

**ANALYSIS OF ACTIVE FIRE PROTECTION MEASURES IN GARKI MODEL  
MARKET OF THE FEDERAL CAPITAL TERRITORY OF NIGERIA**

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**ABSTRACT:** *Fire outbreak in market places is a recurring issue in Nigeria, and it is a leading causes of lives and properties loss in Nigerian markets. In order to curtail this problem, an evaluation of active fire protection measures in Garki model market of the Federal Capital Territory (FCT) of Nigeria was conducted with the aim of generating guidelines that can reduce the spread of fire outbreaks in Nigerian markets. There are 1,430 sales points in Garki model market. Systematic sampling method was adopted for this study and it was applied at every 5<sup>th</sup> interval of sales points, in order to get the sample size; as a result of this, 287 sales points were selected. The primary research data were questionnaires administered to the sales people, and the direct observations of the current conditions of the market; likewise, 20 different focus group discussions were organised for the selected sales people. Also, interview questions were administered to the managing company of the market. Among the results are: fire protection devices in the market are not adequate; all the fire hose reels in the market are not in good condition; most of the sales people in the market do not know how to operate firefighting equipment because they do not respond to calls for training on how to use them. Among the recommended guidelines are: the adequacy and functionality of fire protection devices should be ensured by the government of Nigeria and the management authorities of markets in Nigeria; training for the sales people should be enforced by the management authorities of markets in Nigeria, in order to ensure that the sales people know how to operate firefighting equipment.*

**KEYWORDS:** Fire, Guidelines, Markets, Nigeria, Protection.

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## **INTRODUCTION**

Markets are public places where people meet for business transactions. In Africa, markets developed as open air market places where people met for business transactions in strategic areas (Ngugi, 2015; Onyango *et al.*, 2013). After some times, markets took diverse forms such as street markets and regional built-up markets. These transformations are as a result of numerous factors which are economic, political and social factors, cultural behaviour in humans, urban informality, demographic changes, and urban land policies for countries of Africa that were colonised (Ngugi, 2015; Onyango *et al.*, 2013). In Nigeria, markets are very important to people in one way or the other and their importance cannot be over emphasised. They serve as an avenue for people to earn livings. Man being a social primate needs companionship for entertainment, interaction and other activities; to this end, it was noted that market places serve as an avenue for the interaction of people (Ngugi, 2015; Kamarudin *et al.*, 2015; Raipat, 2016). It is because of these social factors that play areas and eatery joints are

curved out in any given market especially if they were not initially provided in any given market. Considering the significances of markets in the societies, it therefore became important to evaluate active fire protection measures in markets, especially in Nigeria where they are always burning.

Active fire protection in this context is the way to extinguish fires with the fire protection devices when they break out in markets. Ideas on the uses of installed fire protection devices in buildings are very important in tackling fire emergencies; otherwise their installations will not be useful (Kachenje *et al.*, 2010). The achievement of fire safety is enhance by a good system of measures at both management and physical levels that collectively interact to give a comprehensive system of fire safety (Kincaid, 2012; Scottish Government, 2008). Fire outbreak in market places is a recurring issue in Nigeria and is now a serious challenge (Federal Fire Service of Nigeria, 2016). Worldwide, the different technological advancements in fire safety for commercial and industrial facilities have emerged (Menon and Vakil, 2016). However, fire outbreaks in markets are still the leading causes of lives and properties loss in Nigerian markets.

The study area is Garki model market of the Federal Capital Territory (FCT) of Nigeria. The whole buildings in Garki model market is the scope of this study. The capital city of Nigeria is the FCT which is located in the central Nigeria (Nnodim, 2011). The aim of this study is to carry out an evaluation of active fire protection measures in Garki model market, in order to generate guidelines that can reduce the spread of fire outbreaks in markets in Nigeria. The objectives of the study are: to analyse the adequacy of the firefighting equipment in the study domain and to find out how they are maintained; to find out the number of sales people that know how to operate firefighting equipment and how effective are the firefighting personnel in the study domain. It is well assured that this study has led to the generation of information about the firefighting equipment in Nigerian markets. This information together with the framework for this study have educate people with regards to the appropriate uses of fire protection devices which will in turn help in reducing the spread of fire outbreaks in Nigerian markets.

## **METHODS AND PROCEDURES**

Fire protection devices in all the buildings in Garki model market is the target population for this study. Abuja Markets Management Limited is the current managing company of Garki model market. According to the Abuja Markets Management Limited (2016), Garki model market is comprised of 558 open stalls and 872 lock-up shops. Thus, by summing up the numbers of open stalls and lock-up shops in the market, it mathematically implies that there are 1,430 sales points in Garki model market. Hence, systematic sampling method was adopted for this study and it was applied at every 5<sup>th</sup> interval of the sales points, in order to get the sample size; as a result of this, 287 sales points were selected out of the total number of the sales points in the market for the study.

The primary research data were questionnaires administered to the sales people at each selected sales point, and the direct observations of the current condition of the market with regards to

active fire protection measures; likewise, 20 different focus group discussions that are made up of five sales people were organised and the reason for using up to 20 different focus groups in the study area is to maximise results from a large number of participants with regards to the size of the market in terms of the available numbers of the sales points. Also, a set of interview questions were administered to the managing company of the market. A limitation to this study is that some sales people in the study domain could not give adequate time for the focus group discussions as expected because they were busy with their businesses; thus, it led to the generation of small quantity of information that was gotten from the focus group discussion exercises.

## RESULTS AND DISCUSSION

Fire protection devices are not adequate in Garki model market. According to the managing company of the market, there are 872 lock-up shops and 558 open stalls in Garki model market. However, only two portable fire extinguishers were seen in the market. One portable fire extinguisher was found on the wall of a lock-up shop building in the central part of the formal section of the market and another one was found on the wall in front of the office of the managing company of the market in the southern part of the formal section. In addition, three fire hose reels were found in the central part of the formal section of the market. There is no fire protection device that was found in the informal section of the market that is made up of 558 open stalls. Therefore, fire protection devices are not adequate in Garki model market by considering the number of the observed fire protection devices in relation to the size of the market in terms of the number of available facilities (1,430 sales points). The focus group discussion with the sales people revealed that all the fire hose reels in the market are not in good condition. Plate I shows a non-functioning fire hose reel in Garki model market.



Plate I: Non-functioning Fire Hose Reel in the Central Part of the Formal Section of Garki Model Market (Source: Researcher's Field Work, 2017).

It was noticed that the primary evacuation route of the administrative building of the market has no emergency lighting, so that the people who are at the risks of fires can be able to see well and properly escape in case of electric power cut or failure during the fire outbreaks. In addition, the interview questions administered to the managing company of Garki model market showed that the company has only one qualified electrical inspector and his responsibility is to move through the market to check electrical wiring and fittings in the market so that anywhere electrical faults are detected, repairs can be made on them to reduce fire outbreaks in the market. By considering only one electrical inspector in the market with respect to the size of the market in terms of the number of the available facilities (1,430 sales points) and how markets in Nigeria are prone to frequent fire outbreaks, the rationale for this is inadequate. The interview questions administered to the managing company of Garki model market also revealed that the monthly salary of the electrical inspector of the market is 35,000 Naira and this is rather low. In any organisation, it is important that the workers are satisfied with their jobs, so that they can give the best of services under good working conditions (Dobre, 2013; Sageer *et al.*, 2012 and Tella *et al.*, 2007).

Considering the availabilities of firefighting equipment, 89 (31.0%) sales people responded that there are firefighting equipment in Garki model market. Observation confirmed that there are firefighting equipment in Garki model market but they are absolutely inadequate. However, 198 (69.0%) sales people responded that there are no firefighting equipment in the market and this means that the majority of sales people (respondents) have not noticed the existence of the firefighting equipment in the market because it was observed that they are very few in number (two portable fire extinguishers and three hose reels).

Considering the operations of the firefighting equipment, 39 (13.6 %) sales people in the market responded that they know how to operate firefighting equipment. 122 (42.5%) sales people in the market responded that they do not know how to operate firefighting equipment, and 126 (43.9%) sales people responded that there are no firefighting equipment in the market that will even encourage sales people to learn how to make use of them. This immediate statement implies that the majority of sales people in the market do not know how to operate firefighting equipment because they do not respond to calls for trainings on how to use firefighting equipment. Figure 1 shows the responses of sales people in Garki model market on how to use firefighting equipment.

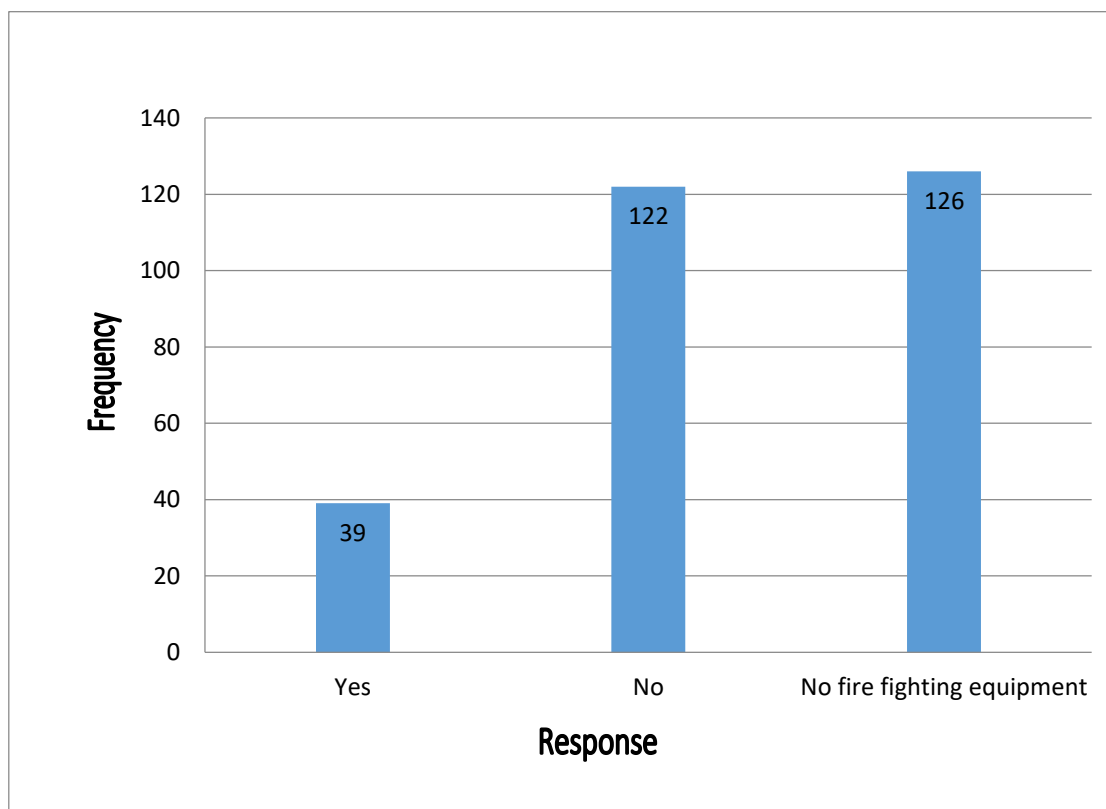


Fig. 1: Responses of Sales People in Garki Model Market on How to Use Fire Fighting Equipment.

Concerning levels of satisfaction with the firefighting equipment, 70 (24.4%) sales people responded that they are not satisfied with the firefighting equipment in the market. Conversely, 22 (7.7%) sales people responded that they are averagely satisfied with the firefighting equipment in the market, and 12 (4.2%) sales people responded that they are very satisfied with the firefighting equipment in the market. 183 (63.7%) sales people responded that there are no firefighting equipment in the market for any level of satisfaction to be derived. These statements affirmed that firefighting equipment are not adequate in the market by considering the levels of satisfaction of the sales people in the market. Figure 2 shows the levels of satisfaction of the sales people with the firefighting equipment in Garki model market.

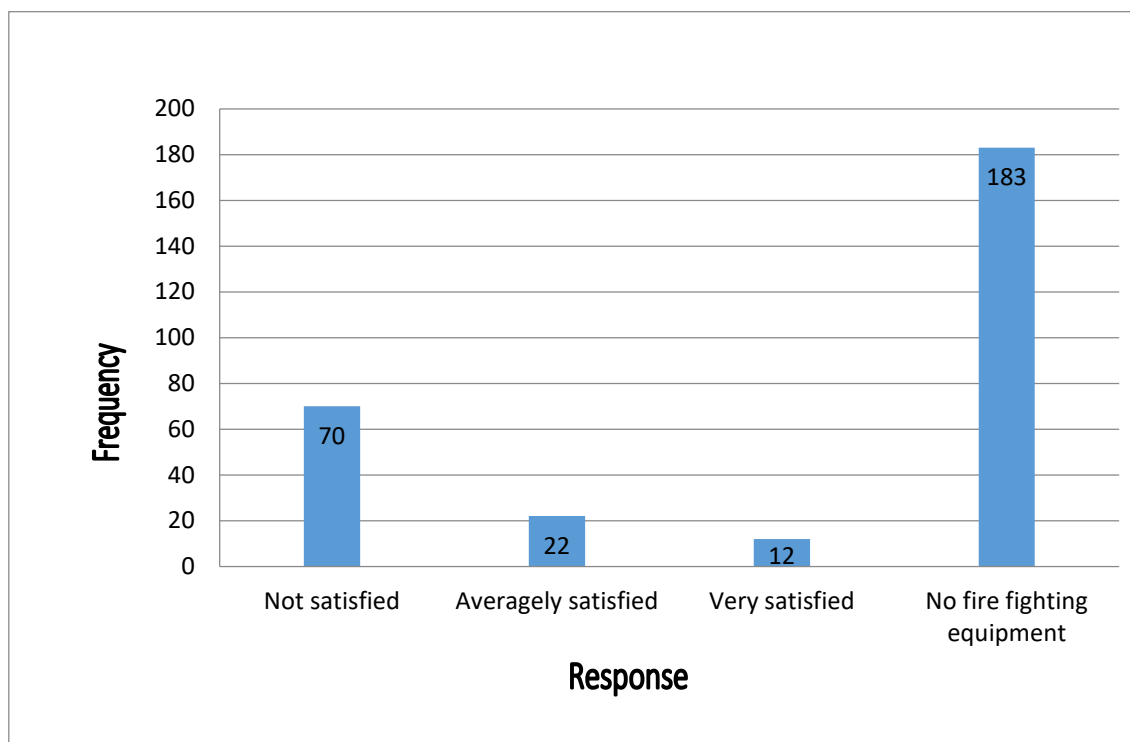


Fig. 2: Levels of Satisfaction of the Sales People with the Fire Fighting Equipment in Garki Model Market.

## CONCLUSION AND RECOMMENDATIONS

The importance of markets to people was recapped. They serve as an avenue for people to earn livings. Man being a social primate needs companionship for entertainment, interaction and other activities; to this end, it was noted that market places serve as an avenue for the interaction of people. Considering significances of markets in the societies, it therefore became important to evaluate active fire protection measures in markets, especially in Nigeria where they are always burning. The aim of this study was to carry out an evaluation of active fire protection measures in Garki model market, in order to generate guidelines that can reduce the spread of fire outbreaks in markets in Nigeria. For the purpose of this study, systematic sampling method was adopted for this study and it was applied at every 5<sup>th</sup> interval of sales points, in order to get the sample size; as a result of this, 287 sales points were selected out of 1,430 sales points in the study domain.

The primary data are questionnaires that were administered to the sales people at each selected sales point, and the direct observations of the current conditions of the market that was studied; likewise, 20 different focus group discussions that are of five sales people were organised and the reason for using up to 20 different focus groups in the study area is to maximise results from a large number of participants. Also, interview questions were administered to the managing company of the market that was studied.

The results showed that fire protection devices in the market are not adequate; all the fire hose reels in the market are not in good condition. As a result of these, the majority of sales people are not satisfied with the fire protection devices. The primary evacuation route of the administrative building of the market has no emergency lighting along the route in case of any electric power cut or failure during fire outbreaks. The results also showed that there is only one qualified electrical inspector to move through the market to check electrical wirings and fittings in the market so that anywhere electrical faults are detected, repairs can be made on them to reduce fire outbreaks in the market. Thus, only one electrical inspector in the market with respect to its size is inadequate. The electrical inspector is not well paid. Most of the sales people in the market do not know how to operate firefighting equipment because they do not respond to calls for trainings on how to use them.

Therefore, the following guidelines are recommended:

- i. The adequacy and functionality of fire protection devices should be ensured by the government of Nigeria and the management authorities of markets in Nigeria.
- ii. The government of Nigeria should also ensure that the sales people must be able to operate them.
- iii. It should be ensured by the government of Nigeria that emergency lighting must be incorporated in the evacuation routes of Nigerian market buildings, in case of any electric power cut or failure during fire outbreaks.
- iv. The adequacy of electrical inspectors in Nigerian markets should be ensured by the management authorities of markets in Nigeria.
- v. The electrical inspectors in Nigerian markets should be well paid, in order to discharge their duties effectively.
- vi. Trainings for the sales people should be enforced by the management authorities of markets in Nigeria, in order to ensure that the sales people know how to operate firefighting equipment.

This study did not examine standards of the fire protection devices in the study domain. This is a gap in knowledge; therefore, in subsequent study of this nature, this gap should be addressed.

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