



ASSESSMENT OF THE IMPEDIMENTS TO ACHIEVING EFFECTIVE AND OPTIMUM FIRE PREVENTION AND CONTROL IN MAJOR KANO MARKETS, KANO STATE

IBRAHIM ABUBAKAR ALKALI

Department of Architecture, Faculty of Earth and Environmental Sciences, Bayero University Kano, PMB 3011 Kano, Nigeria

Corresponding Author: iaalkali2@yahoo.com

ABSTRACT

Markets are complex entities comprising of multiple units ranging from economic, socio cultural, infrastructural, technological and environmental viewpoints. Therefore, its designs especially with regards to fire prevention and control goes beyond active and passive fire prevention and control measures. There are non-salient issues that are usually given less attention but has great impact on the causes as well as hinder the control of market fires. Through qualitative approach involving observation, this study explored three major markets in Kano city using purposive sampling with a view to identifying the challenges of those markets in achieving the optimum fire prevention and control required for such commercial enterprise. The study found alterations, congestion, clearance, extension, indiscriminate parking, squatter trading, hawking/peddling and poor circulation as a challenge to optimum fire prevention and control in the markets. Negligence to the fire prevention and control strategies observed in the markets are believed to have high tendency exacerbating fire disasters with little or no chances of control and evacuation. It is thus imperative to have proactive measures that will enforce the existing development control regulations, fire prevention and control act and ensure orderliness in the market. In addition there is dire need for customized design framework that is conscious of the peculiarities of market settings and operations of such study areas and alike.

Keywords: Fire Prevention, Markets, Fire control, Impediments.

INTRODUCTION

Despite human advancement in trade and commerce especially the digital economy, traditional marketplaces are still relevant in the contemporary business activities as well as urban environmental management. This is due to the fact that market as an economic institution plays a vital role in the economies of hosting communities and the nation as a whole. It also serves as an index of measuring the performance of urban environmental quality (Oteng-Ababio et al., 2015). In developing countries particularly, most of their economic activities either originate from markets where wholesale materials are

purchased for retail selling or terminate at markets especially raw materials and other consumables (Maigari, 2015). Markets functions in various settings and forms such as shopping mall, departmental stores, street markets with stalls along one or more public streets as well as urban markets, with the latter being more heterogeneous in nature because of its nature of accommodating different type of traders in terms of socio economic background and non-centralized ownership, they also serves as one of the major employment source to the teeming urban population, this comprises of various

traders with different socio-cultural and economic backgrounds.

One of the major threats facing market growth worldwide especially in developing nations like Nigeria is the rate at which fire outbreaks occurs. Some markets both in and outside Nigeria have recorded significant losses due to fire hazards (Popoola et al., 2016). These disasters disrupts normal market operations and therefore affect economies at household level, locally and internationally (Adamu et al., 2020).

According to Federal Fire Service (FFS) more than 20 fire incidences in a year were recorded from across Nigerian major markets (Adamu et al., 2020). Kano state being the center of commercial activities in Nigeria, information obtained from the management of Kano State Fire Service on fire outbreak from the year 2000 to 2020 (20 years span) indicates 95 incidences of fire outbreaks in markets only (Arowolo et al., 2021). The recent and the most fatal market fire outbreak in Kano state took place in the year 2016 in Muhammadu Abubakar Rimi (Sabon Gari) Market, which is the biggest market fire outbreak that Nigeria ever witnessed (Sunday, 2017). According to NEMA, the fire destroyed 3,800 shops, obliterated about two trillion naira (approximately ten billion dollars) worth of goods and affected at least 18,000 traders (Sunday, 2017). Considering the aforementioned, it can be said that markets in Nigeria are not entirely safe in terms of fire hazards.

Most of consideration for fire safety in markets design in Nigeria gave attention to building codes (Maigari, 2015; Nneke & Kerian, 2019), building materials (Sunday, 2017), active and passive fire prevention and control measures (Hilary et al., 2020), with little or no consideration for non-salient

factors that will impeded optimum fire prevention and control. The non-salient factors are considered in this study to be anything that have the tendency of impeding fire prevention and control but have not been formally considered as such. Therefore, this study seeks to explore and identify non-salient issues that are inhibition to achieving the maximum fire safety required of markets in Kano.

MARKETS AND FIRE DISASTERS

Market fires are essentially human-induced disasters. This implies that it is avoidable and can be eliminated. It is imperative therefore, in an attempt to eliminate fire incidents, to identify all immediate causes and root causes. The immediate causes are the conditions or actions occurring immediately prior to the fire outbreak while the root causes are the underlying preconditions categorized into personal (human) factors and job (environmental) factors (Aning-Agyei, 2018). This implies that some factors are the responsible for fire disasters, some exacerbate it while others becomes impediment to its control. Poor handling and operations of electrical appliances, defective electric wiring system and storage of inflammable substances in unsafe departments are found to be common attributable factors responsible for the fire disasters in Nigerian Markets (Sunday, 2017).

Despite the importance of markets in national development it has been observed that most urban market in Nigeria have been allowed to develop organically without proper planning and where planned are poorly managed (Nneke & Kerian, 2019). To achieve effectiveness in markets, planning principles and standards for commercial development were developed as a guide for an effective development of commercial activities. This

standard is a specification or yard stick outline for the percentage of the total area to be allocated to different land uses so as to avoid congestion and misused of land therefore for any market to effective it must have development and management plan that should serve as a guide to the entire project life during and after (Aning-Agyei, 2018).

It is common knowledge that achieving optimum fire protection is prevention strategies, but superstition and local belief has also been the obstacle in developing an attitudinal change framework for a safer Nigerian market (Adamu et al., 2020). Some people, out of sheer ignorance, still harbour the cultural belief that it is an invitation of Misfortune to make provision for the prevention of hazards, as such many do not subscribe to simple fire and safety tips that can prevent disasters (Hilary et al., 2020).

Safety have been given priority in the programmes and plans of every level of government, but it has always been treated with levity (Popoola et al., 2016). Adequate provision for safety are made in Nigerian laws on safety, the National Fire Safety Code. The code is designed as a set of rules guiding fire prevention and control in all public buildings in Nigeria, however, lack of consideration for these deliberate violation have undermined all effort to provide a safe corridors for our Nigerian markets (Adamu et al., 2020).

RESEARCH METHODOLOGY

In assessing the impediments to achieving effective fire prevention and control in kano markets, a case study approach was adopted for this study where observations was carried out in three chosen major markets of Kano using purposive sampling. The markets are Muhammadu Abubakar Rimi (Sabon Gari)

Market, Kofar Wambai and Kantin Kwari Market. An exploratory survey without a predefined observation checklist was carried out considering the research question of what are the factors that have tendencies of becoming a potential challenge to achieving optimum fire prevention and control. The Data was analysed using classical content analysis by case wise comparison (Miles et al., 2013). Five points scale (1- Not a threat, 2-A threat, 3-A serious threat, 4- A danger) was used to determine the extent to which the variables observed pose a challenge to achieving optimum fire prevention and control in the selected markets

RESULTS AND DISCUSSION

Fire prevention and control are key consideration by Architects designing any public space especially markets where pulling a large crowd. Negligence to the fire prevention and control strategies have been resulting to a devastating fire disasters that consumes not only live and properties but displace traders and render many of them jobless. The result from the study carried out shows that there was to some extent, a conscious and deliberate effort of considerations for fire safety in the design of the markets. However, so many factors illustrated in Table 1 were found to pose a serious challenge to achieving optimum fire prevention and control. All the factors identified was found to be a deliberate poor attitude of the traders. Furthermore, lack of proper market administration, and non-enforcement of extant market regulation was found to compound the situation.

Alterations

Result from the study carried out shows that achieving optimum fire prevention and control can be challenging in all the markets

studied. It was found that the original layout of the market was altered to accommodate more stalls. The original sizes of the spaces were expanded beyond the original building line. Furthermore, some routes were found to be allocated to a function they were not originally design for thereby making the route a close The alterations were made in such a way that they become a threat to escape and or evacuation in case of any emergency. In some areas especially in Kantin Kwari market and Kofar wambai market (Table 1). The alterations are so serious that they became potential points of stampede during emergency (Plate 1)

Table 1: Factors challenging achievement of optimum fire prevention and control

Sn	Variable	Abubakar Rimi Market	Kwari Market	Sabon Gari Market
1	Alteration	2	3	3
2	Congestion	4	4	4
3	Clearance	4	3	4
4	Extention	3	4	2
5	Indiscriminate Parking	3	4	1
6	Squarter trading	4	4	4
7	Hawking/ Peddling	3	4	4
8	Poor Circulation	3	3	4



Plate 1: Congestion due to alteration

Congestions

The study revealed that all the three markets studied were full to the brim at peak periods of the day. It was full to the extent that the markets are so congested that movement is so difficult that it poses danger to lives and properties in case of fire outbreak (Table 1). The populations in the market is so large that the so many considerations for exit and assembly points were fully occupied by traders (Plate 2).



Plate 2: Congestion on majour routes in the market

Extensions

Extensions beyond the boundaries of shops building line was found to narrow circulation spaces, increase the potential hazard and above all affect exit and evacuation plans in case of emergency. In fact the issue In *Kantin Kwari* was found to be more severe that it posses danger to the market community (Table 1). Almost all market stalls were found to either extend their canopies beyond their boundaries or display wares on the passages and walkways (Plate 3). Unfortunately, they use combustibile materials such as timber, umbrellas, zinc etc for the extension which intensifies the risk.



Plate 3: The extension of market stalls beyond their boundaries

Indiscreminate Parking

The result from this study reveals how parking indiscriminately of bikes and motorcycles along passages and walkways in the markets have posed danger to fire prevention and control. In *Kantin Kwari* and Abubakar Rimi market it was so pronounced to the extent that it poses danger in case of emergency (Table 1). Motorcycles were found parked in front of shops no matter how tight

the passages and walkways are as can be seen in Plate 4



Plate 4: Indiscriminate parking on passages

Squater trading

The market environment and scenery was found to have been taken over by squatter traders. These traders fix themselves in any available space in the market no matter how small the space is. They are retail traders selling all forms of wares. Their population is so large that they became nuisance to the market setting. Their action is the most dangerous among all the factors identified as impediments to fire prevention and control. In addition to blocking major and minor circulation routes, they were found to congest entry and exist points of the market thereby making getting in and out from the market difficult. In fact their presence and activities alone is enough to make the market very vulnerable to fire and very risky as well. In addition to the wares they sell of which many are flammable, they as well use material like timber, umbrellas, zinc for their shades and stands which eventually compound the vulnerability and increase the danger they pose.



Plate 5: Squatter trading

Hawking/Peddling

The result from the study in all the three markets shows that the risk posed by the activities of hawkers and peddlers is very alarming. They are seen in all nooks and crannies of the market in different forms and patterns of trading selling all types of commodities possible. They use various means of peddling ranging from handy, wheelbarrows, carts etc. They were found to obstruct free movement in the market, block entrances and exits, park their carts and wheelbarrows indiscriminately, and becomes nuisance to the market environment



Plate 6: Hawking and Peddling on major routes

Poor Circulation

Provision for and ensuring Uninterrupted and unrestricted circulation spaces in market is key consideration in achieving optimum fire safety in markets. The extensions, indiscriminate parkings, hawking/loitering, squatter trading and many more factors identified put together has posed a serious challenge in all the three markets studied thereby making movement of individuals very difficult. With this attitude, achieving optimum fire prevention and control is proving difficult and a a daring challenge during emergency. There is no conscious effort practically seen made in case of emergency for evacuation and escape as all major routes and entry points are blocked with such actions with no recourse for alternative option.



Plate 7: Congestion affecting circulation in major routes of the markets

SUMMARY AND CONCLUSION

The findings from this study have actually revealed an ugly scenario that is very alarming. Despite the conscious effort in making provision for fire prevention and control in design, lives and properties in all the three markets studied are in serious danger. The serious casualties of lives and properties in the continuous and incessant fire outbreaks experienced can now be attributed to the poor action and attitudes of the traders. Furthermore lack of proper market administration, development control and enforcement of laws guiding markets operation can be clearly seen in the rowdy nature of the market.

Therefore, achieving fire prevention and control in markets cannot be achieved optimally without taking into cognisance, these non-salient issues that appear so casual but very dangerous to the market existence. It is thus recommended that a customized design framework that is conscious of the peculiarities of market settings and operations be developed for such study areas and alike. Similarly, it becomes imperative to have proactive measures that will enforce the

existing development control regulations, fire prevention and control act and ensure orderliness in the market.

REFERENCES

- Adamu, K. E., Abdullahi, A., & Maina, J. J. (2020). Assessment of Fire Safety Measures in Some Markets in Kaduna State, Nigeria. *Dutse Journal of Pure and Applied Sciences (DUJOPAS)*, 6(3), 168–180.
- Aning-Agyei, P. G. (2018). *Managing post disaster recovery of market fire victims in Ghana* [Thesis, University of Cape Coast]. <http://erl.ucc.edu.gh/dspace/handle/123456789/3316>
- Arowolo, T., A., Adewale, K. A., & Owolabi, O. S. (2021). Integration of Fire Safety Performance in Market Design; Case Study of Abubakar Rimi Market Kaduna. *International Journal of Advanced Academic Research*, 7(6), 29–49.
- Hilary, R., Rotich, P., Geoffrey, A., & Sam, A. (2020). Early Fire Detection System in Tanzania Markets. *Engineering Proceedings*, 2(1), 50. <https://doi.org/10.3390/ecs-a-7-08215>
- Maigari, A. I. (2015). Evolutionary trend, spatial distribution of, and issues associated with markets in kano metropolis. *International Journal of Physical and Human Geography*, 3(2), 9–24.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative Data Analysis: A Methods Sourcebook* (Third Edition edition). SAGE Publications, Inc.
- Nneke, O. J., & Kerian, E. T. K. (2019). Fire Fighting Preparedness in Idemili North of Anambra State. *International*



- Journal of Innovative Human Ecology & Nature Studies*, 7(4), 86–100.
- Oteng-Ababio, M., Sarfo, K. O., & Owusu-Sekere, E. (2015). Exploring the realities of resilience: Case study of Kantamanto Market fire in Accra, Ghana. *International Journal of Disaster Risk Reduction*, 12, 311–318. <https://doi.org/10.1016/j.ijdr.2015.02.005>
- Popoola, A., Adekalu, O., & Abiodun, A. (2016). *Analysis of Causes and Characteristics of Market Fires in Lagos State Nigeria*.
- Sunday, U. O. (2017). Analysis of the Overview of the Causes of Fire Outbreaks in Nigerian Markets. *Analysis of the Overview of the Causes of Fire Outbreaks in Nigerian Markets*, 2(1), 1–9.