is also vital in hazard identification and not only that but also people are guided on how to use fire extinguishers and the other related information in markets.

In addition to the above, members of the market committee during the interview emphasized on the council's responsibility in inspecting and certifying premises in the markets. It was argued that when premises are inspected and certified, shop owners get basic advice on how they can prevent fire incidents or react swiftly when attacked by a fire.

#### **4.4.0 Challenges faced by Mazabuka Council in responding to Fire incidents.**

The third research question was on the challenges faced by the municipal council fire department in responding to fire incidents. The following views from the participants were revealed;

##### **4.4.1 Lack of man power**

The study established that the municipal council has inadequate personnel such that even the hierarchy structure is not complete hence overloading the existing number of staff. A staff explained that they had received another officer taking the number to 14 officers less than the standard of a district council which is 30 personnel.

The researcher during the interview noted that the council lacks adequate man power especially in big positions such as the deputy chief fire officer, division fire officer and assistants.

#### **4.4.2 Erratic water supply**

Erratic water supply in Mazabuka urban was another problem which was identified. As a result operations were not effective because water is sourced from the pumping station which is a bit far from the fire station. One male participant during the interview explained that under normal circumstance water was supposed to be gotten from the hydrant at the station but it cannot be utilised, the officers always have to go to the power station for water.



**Figure 6.0:** Water hydrant (Source: Author's field work, 2018)

The problem of erratic water supply and availability at most of the hydrants in Mazabuka urban was of concern by most of the officers at the department.

The researcher went on to find out how the issue of erratic water was worked on and the response was that the others despite the distance to the power station, they made sure the water tender had water all the time.

#### **4.4.3 Lack of effective communication**

Participants argued that there is poor communication regarding the fire related information and reporting.

One male administrator guided that the number which was displayed outside was not working and all the calls were received by the Lusaka office. The study revealed that it was not only the unavailability of the contact number which was a barrier to communication but also lack of confidence in the clients.

A member of the market committee explained that sometimes it would be of no sense to contact the fire brigade because previous when there was a fire they went when there services where no longer need actually ZESCO fire brigade came earlier.

A question was further asked on what was being done to overcome the challenge of communication regarding reporting. It was explained that the number which the department is displaying was inactive; however, Airtel Zambia donated a handset which is yet to be activated for use for the benefit of the department and the community. The study also noted that the handset will be put in the booth where calls will be received from and recorded for recorded keeping and effectiveness.



**Figure 7.0:** Office handset (Source: Author’s field work, 2018)

## CHAPTER FIVE

### DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the research discussions, conclusion and recommendations of the study on the fire incidence preparedness by Mazabuka Municipal Council in urban markets, Southern Province, Zambia. This chapter focuses on the discussion of the findings under the sub-themes that emerged in line with the objectives of the study. References are also made to the literature reviewed so as to authenticate the findings.

#### 5.2 Discussion

The study was guided by the following objectives;

##### **Human capacity and equipment in the fire department at Mazabuka Municipal Council fire department.**

##### **5.2.1 Human Capital**

Mazabuka Municipal council fire department is understaffed with 14 officers despite the ideal establishment being 60 officers for a municipal council. The respondents at the department explained on the limited number of staff available. They argued that the district is big; therefore, there is a lot of work to be done both in preventing and responding to fire incidents.

The municipal council has mandate on both public and private premises as an administrator explained that *“this is a fire authority mandated to carry out fire inspection and fight fires as per local government administration act of 1991. We spearhead fire operations in the district despite the fact that some departments and agencies might have such a department like Zambia Sugar and ZESCO”* (February, 2018).

The above finding is supported by (Victoria,2003) who argued that municipal councils need to support and facilitate fire prevention and preparedness activities on

private land ensuring residents have a clear understanding of risks, and that municipal fire prevention planning is given emphasis it clearly deserves.

The fact that Mazabuka is a farming town harbouring a lot of commercial farmers, Zambia sugar plantation and manufacturing plant, the fire department ought to have a minimum of the normal human resource establishment. Mazabuka urban has a large population with public places like markets harbouring a lot of people amidst several fire incidence risks. Therefore, a normal establishment would be ideal for operations that are aimed at preparedness in the district.

On the qualification of the fire officers at Mazabuka Municipal Council fire department, the study revealed that all fire officers are trained at the Zambia National Fire Training School in Kabwe in various courses. Therefore it was explained that that out of the 14 fire personnel at the station on 4 four have undergone studies and promotions in the respective fire officers rank. It was explained by an administrator that *“here we have one officer in sub officer examination, station office examination and leading fire examination. However, the rest are still fire fighters”* (February, 2018).

According to (Taber *et al.*, 2008) firefighting occupation cannot be practiced without formal trainings and till the expertise get assured from those institutions. Firefighters perform unique and risky and they take risk most of the time to save lives and properties of others.

In addition (Victoria, 2003), argues that skills and responses capacity of firefighting personnel is critical to the success of fire suppression and overall disaster management. Therefore, since it was established that firefighting is more practical oriented than academic, there is need for more personnel at the station to undergo training and examination for the various fire promotion examination.

Training and education of fire officers is very important in fire incidence preparedness. Training of officers gives an opportunity to acquire skills that can be useful in preparedness programs such as; awareness, communication, response and use of new technology and tools. Therefore, it can be concluded that preparedness levels of the fire department at the council need to be enhanced by building capacity in officers since very few of them have sat for further promotion examinations prescribed by the training school.



### 5.2.2 Equipment Capacity

The study revealed that the equipment was adequate to respond to fire incidence in Mazabuka urban. The availability of a water tender which can also operate as a foam tender put the municipal council in a comfortable zone as far as equipment was concerned. The tender was in very good condition with all the other small equipment's like mallets, hammers and ladder intact. Not only that but it was established that the water tenders had generators to aid in water pumping during firefighting.

The fire department was also satisfied with a lot of fire drivers and the fact that both the ambulance and utility vehicle were in good conditions. For instance, it was observed that the ambulance designated for firefighting was in good condition and equipped for emergency services. It has had an up to date first aid kit, stretchers and all the necessary medical equipment required.



**Figure 8.0:** Ambulance (inside view) (Source: Author's field work, 2018)

The findings above are supported by (IFST, 2008) who described an ideal fire department as one with well-maintained vehicles, machinery and equipment. Equipment capacity and condition is very cardinal in fire incident preparedness

because it gives motivation and courage for the fire officers to have confidence in responding to fire incidents and it also gives an opportunity to the public to confidently report fire outbreaks.

According to (Victoria, 2003) fire fighters depend on equipment being in sound fit for service condition at all times. Further, according to studies conducted in Tanzania, Kenya, Nigeria and Ghana lack of availability of facilities, poor conditions of the available facilities are among the factors for high fire risks (Makachia *et al.*, 2014).

However, although the department was confident that the equipment is adequate and sufficient prepared to respond to fires in Mazabuka urban, some marketers feel it is not adequate. One member of the market committee had this to say *“the council has only one machine (water tender) and what if there two fires at the same time in different places. I feel they need to have more than one of those to be on a safe side”* (March, 2018).

Although it is generally viewed that an ideal fire department station should have good conditioned equipment just like Mazabuka municipal council. This does not qualify the department’s preparedness to respond to fire incidents due to the fact that the fuel reserve and water source is not at the station and that the department has never responded to a fire in any market in Mazabuka urban markets successfully.

#### **Major preparedness projects undertaken by Mazabuka Municipal Council in urban market.**

Mazabuka Municipal council fire department has a lot of preparedness projects which had been implemented and yet to be implemented in Mazabuka urban. Amongst the most prominent ones were the following;

##### **5.2.2.1 Fire Drills**

The department has been conducting fire drills in markets around the district. It was argued by one female fire officer that *“alerting people about fire is a good move; I was one of the officers that participated in the fire prevention and response facilitation at kabobola market. It was a success and participants appreciated”* (February, 2018).

Fire drills are very important in the management of fire disasters. They equip both the community and fire officers to quickly respond to fire incidents, therefore to effect fire incident preparedness fire drills are very salient. A recipient of the market based fire drills stated that *“from the time we started have drills most of us are very careful and know how to handle inflammable materials and even what to do when a fire starts”* (February, 2018).

The findings are in line with (Kihila,2017) who states that because behaviour can be tamed through training and awareness sessions, people need to be enlightened and prepared especially through fire drills to be able to act appropriately in case of fire outbreak. Therefore, the main impact of this project would be the number of people who would have received fire drills.

Effective fire preparedness programme requires fire drills be conducted after a certain time interval .This implies that, fire drills are indeed key preparedness because they alert people on what measures need to be taken to prevent fire outbreaks as well as early measure to take in order to effectively respond and reduce loss.

#### **5.2.2.2 Fire prevention Training**

The study noted that the department conducted training for the market committee members. The department had plans to cover other institutions and train a lot of people to help in preparedness in the district and had already conducted trainings at YARA fertilizer and Mazabuka District hospital.

According to (Victoria, 2003) a municipal council has a responsibility for fire prevention planning, coordinating and fire prevention committees and through their application of planning provisions on new development. This is supported by (Menya, 2016) who adds that capacity building is more effective when undertaken within a wider framework of social development.

To compliment on training, (Dwomoh, 2015) stated that training and education that has to be done before and after an incidence and regular seminars on the cause and prevention of fire outbreaks in markets are commended and ideal in fire management.

According to (Kobes *et al.*, 2010) human behaviour in case of fire outbreaks has been identified as one of the important elements for fire disaster management .A lot of information can be communicated on prevention for instance on how to use a fire extinguisher, avoiding illegal connections and switching off electrical appliances before leaving the market.

The training project is very important because the move to train people in public and private premises is commended and ideal for the reduction of fire incident preparedness in the district. A lot of stakeholders especially in markets need to be trained fully such, as security guards and traders who are involved in flammable products and fire related materials.

### **5.2.2.3 Deliberate fire Equipment Expo**

There has been a deliberate fire equipment expo in the Markets in Mazabuka urban. A female participant said that *“of late we have been deliberately having fire brigade show operations in public holiday gatherings to showcase our abilities. Sometimes the water tender is driven into areas like the market and people come to see it and ask questions about its ability and worthiness”*. These deduce that the municipal is determined to show their strength to the populace so that there can be a collaborative workforce with distinct roles between the department and the population.

Preparedness is the reciprocal of disaster, that is, the effects of a disaster will always depend on how well the organization, family or individual was (Ndetu and Kaluyu,2016).Therefore it is very important for the community in Mazabuka urban to know the ability of their municipal council fire department’s ability to respond to fire incident.

Deliberate fire exposition to the population helps to create a platform through which people can be sensitized on fire incidence preparedness and mitigation. It is very much important for people to know basic principles of fire, it prevention and mitigation such as risk areas and materials, domestic firefighting equipment and reporting.

### **5.2.2.4 Fire inspection**

Fire inspection in business premises has been an ongoing and year project implemented by the municipal council fire brigade. It was observed from the study

that a lot of shops were had been inspected and certified by the department. One member of the market committee expressively stated that *“we are comfortable on our shops because the council always does a good job by inspecting and alerting the marketers on how to prevent fires and handling of risk materials”*.

It is very much important to carry out inspection because it gives an opportunity for client to be knowledgeable able some risks since .A female member of the market committee explained that *“despite the fact that they do inspections we have these gazetted stands that mushroom and the traders do not have a change to be taught anything”*. Any fire starts as a simple and small action and awareness of which can prevent such fires is very important. The fire department really needs to widen the coverage of training for fire prevention in the district.

Fire inspection and in business and public premises is very cardinal in fire incidence preparedness. Fire inspection is vital in hazard identification and (Menya,2016) stated that the fire department check premises and declare their worthiness and safety during fire inspection which are carried out throughout the year and a fire certificate issued to various premises before occupation and during occupation.

#### **5.2.2.5 Collaboration**

The study revealed that the council is making a step to work with Zambia sugar fire department in responding to fires in the district. On the realization of this, an administrator said that *“we have seen it working on the copperbelt were mining companies are working with local authority on fire prevention and response”*. As far Mazabuka municipal council was concerned fire incidence preparedness was being worked on by seeking a mutual agreement with Zambia Sugar in responding to fires in the district.

(Akhter, 2014) argued that the absence of coordination in case of major disaster is a big reason of slow response to fire emergencies in Greece. This shows that it is very cardinal to collaborate and coordinate with other departments.

A collaboration project that would see other departments work with the municipal council in fire incidence preparedness is very commendable. Zambia Sugar for instance has in its estate two big markets that need the same information as other markets in the district. Therefore, working with the company fire department was

beneficial in ensuring preparedness. Not only that but also working together would help in a case where fire break up is not only in one place, specialisation of response depending on the distance can be employed for quick response.

### **Challenges faced by Mazabuka Municipal Council in responding to fire incidents in Mazabuka urban.**

There a number of challenges facing Mazabuka municipal council fire department and these are; lack of manpower, erratic water supply and lack of effective communication system of the fire department office.

#### **5.2.3.1 Lack of man power**

The Mazabuka municipal council fire department only has 14 fire officers. The study revealed that the department is understaffed. This situation was bad and compromises the preparedness of the Municipal council.

The finding agrees with (Mukwena,2002) who commented on effective tackling of institutional weakness, a lot of constraints pointed out which account for the crisis of capacity in Zambian local government is serious staffing problems which affect basic service delivery.

According to (Dwomoh, 2015) inadequate personnel makes the Ghana Fire Services in a lot of stations to find higher response difficulties during fire incidences. Therefore it can be seen that inadequate in human capital compromises preparedness in fire incidence in terms of prevention and responding.

Limited number of fire officers at the department clearly states that the officers may not be able to have a lot resting days and this can reduce their effectiveness because they work 24 hours. The work is very stressful and lack of enough resting days is not advisable and it compromises preparedness.

#### **5.2.3.2 Erratic water supply**

Mazabuka Municipal council fire department has its water hydrant not active and so are other hydrants in Mazabuka urban. The main source of water supply is the southern water and sewerage company power station which is a distant form the fire station. According to fire brigade personnel it was started that;

*“The water is sufficient only the it is very inconvenient for us to collected water for the tender from the power station .Under normal circumstances all the water hydrants around Mazabuka urban needs to be functional so that we can collect water at closest points during fire suppression” (March,2018).*

The water sector in Zambia has not performed well especially in water supply. According to (Lengwe, 2015), inadequate and poor quality water supply still remains problematic across the country. Many areas across the country still receive none or erratic water supply.

Erratic water supply cannot be overemphasized to the fire department at Mazabuka Municipal council. An owned water hydrant is ideal for routine maintenance, security and secure water availability. The inactive water hydrant at the station is a big problem because the water tender needs to be refilled immediately every after an operation.

#### **5.2.3.3 Lack of effective communication system**

The fire department lack effective communication system for receiving reports on fire incidences and advice on fire related issues. It does not have a communication centre or office which could be used to gain the confidence of the public by supporting interactive communication even in times where there are no issues of fire incident reports bit just for knowledge. A member of the market committee argued that the fire brigade does respond once contact. One responded expressed confidently that;

*“When the stands were on fire the fire brigade came and the reason was because they were alerted late. The fire was at night and only watchmen where around who may not even has the contact number for the brigade” (March 2018).*



**Figure 9.0:** Mazabuka Municipal fire brigade (Source: Author’s field work, 2018).

During the study it was revealed and observed that there was only one handset which was donated by Airtel Zambia although it was not yet configured to facilitate calls for fire incidents alerts. Both the hotline 993 and phone number were yet to start being operational. However, the fire department has a number and it is displayed outside the main office.

The purpose of being prepared is to enable effective response whenever a fire incident occurs, therefore, fire department is critical to society and it should be moving with modern technology for effective dissemination of information and education. Proper communication is also needed if the community is to report fire incidents in good time for effective response. Therefore, this scenario showed lagging behind of the department’s preparedness since communication is one of the key elements of fire incidence preparedness.

Findings from the three objectives in the study, the challenges that were being affected by the fire department at Mazabuka municipal council indicate that the systems theory is not functioning properly. Despite the fact that the major preparedness features were present at the department like human and equipment capacity, education, training and awareness. The only part that is satisfactory was the availability of good conditioned equipment and other parts or rather features were not according to standard . Therefore, according to the conceptual and theoretical



framework the department was not prepared adequately as far as fire incidence preparedness was concerned.

#### **5.4 Conclusion**

This report documents the findings of the study on fire incidence preparedness and the views of the stakeholders regarding the fire incidence preparedness by Mazabuka Municipal council in urban markets. The study conducted between February and May 2018 aimed at investigation fire incident preparedness by Mazabuka Municipal council in Mazabuka urban.

The key issues regarding fire incidence preparedness by Mazabuka Municipal council fire department were raised from focus group discussions, individual interview and data collected from unstructured questionnaires.

The study showed that Mazabuka municipal council is understaffed and it is has an establishment below the standard of a municipal council fire department. Not only have that but the majority officers still fired officer in terms of qualifications.

The study also revealed that the department has sufficient equipment needed to respond to both normal fire incidents and petroleum related fire incidents. The department also had enough drivers to drive the water tender and ambulance during operations to respond to fires.

The study revealed preparedness projects undertaken by Mazabuka municipal council in Mazabuka urban. The main projects were; fire drills, fire prevention training, deliberate fire exposition, fire inspection and collaboration. The study also showed how education and awareness gets an opportunity to steer fire incidence preparedness in Mazabuka urban and last but not the least was that the council is making strides to collaborate with Zambia Sugar fire department in responding to fires in the urban district bearing in mind that some markets are in the company estate.

Furthermore, the study showed and discussed challenges faced by Mazabuka municipal council. The following challenges were revealed and these are; lack of man power, erratic water supply, and lack of effective communication system. These challenges according to the fire department are common around the country but the department has not gone to sleep as far as preparedness and response are concerned. To start with human resource they have been working to with the available staff and

have since appealed to the main municipal administration to consider recruiting more staff. On erratic water supply they best they do is just to go the power station to fill the water tender. The department is also faced with communication problem as they had no contact number that could be used to advise the general populace and a medium for report incident. This challenge was being mitigated by using personal mobile contacts as they wait for the department contact line to be active.

Fire preparedness in terms of awareness, training and training has not received its paramount importance. It has been clearly shown that the fire department at Mazabuka municipal council was generally not well prepared for fire incidents outbreaks. While inadequate human capital and effective communication for reporting have been spotted, erratic water supply was also highlighted. This clearly shows a missing link in the effectiveness and coordination of preparedness.

### **5.5 Recommendations**

While fire incident preparedness has been implemented by Mazabuka municipal council fire department and some inadequacies were discovered, therefore a lot need to be done. Therefore, arising from the findings, this study recommends the following measures;

1. The study established that there is inadequate human resource or fire fighters at the department. Therefore is need for the municipal council to consider recruiting more officers and provide capacity building for fire officers.
2. The problem of erratic water supply was also pronounced during the study therefore is need to find alternative supply of water especially at the station. To that effect construction of a bore to supply water at the station can be ideal.
3. The study has also established that effective communication is a challenge to the fire department. Therefore, there is need to empower the key people in communities by creating fire prevention committees who can be helpful in teaching basic fire prevention and reporting to various communities.
4. To improve community awareness on fires, the local government can create a platform for people to volunteer to train and lecture to people in risk areas like markets and slums.

5. The municipality should intensify the use the local media to educate the community about fire incidents preparedness. Social media, posters and brochures can be utilised to catch the attention of a lot of people especially youths.

## REFERENCES

- Adams, K.H, Hester,P.T and Bradlet, J.M.(2013).A historical perspective of systems theory. Industrial and systems Engineering Research conference. <https://www.researchgate.net/publication>
- Brown, J.K., and Smith, J.K., (Eds.) (2000). Wildland Fire in Ecosystems: Effects of Fire on Flora.*General Technical Report RMRS-GTR-42, Vol.2*. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Central Statistical Office. (2005).*Census of Population Summary Report, Zambia*.
- Central Statistical Office.(2012). *Zambia 2010 Census of population and housing: Vol.II* National descriptive tables.
- Chabala M. (2014).*Perceptions of parents and teachers on the best educational arrangement for twins: A case of selected primary schools in Lusaka District*; (Unpublished Masters Dissertation), UNZA, Lusaka, Zambia.
- Coley, S.A (2010).*The effects of competency based training implemented for the City of Forest Park fire Department*.[www.ohiofirechiefs.com/aws/OFCA/asset manager](http://www.ohiofirechiefs.com/aws/OFCA/asset manager).
- Commission on Fire Accreditation International.(2003).*Creating and Evaluating Standards of Response Coverage for Fire Departments (4th ed)*.Chantilly,VA.Public Entity Risk institute.
- Comolotti, J. (2004).*The importance of school fire drills*. <http://www.fa.com>.
- Cote, A. E.(2003).*Organizing for Fire and Rescue Services*, Massachusetts, Jones and Bartlett.
- Creswell, J.W (2009). *Research Design: Qualitative, Quantitative and Mixed method Approach*. SAGE publications, Los Angeles.
- Disaster Management and Mitigation Unit.(2008).*The severity and extent of fire disasters –Zambia’ s Technical Capabilities* , Republic of Zambia, Office of the President, Lusaka.
- Disaster Management and Mitigation Unit. (2017). Report on the assessment of loss and damage to the traders in the Lusaka City Market inferno. Office of the President, Lusaka.
- Dynes, R and Russel, N.(2002). *A prospective on Disaster Planning*. Disaster Research Centre, Delaware.
- Dynes, R.R.(1982).Problems in emergency planning. *International Journal of Energy*.8-9.6, 53-660.

Dwomoh,A.A (2015).Managing market fire in Ghana: A case study of Makola market, Accra. University of Ghana, Legon.

Ejeta, L.T., Ardalan, A. and Paton, D.(2015) ‘Application of behavioural theories to disaster and emergency health preparedness: A systematic review’, *PLoS Currents* 7, n.p.

Helmer, M. and Van Aalst,M.(2003).*Preparedness for Climate Change.:* <http://www.icrc.org/web/eng/siteeng0.nsf/htmlall/5xrfzb?opendocument>.

IFSTA.(2008).*Essentials of Fire Fighting and Fire Department Operations (5thEdition)*, Oklahoma, Pearson.

IFRC. (2012) .*Contingency Planning Guide 2012*,Auther,Geneva.<http://www.ifrc.org>

ISDR.(2012). *How to Make Cities More Resilient: A Handbook for Local Government Leaders*. Geneva,ISDR.

Murage J.G. (2012). *Factors influencing fire Disaster Preparedness in the Central business District of Nyeri Town, Nyeri County, Kenya* (Master’s Thesis), University of Nairobi, and Nairobi, Kenya.

Jun-tao, Yen chen .(2014).*Research and Application of fire Risk Assessment system at Market place buildings,Procedia Engineering* 71.476-480.

Kihila, J.M.(2017).Fire disaster preparedness and situational analysis in higher learning institutions of Tanzania, *Jàmbá: Journal of Disaster Risk Studies* 9(1)

Kobes, M., Helsloot, I., De Vries, B. and Post, J.G.(2010).Building safety and human behaviour in fire: A literature review, *Fire Safety Journal* 45, 1–11.

Kombo, D.K. and Tromp, D., L.A, (2006). *Proposal and Thesis Writing: An Introduction*, Paulines Publications Africa, Makuyu.

Kukali, A.N. and Kabuka, E.K., 2009, ‘Fire disasters in secondary boarding schools in Kenya’, *Journal of Disaster Management and Risk Reduction* 3, 60–71.

Lai, A.Y., He, J.A., Tan, T.B. and Phua, K.H.(2009). A proposed ASEAN disaster response, training and logistics centre enhancing regional governance in disaster management. *Journal of Transition studies review*, 16-2,299-315.

Laura Alfes.(2009).*Occupational Health and Safety for Market and Street Traders in Accra and Takoradi,Ghana*.Cambridge,Women in Informal Employment: Globalizing and Organizing (WIEGO).

Local government Act (1991).Chapter 281 laws of Zambia

Makachia, G.L., Gatebe, E. and Makhonge, P., (2014), 'Evaluation of fire safety measures at local universities in Kenya with reference to fire risk reduction rules In59, 2007', *Journal of Agriculture, Science and Technology* 16,(1) 172–186.

Marjanoric, P. and Nimpuno, K. (2002). *Disaster Management: Living with risk – towards Effective disaster management training in Africa.*

Masellis M., Ferrara, M.M., and Gunn, S.W.A.(1999). Fire Disaster and Burn Disaster: planning and Management. *Annals of Burns and Fire Disasters*.12 (2).

Mathbor, G.M.(2007). Enhancement of community preparedness for natural disasters: The role of social work in building social capital for sustainable disaster relief and management. *International Social Work* 50, 357–369.

McFadden, R.(1989). *Victims Errors Blamed in Fire Deaths: From Fire and Life Safety Education*, Manitoba: [www.wikipedia.org/fireandlifesafetyeducation](http://www.wikipedia.org/fireandlifesafetyeducation).

Mele, C., Pels, J., and Polese, F. (2010). A brief review of systems theories and their managerial applications, *Service Science*, 2(1-2), 126-135.

Menya, A.A. (2016). Fire disaster mitigation and preparedness in Nairobi: a capacity assessment of the city's fire brigade. [M.A Thesis]. Nairobi: University of Nairobi.

Mfinanga, D.A. (2007). Parking generation by facilities in the CBD of Dar-es-Salaam City. *The Journal of Building and Land Development*, 14 (2):83-99

Mugenda O.M and Mugenda, A.G.(2003). *Research Methods Quantitative and Qualitative approaches*, Acts Press, Nairobi.

Mukwena, R.M. (2002). *Building the institutional capacity of local authorities in Zambia in the third republic: An assessment*. African Administrative Studies, No. 53.

NEMA.(2006). National Platform for Disaster Risk Reduction, Nigeria: Disaster Reduction and Prevention in Nigeria. A report prepared under the directorship of National Emergency Management Agency, NEMA: Lagos, Nigeria.

National Fire Protection Association.(1995). *National Fire Codes*. Quincy, NFPA.

National Fire Protection Association.(2008). *Fire Protection Handbook (20th Edition)*. <http://www.nfpa.org>.

National Research Council.(2006). *Facing Hazards and Disasters: Understanding Human Dimensions*. Washington DC; USA.

Ndetu,D and Veronica Kaluyu.(2016).Factors influencing fire disaster management preparedness: a case of primary schools in Makeni county, Kenya ,*European Journal of Education Studies*. Open Access Publishing Group,6 (2).

Paton, D.,(2003).Disaster preparedness: A social cognitive perspective', *Disaster Prevention and Management: An International Journal*. 12, 210–216.

Phiri,E.G.(2016).Effective Management of Markets and service provision by Local Authorities: A case study of Lusaka City Council (1991-2013) .[M.A Dissertation].Lusaka: University of Zambia.

Sandelowski, M. (1995).Sample Size in Qualitative Research: Research in Nursing and health. *Journal of nursing and health*, 18.197-183.

Statton.(2011).*The evidence base of systemic family and couples therapies*.  
<http://www.aft.org.uk/SpringboardWebApp/userfiles/aft/file/Training>.

UNDP and GON.(2011).*A needs and a Capacity Assessment of Fire Preparedness in the Municipalities of Nepal*. <http://www.np.undp.org>.

UNISDR.(1994).*Yokohama Strategy and Plan of Action for a Safer World :Guidelines for natural disaster prevention, preparedness and mitigation* .World Conference on Natural Disaster Reduction, Yokohama, Japan, 23-27 May 1994:  
[http://www.unisdr.org/eng/about\\_isdr/bd-yokohama-strat-eng.htm](http://www.unisdr.org/eng/about_isdr/bd-yokohama-strat-eng.htm)

USFA and FEMA.(1995). *Fire Department Communications Manual: A basic guide to systems concept and equipment*. <https://www.hsdl.org/?view&did=446397>

Victoria,L.W.(2003).*Community Based Approaches to Disaster Mitigation*, Philippines.

Wilson, K. (2009). *Fire Department Staffing: A Need, Not a Want*. *Fire Engineering*.Vol. 162 (8).

World Health Organisation.(2011).*Burn Prevention, success stories lesson learned*, WHO, Geneva.

Wood, P.G.(1990).*A survey of behaviour in fires in Canter Fires and Human Behaviour*, 2nd ed, David Fulton Publishers, London.

## APPENDICES

### Appendix I: Focus group discussion guide for fire officers

#### INVESTIGATING FIRE INCIDENT PREPAREDNESS BY MAZABUKA MUNICIPAL COUNCIL: A CASE STUDY OF URBAN MARKETS

Interviewer: \_\_\_\_\_

School: \_\_\_\_\_.

Date: \_\_\_\_\_

Place: \_\_\_\_\_

Start Time: \_\_\_\_\_

Please note that this is a purely academic study which seeks to investigate fire incidence preparedness by Mazabuka municipal council: A case study of urban markets.

1. For how long have you been working in the fire department?
2. Have you experienced any fire outbreaks in Mazabuka before?
3. What staff facilities are available for fire personnel in your department?
4. Are you satisfied with the ability and capacity of your fire station to handle fire emergencies?
5. Do you inspect premises in Mazabuka fire safety compliance?
6. Are you satisfied with the available firefighting equipment?
7. Do you educate the people in Mazabuka market urban on fire safety?
8. Does the municipal council facilitate capacity building and training of fire department staff?
9. What challenges do you face when executing your duties?
10. In your opinion, what should be done to improve on fire preparedness and Mitigation strategies in Mazabuka urban?

End Time: \_\_\_\_\_ Thank you for your time and participation in this study.



**Appendix II: Focus group discussion guide for market committees**

**INVESTIGATING FIRE INCIDENCE PREPAREDNESS BY MAZABUKA  
MUNICIPAL COUNCIL: A CASE STUDY OF URBAN MARKETS**

Interviewer: \_\_\_\_\_

School: \_\_\_\_\_.

Date: \_\_\_\_\_

Place: \_\_\_\_\_

Start Time: \_\_\_\_\_

Please note that this is a purely academic study which seeks to investigate fire incidence preparedness by Mazabuka municipal council: a case study of urban markets.

1. What is preparedness
2. What is fire incidence preparedness
3. Do you think fire incidence preparedness is important
4. Who is responsible for fire incident preparedness
5. Have you experienced a fire in the market before
6. How did the fire brigade respond
7. Have you ever been trained on fire prevention
8. Who conducted that training
9. What have you been doing as representatives of the marketers in fire preparedness
10. What is the local authority doing to prevent fire incidents in the market
11. Is the council fire department prepared to respond to fire in the market?

End Time: \_\_\_\_\_ Thank you for your time and participation in this study.

**Appendix III: Face to face interview guide for the chief fire officer**

**INVESTIGATING FIRE INCIDENCE PREPAREDNESS BY MAZABUKA  
MUNICIPAL COUNCIL: A CASE STUDY OF URBAN MARKETS**

Interviewer: \_\_\_\_\_ Interviewee: \_\_\_\_\_ Sex ( )

Date : \_\_\_\_\_ Place: \_\_\_\_\_ Start Time:

\_\_\_\_\_

Please note that this is a purely academic study which seeks to investigate fire incidence preparedness by Mazabuka municipal council: A case study of urban markets.

1. How long have been in the service?
2. What is your view on fire incident preparedness?
3. How prepared is your department to respond to fires in the district?
4. Do you have enough human resource in the department?
5. Are you comfortable with the equipment in the department
6. Is the equipment adequate for your operations
7. What projects is the department implementing to promote fire incidence preparedness
8. What challenges are you facing as a department
9. What measures are you putting to mitigate the challenges?

End Time: \_\_\_\_\_ Thank you for your time and participation in this study.

**Appendix IV: Questionnaire for market master**

**INVESTIGATING FIRE INCIDENCE PREPAREDNESS BY MAZABUKA  
MUNICIPAL COUNCIL: A CASE STUDY OF URBAN MARKETS**

Dear respondent,

I am a Post Graduate student at the Mulugushi University main Campus. I am carrying out an academic research with respect to the above stated topic. You are one of the people who have been purposively selected and I am asking for your assistance by completing this questionnaire. For this research to succeed, I am kindly asking for your cooperation by answering this questionnaire truthfully and honestly. Please be assured that the information you will give will be treated with great confidentiality. For this reason, you are not supposed to write your name or give any other information that will display your identity on this questionnaire.

I sincerely thank you in anticipation.

1. Name (optional).....

2. Designation:.....

3. Age  21-30 years  31-40 years  41-50 years  51years and above

4. Gender  Male  Female

5. Highest level of educational qualification attained

.....

6. How long have you been working as a Market Master?

.....

7. Have you received any training on Market fire safety? Yes  No

If yes, how often do you train in a year?

.....

8. Do you educate the Maketeers on fire safety? Yes  No

9. If yes to question 8 above, how often do you educate them?

.....

10. Does the Council educate Marketers on fire safety? Yes  No

If yes, how often do they educate in a year?

.....

11. Do Markets have the necessary firefighting equipment?

Yes [ ] No [ ]

12. What method does the council use to educate Marketers on fire safety in Mazabuka?

.....  
.....  
.....  
.....

13. What are the fire preparedness measures the Council has implemented in Mazabuka urban Market?

.....  
.....  
.....  
.....

14. What has the Council done to facilitate Fire incident preparedness in the Markets in Mazabuka Urban?

.....  
.....  
.....

15. What do you think the council should do to improve on fire preparedness and Mitigation strategies in urban Markets?

.....  
.....

**Appendix V: Questionnaire for Chief fire officer**

**INVESTIGATING FIRE INCIDENCE PREPAREDNESS BY MAZABUKA  
MUNICIPAL COUNCIL: A CASE STUDY OF URBAN MARKETS**

Dear respondent,

I am a Post Graduate student at the Mulugushi University main Campus. I am carrying out an academic research with respect to the above stated topic. You are one of the people who have been purposively selected and I am asking for your assistance by completing this questionnaire. For this research to succeed, I am kindly asking for your cooperation by answering this questionnaire truthfully and honestly. Please be assured that the information you will give will be treated with great confidentiality. For this reason, you are not supposed to write your name or give any other information that will display your identity on this questionnaire.

I sincerely thank you in anticipation.

**SECTION A: PERSONAL DETAILS**

1. Name (optional).....
2. Designation:.....
3. Age  21-30 years  31-40 years  41-50 years  51years and above
4. Gender  Male  Female
5. Highest level of educational qualification attained  
Certificate  Diploma  Degree  Post Graduate  Others  
(Specify).....
6. Years of experience.....

**SECTION B: FIRE DISASTER MANAGEMENT PLANNING**

7. Does the Council have a fire disaster contingency plan?

Yes  No

If yes, how often do you revise?

.....

8. a. Does the Council conduct fire audits in Markets?

Yes [ ] No [ ]

b. If yes, how often do you do fire audits?

.....

c. Does the Council organise and conduct fire drills?

Yes [ ] No [ ]

b. If yes, how often?

.....

9. What is the current staffing level of fire department?.....

10. a. is the number of staff sufficient for operation of the fire department?

Yes [ ] No [ ]

b. How many more staff is needed .....

11. How many shifts do you have for fire personnel?.....

**SECTION C: TRAINING AND CAPACITY DEVELOPMENT**

12. a. Do you have a training plan for fire department personnel?

Yes [ ] No [ ]

b. If yes above how many staff have been trained?

.....

If the answer no, why not?

.....

13. What training programmes are recommended for fire personnel?

.....

14. a. Do you conduct training for community members?

Yes [ ] No [ ]

b. If yes, what training programmes are conducted?.....

If the answer no, why not?

.....

**D. AWARENESS CREATION**

15. a. Do you conduct community awareness and sensitization on fire preparedness?

Yes [ ] No [ ]

b. If yes, what methods do you use to reach out to the community?

.....  
.....

c. How often do you conduct awareness campaigns?

.....  
.....

16. Do you inspect premises within the Mazabuka urban for fire safety compliance?

Yes [ ] No [ ]

17. Do you carry out inspection and maintenance of firefighting equipment?

Yes [ ] No [ ]

If yes, how often do you inspect

.....

18. Do the buildings have the necessary firefighting equipment?

Yes [ ] No [ ]

19 . Are you satisfied with the available firefighting equipment?

Yes [ ] No [ ]

20. Does the Council have collaborative partners in fire disaster preparedness?

.....  
.....

**SECTION D: INFRASTRUCTURE CAPACITY**

21. How many fire engines does the Council have?.....

22. a. Are the fire engines well equipped?

Yes [ ] No [ ]

b. Are first aid kits updated regularly?

Yes [ ] No [ ]

23. What other forms of fire suppression materials do you have?

.....

24. Do you have ambulance services specifically designated for fire-fighting

Yes [ ] No [ ]

25. How often are the fire engines and other vehicles serviced?.....

26. a. Do you have a repair and maintenance workshop?  Yes  No  
 b. If No, where are maintenance and repairs done.....
27. a. Do you have a fuel storage facility in the station? Yes  No   
 b. If No, where do you obtain fuel from during fire emergencies?.....

**WATER**

28. What is the main source of water in the station(s)?.....
29. a. Do you have supplementary water sources? Yes  No   
 b. If yes mention.....
30. Do you have a water storage facility in the fire station? Yes  No
31. What mode of communication is available for fire disaster preparedness?  
 .....
32. a. Does the council have a fire disaster communication centre?  
 Yes  No  
 b.If No, how does the council handle fire emergency communication  
 .....

33. In your opinion;
- A. What challenges does the Council face technically and Infrastructure capacity?.....  
 .....
- B. what challenges does the Council face with regards to fire disaster mitigation and preparedness?.....  
 .....
- C. What can be done to enhance fire disaster mitigation and preparedness by the Council?.....  
 .....