ADVANCE AFRICAN RESEARCH BULLETIN

Assessment of the Socio-economic Impact of Fire Disaster among Public Buildings in Federal Capital Territory, Nigeria

[a] Udoh, I. H*., [ab] Obafemi, A. A. and [ab] Mbee, M. D.

[a] Centre for Disaster Risk Management and Development Studies, University of Port Harcourt, Port Harcourt, Nigeria
[b] Department of Geography and Environmental Management, University of Port Harcourt, Port Harcourt, Nigeria
[c] Department of Geography and Environmental Management, University of Port Harcourt, Port Harcourt, Nigeria

*Corresponding Author: **Udoh, I. H** (hopeudoh64@gmail.com)

Abstract

Fire outbreak in is a problem in Nigeria public buildings and it has led to loss of goods and destruction of assets. The study assessed the socio-economic impact of fire disaster among public buildings in Federal Capital Territory, Nigeria. Four hundred (400) questionnaire was administered among randomly selected respondents (public building occupants); however, 376 were returned and analysed using descriptive and inferential statistic such as frequency count and percentage. The respondents agreed that socio-economic impacts of fire disaster include reduced quality of life of the victims (57.4%), individual suffers direct physical and emotional harm from injuries and fatalities (51.1%), loss of lives (83.0%), socio-economic activities interruption (55.8%), respiratory disorder among the victims (52.6%), property damage and reduced the building value (76.3%), low patronage or desertion from the building due to fire incidents history (55.9%), property damage to the non-occupants of the building (55.3%). Conclusively, fire disaster among among public building leads to various socio-economic implications; therefore, building owners should partner with Government agency such as Fire Service for awareness programmes for their occupants, drilling about fire event and equipped their building with fire-fighting apparatus.

Keywords: Fire Disaster, Public Building, Socio-economic, Abuja

Introduction

Fire outbreak is one of the most troubling and reoccurring disasters affecting both developed and developing countries of the worlds, especially in cities of developing countries where fire accidents occur repeatedly without implementation of lessons learnt from previous fire outbreaks (Daramola & Ibrahim, 2021; Agbola & Falola, 2021). In Nigeria, urban fire is responsible for deaths, injuries and loss of billions (in Naira) to fire-related property damage (Adamu & Yunus, 2017). Nigeria records over 8,000 fire outbreak incidents yearly according to National Emergency Management Agency

(NEMA), and this often leads to over 1,000 deaths and billions of naira worth of financial loss (Adamu & Yunus, 2017; Daramola & Ibrahim, 2021). In Nigeria, public buildings frequently go up in flames basically as a result of inadequate fire safety awareness in the country and the culture of fire safety is yet to take it as a panacea to frequent and deadly public buildings fire (Owusu-Ansah et al., 2019). Most public buildings in Nigeria are not equipped with fire safety equipment that can detect fire outbreaks at early stages. Worse still, high rise buildings are springing up in the country which is growing concern towards fire safety issues in such buildings due to several fire incidences that have occurred (Nimlyat et al., 2017; Daramola & Ibrahim, 2021).

Fire outbreaks in recent years have become both environmental and economic issues (Agyekum et al., 2016; Adeleye et al., 2020). Scholars agree that disasters exert significant pressure on budgetary allocations at macroeconomic level and slows community business with both narrow fiscal short term impacts and wider long-term development implications (Owusu-Ansah et al 2019). These leads to reduced employment opportunities and contributes to knock-on indirect effects through reduction in investment, reduced productivity capacity, reduced consumption and incurred cost of resettlement and most importantly introduce dead weight losses to SMEs affected (Owusu-Ansah et al 2019). Izuora (2017), as reported by Adeleye et al. (2020), noted that incessant fire in Nigeria has cost the National economy about 6 trillion naira in the space of 5 years, also noted are the major cities seriously affected, which are cities like Lagos, Kano, Port Harcourt and Abuja.

In respect to public building and commercial related activities, fire disaster is a major risk associated with their operations in Nigeria, as reported by many occupants and owners (Khaliq, 2023). Similarly, Sunday (2017) asserted that fire outbreak in is a problem in Nigeria public buildings and it has led to loss of goods and destruction of assets. For

instance, over 50 fire outbreaks were reported among Nigerian markets between November 2020 and August 2021, and no fewer than six markets in Abuja were completely destroyed by major fire in 2021 (Abdullahi 2023). The National Association of Nigerian Traders (NANTs) is alarmed and pained at the spate of fires incidents in the country, pointing out that in the last 17 years, the association estimated the cost of goods lost to fire incidents at a hefty N5.3 trillion, barely a trillion less than the most ambitious budget of Africa's largest economy (Thisdaylive editorial, 2016). According to the Ukpe (2023), the government experienced over 2,056 cases of fire incidents with a loss of over N1 trillion of properties. The fire incidents in Nigeria also affected the country's military assets and other public related buildings and properties. The surge in fire occurrences has negatively impacted individuals and occupants of many of the public building causing property damage and putting their families (Olugbode, 2023). Regarding the impact of fire disaster among public building, few studies have been able to empirically established the socio-economic impact of such event; hence, the present study assessed the socio-economic impact of fire disaster among public buildings in Federal Capital Territory, Nigeria.

Materials and Method

Study Area

Abuja, located centrally in Nigeria, is the nation's capital city (Figure 1). Kaduna borders Abuja to the north, Niger state to the west, Nasarawa state to the east and southeast, and Kogi state to the southwest. Abuja was officially named the capital of Nigeria on December 12, 1991 (Wambebe & Duan, 2020). Abuja is found on latitude 7° 25'' and 9° 20'' North of the Equator and longitude 5° 45'' and 7° 39'' East of the Greenwich. The overall land area is 7315 km2. Abuja's population currently surpasses 2.5 million people, according to Wambebe & Duan (2020). Abuja's population has grown by over 140%,

making it the fastest-growing metropolis in Africa and one of the most rapidly expanding globally (Wambebe & Duan, 2020).

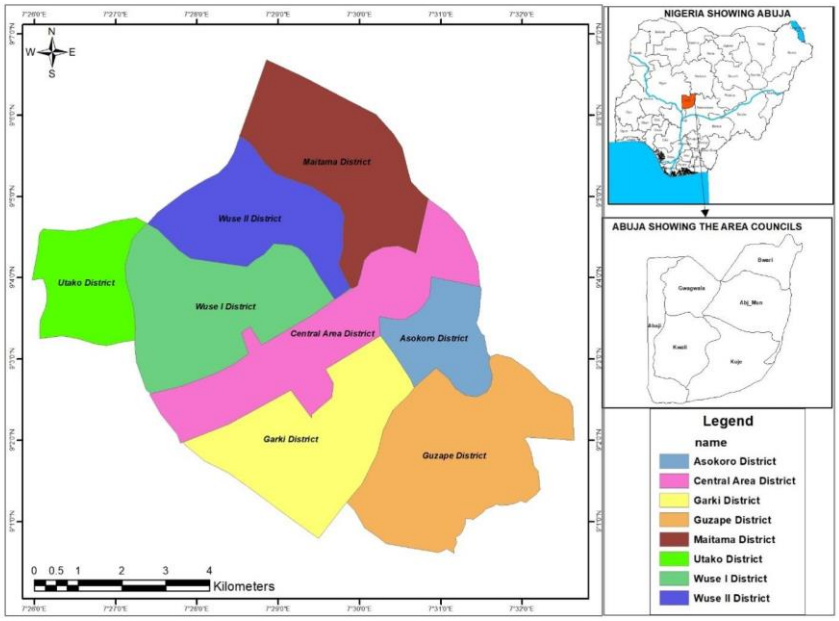

Figure 1: Overview of the Study Area and Selected Districts

Study Design, Population and Sample Size

The study adopted cross-sectional survey research. Cross-sectional survey research is a specific type of field study that involves the collection of data from a sample of elements drawn from a well-defined population through the use of a questionnaire (Visser et al., 2002). The population of the study comprised of all the occupants from the selected public buildings in the city phases and selected districts of FCT (Asokoro, Central Area, Garki, Guzape, Maitama, Wuse I, Wuse II, Utako) (Figure 1).

To have proper coverage, the National Population Commission data of 2006 of AMAC was used as the base year (778,567) and projected to 2023 using an annual growth rate of 3.2% using the Malthus Exponential Model. To get an optimum sample of the target population (1,339,135) the T. Yamane (1967) formula for sample size determination will be adopted;

$$n = \frac{N}{}$$

$$1 + N (e)^2$$

Where: e= Level of precision (0.05), N= Population, n= Sample size, 1= Constant

$$n = \frac{1339135}{1+ 1339135 (0.05)^2}$$

$$n = \frac{1339135}{1+ 1339135 \times 0.0025}$$

$$n = \frac{1339135}{1+ 3347.84}$$

$$n = \frac{1339135}{3348.94}$$

$$n = 400$$

The sample size was equally distributed among the districts where fifty (50) respondents were randomly selected from each district making a total sample size of 400.

Data Collection Procedure

Questionnaire was used to elicit information from the respondents. The questionnaire adopted for the study made use of closed-ended format and Likert 3-points which was divided into sections: Section A: the section captured the demographic details of the respondents (occupants) so as to be able to describe respondents in terms of gender, age, level of education, type of building, years of occupancy and status. Section B: the section set out questions that provided answers to the research question regarding the causes and frequent of fire outbreak events and extent of fire-fighting equipment availability among public building in FCT using close-ended and Likert 3-points scale.

Data Analysis

The retrieved questionnaires were coded and subjected to Statistical Package for the Social Sciences (SPSS) for proper analysis. The questionnaire coding was done with MS Excel before being transferred to the Data entry of SPSS. The data of the study were analyzed through descriptive and inferential statistics: Using the SPSS window (Version

22), the descriptive statistics tool such as frequency counts and percentages of response was adopted for the analysis. The use of such statistics allows the researcher to present the evidence of the study in a way that can be understandable and makes conclusion concerning the variables of study (Obasi, 1999).

Results and Discussion

Socio-Demographic Details of the Respondents

The socio-economic details of the respondents were presented in Table 1. The analysis revealed that 51.1% of the respondents were male while 48.9% were female. Also, the age of the respondents indicated that most respondents are within age group 30-40 years which represents 37.8% of the respondents. Considering the level of education of the respondents, the outcome revealed that 34.8% have attained bachelors' degree while the least respondents have attained doctorate degree of education representing 5.9% of the total population. From the outcome, 6.6% of the respondents are occupants/staff in government-owned public building, 8.2% of the occupants represents school building, 21.8% represents healthcare facilities, 34.3% represents commercial buildings such as banks, warehouse, shopping mall and offices while 25.3% and 2.9% of the respondents represent recreational facilities such as hotels, parks, and cinema and religious building respectively. Considering the years occupancy, 34.6% of the respondents indicates to have occupied the building for less than 5 years, 39.4% of the respondents have occupied the building in the last 5- 10 years while 16.2% and 9.8% of the respondents indicated to have occupied the building in 11-15years and 16 years above respectively. From the analysis, 22.3% of the respondents had ownership status to their public building while 60.6% of the respondents had renter status to their public building.

Table 1: Socio-Demographic Details of the Respondents

Variable	Frequency (n=376)	Percentage (%)
Sex of Respondents		
Male	192	51.1
Female	184	48.9
Age (years)		
18- 29years	110	29.3
30-40years	142	37.8
41-50years	90	23.9
51-60years	26	6.9
61years and Above	8	2.1
Level of Educational		
Secondary School	85	22.6
Diploma/A-Level/STPM	91	24.2
Bachelor's Degree	131	34.8
Master's Degree	47	12.5
Doctoral Degree/PhD	22	5.9
Types of Public Building		
Government Buildings	25	6.6
School Building	31	8.2
Healthcare Facilities	82	21.8
Commercial Building	129	34.3
Recreational Facilities	95	25.3
Religious	11	2.9
Other (Please Specify	3	0.8
Years of Occupancy		
Below 5years	130	34.6
5-10years	148	39.4
11-15years	61	16.2
16years above	37	9.8
Occupancy Status		
Building Owner	84	22.3
Building Renter	228	60.6
Other (Please Specify)	64	17.0

Socio-Economic Impact of Fire Disaster Among the Public Buildings

The socio-economic impact of fire disaster among the public buildings was examined and the outcome was presented in Table 2. The finding revealed that fire disaster among public building leads to various socio-economic impacts which the respondents agreed to include reduced quality of life of the victims as they constantly live in fear (57.4%), individual suffers direct physical and emotional harm from injuries and fatalities (51.1%), loss of lives (83.0%), socio-economic activities interruption (55.8%), respiratory disorder among the victims (52.6%), property damage and reduced the building value (76.3%), low patronage or desertion from the building due to fire incidents history (55.9%), property damage to the non-occupants of the building (55.3%). The

finding share similarity with the assertion of Monisola (2023) which indicated socio-economic impacts such as emotional distress, threat to life and property as an outcome of fire outbreak in an environment. The finding corroborated with the finding of Oluwunmi (2023) which indicated that fire outbreaks can destroy, terrify, and harm both people and their property. Also, might equally contribute to a society's loss of socio-economic advancement and infrastructural development.

Table 4.5: Socio-Economic Impact of Fire Disaster Among the Public Buildings

SN	Socio-Economic Impact of Fire Disaster Among the Public Buildings	U	D	A	Total	Mean
1	The fire event has reduced the quality of life of the victims as they constantly live in fear	16 (4.3)	144 (38.3)	216 (57.4)	376 (100)	3.64
2	Individual suffers direct physical and emotional harm from injuries and fatalities	35 (9.3)	149 (39.6)	192 (51.1)	376 (100)	3.36
3	The fire events have led to the loss of lives of the occupants	38 (10.1)	26 (6.9)	312 (83.0)	376 (100)	3.07
4	The fire events cause socio-economic activities interruption	39 (10.4)	127 (33.8)	210 (55.8)	376 (100)	3.49
5	The aftermath of the fire event has led to respiratory disorder among the victim	36 (9.6)	142 (37.8)	198 (52.6)	376 (100)	3.45
6	The fire event led to property damage and reduced the building value	41 (10.9)	48 (12.8)	287 (76.3)	376 (100)	3.11
7	Low patronage or desertion from the building due to fire incidents history	37 (9.8)	129 (34.3)	210 (55.9)	376 (100)	3.51
8	The fire event cause property damage to the non-occupants of the building	22 (5.9)	146 (38.8)	208 (55.3)	376 (100)	3.49
9	In the aftermath of a fire disaster, families may face financial hardship and medical problems	30 (8.0)	111 (29.5)	235 (62.5)	376 (100)	3.73
10	Victims can suffer depression and elevated levels of distress, including aftermath stress disorder	14 (3.7)	113 (30)	249 (66.3)	376 (100)	3.84

Conclusion and Recommendations

Fire incidents have become a common phenomenon in recent time and not limited to a particular institution and it has resulted to various levels of impact on the lives, properties and environment. Public building fire incidents in the federal capital territory have been on the rise in recent time which has led to various degree of destructions. The outcome of this study revealed that socio-economic implication of fire disaster among public buildings include loss of lives, socio-economic activities interruption, and property damage and reduced building value. The importance of fire disaster preparedness is to ensure that fire incidents occurrence is minimized and if does occurred, the impact is

brought to minimal level. Landlord associations should partner with Government agency such as Fire Service so as to always conduct quarterly fire drill/fire awareness programmes for their occupants and equipped their building with fire-fighting apparatus which will also form part of their preparedness plan and at the same time a preparedness measure in the case of fire incident.

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