

Causes of Fire Outbreaks at Onitsha Markets in Anambra State: Proffering Architectural and Other Safety Measures Against Their Repetitions in Nigeria

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Abstract

Frequent fire outbreaks in market places in Nigeria, particularly in Anambra State is a problem that has been significantly rated high; they have caused injuries, loss of lives, goods and properties. To curtail this problem, a research was conducted on the three major markets in Onitsha in Anambra State with the aim of assessing the causes of fire in the markets, in order to proffer architectural and other safety measures against their repetitions in Nigeria. The research employed desktop study as the instrument for data collection. Hence, the data were analysed and checked via contents analysis technique, in order to validate the results. The findings showed that the known and suspected causes of fire outbreak are: epileptic power supply, power surge, cooking gas cylinders, faulty electrical connections, sparks from electricity outlet, sparks from electricity generating set, standby loaded lorry, stationary tanker laden with fuel and fire usually start in the markets at night or early hours of the morning when there are no traders. Among the recommended safety measures are: materials of every part of buildings around the electricity outlets must be resistant to fire, in order to disallow possible ignition that may be caused by epileptic power supply, power surge and sparks; materials of every part of restaurant and shop buildings where there will be use of cooking gas cylinder must be resistant to fire, so as to disallow possible ignition that may be caused by it; every market must have a designed fire resistant electricity generator house to stop fire that may start from the electricity generating set due to sparks, and stationary tanker laden with fuel must be banned in the markets because of the flammability of fuel.

Keywords: Causes, Fire Outbreaks, Markets, Nigeria, Safety Measures.

INTRODUCTION

Fire initiates out of a chemical reaction between atmospheric oxygen and some fuels like gasoline or wood. Really, fire do not spontaneously start with gasoline and wood just because oxygen is in their surrounding; for the reaction of combustion to happen, heat must be applied to fuel to its temperature of ignition (Tom, 2023). [19] From the information obtained from Andrew (2019), [2] fire as an essential element in life is among the greatest things discovered by the early generation; it possess different merits to people but it is very important that the demerits of fire must be taken very serious because it could be viewed from several bitter instances that the things that takes several years to build can be erased by fire without a long period of time. Causes of fire mean the factors that give rise to a fire and the causal factor may be but is not limited to the result of an intentional or unintentional action, mechanical

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failure or act of nature (Law Insider, 2023).[7]

According to Terry (2023), [16] accident due to fire possess a higher settlement potential as injuries from burn usually take away life quality of a victim to a highly rated degree. Terrible scars are usually left from second and third degree burns, and if these scars are very evident, then, the settlement will often be greater owing to damages from emotion. A victim of burn injuries can be left with mobility loss or chronic pain of which both of them can result to the need of physical therapy. Frequent fire outbreaks in market places in Nigeria is a problem that has been significantly rated high; they have caused injuries, loss of lives, goods and properties (Federal Fire Service of Nigeria, 2016). [4] Anambra State of Nigeria is not exempted from these frequent fire outbreaks in market places as they have been severally reported. For example, on 9th November, 2022, fire outbreak claimed the lives of people and over twelve people were injured at Onitsha drug market in Anambra State (Guardian, 2022). [5] Similarly, on 28th November, 2022, Onitsha main market in Anambra State experienced a fire outbreak that razed two blocks of shops at the Kano street section of the market and goods that worth millions of Naira were destroyed (Channels Television, 2022). [3] Likewise, on 17th December, 2022, some shops at the Ose main market, Onitsha in Anambra State were gutted by fire (Punch, 2022). [13]

To minimize this problem of frequent market fires in Anambra State, a research was conducted on the three major markets in Onitsha with the aim of assessing the causes of fire in the markets, in order to proffer architectural and other safety measures against their repetitions in Nigeria. From the information obtained from UN-Habitat (2012), [21] Onitsha is a city and it is found around the Niger River: on the eastern bank of the river in Anambra State of Nigeria. It is a metropolitan city and its river port is what it is known for; it is also known for its economic hub for education, commerce and industry (Hikersbay, 2022). [6] Onitsha main market is hosted in this territory and it is the largest market in Africa based on goods volume and geographical size (The Nigerian Voice, 2022). [17] (Figure 1) shows Nigeria revealing Anambra State as redly highlighted; its other 35 states and the Federal Capital Territory, Abuja.

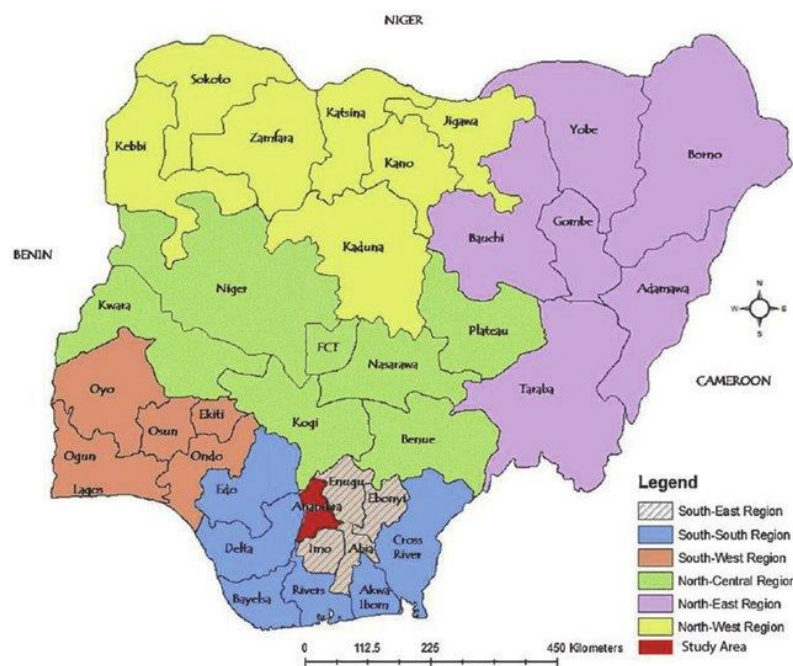


Figure 1. Nigeria showing Anambra State as redly Highlighted; its other 35 States and the Federal Capital Territory, Abuja [Source: ResearchGate, 2022 (https://www.researchgate.net/publication/362018555_Climate-Driven_Temporary_Displacement_of_Women_and_Children_in_Anambra_State_Nigeria_The_Causes_and_Consequences/figures?lo=1); Retrieved on 14-02-2023].

METHODS AND PROCEDURES

This research employed descriptive method of survey and produced qualitative data about the causes of fire as related to the entire markets like their shop building typologies, nature and materials. The National Population Commission (2022) [8] and Nigeria High Commission (2022) [9] opined that Nigeria is comprised of 36 states and the Federal Capital Territory (FCT). The research considered the assessment of the causes of fire outbreaks in Onitsha markets owing to the fact that the city is known as an economic hub for commerce (Hikersbay, 2022) [6] with past cases of fire outbreaks. From the information obtained from Ou Travel and Tour (2019) [10], nine major markets are in Onitsha and they are:

1. Onitsha main market at River Niger foot in the north of Onitsha.
2. Bakers and confectionery market at Ogidi.
3. Old motor parts (Mgbuka) market at Ugwuagba Obosi.
4. Building material international market at Ogidi.
5. Bridge head building material market at Fegge.
6. New motor parts international market at Nkpor.
7. Machine parts market at Nkpor.
8. Old motor parts (Mgbuka) market at Nkpor.
9. New tyre international market at Nkpor.

From these nine markets as listed above, a research work was conducted on three randomly selected markets and they are:

1. Old motor parts (Mgbuka) market at Ugwuagba Obosi.
2. Onitsha main market at the foot of River Niger in Onitsha North.
3. Building material international market at Ogidi.

According to Prashant and Supriya (2010) [11], Steve (2011); [14] Suresh and Chandrashekara (2012), [15] in a research, 20% sample size of a population is a good recommended sample size. The three chose markets for this research are more than 20% of the sample size and by this, the sample size is acceptable. The data of this research were gathered through desktop study; reviewed different literature such as official website, blogs, media, guide, journals and report. The research data analysis was made and checked through contents analysis technique by comparing the extracted data with the raw desktop (secondary) data, so as to validate the results. The results of the analysis were employed in proffering the architectural and other safety measures for the aim of this research.

DATA PRESENTATION AND DISCUSSIONS

Known and suspected causes of fire outbreaks were found in Onitsha markets as displayed in (Table 1). Electricity related issues have the highest occurrences as they are common in Old motor parts (Mgbuka) market with two occurrences and Onitsha main market with also two occurrences. They are followed by flammable issues with one occurrence as related to the cooking gas cylinders in Old motor parts (Mgbuka) market and with two occurrences as related to a standby loaded lorry plus stationary tanker laden with fuel in Building material international market.

Table 1. Distribution of Different Causes of Fire Outbreaks in Onitsha Markets.

S.N.	Market	Known and Suspected Cause
1	Old Motor Parts (Mgbuka) Market	Epileptic Power Supply, Cooking Gas Cylinders and Faulty Electrical Connections
2	Onitsha Main Market	Sparks from an Electric Outlet, Sparks from an Electricity Generating Set, and Power Surge
3	Building Material International Market	A Standby Loaded Lorry and Stationary Tanker laden with Fuel

Source: Reviewed Work, 2023.

Old Motor Parts (Mgbuka) Market

Vanguard (2020) [22] reported that there was fire outbreak at Old motor parts (Mgbuka) market on Friday night: 10th January, 2020 and razed about 400 shops; it was pointed out that one of the fire

victims, Mr. Godwin Edozieuno whose five shops were razed by the inferno, slumped dead few hours after the incident had been brought under control. The fire outbreak was suspected to have been caused by epileptic power supply or cooking gas cylinders because there were unstable power supply around the time of the incident and there were cooking gas cylinders where the fire started. It was similarly reported by Anaedo (2021) [1] that there was fire outbreak at Old motor parts (Mgbuka) market which started in the early hours of the morning of 22nd April, 2021 and it was believed that the fire was caused by faulty electrical connections.

Onitsha Main Market

From the information obtained from The Sun Nigeria (2019), [18] there was fire outbreak at Onitsha main market on 2nd May, 2019 as traders counted losses owing to the destruction of goods that worth 50 million Naira. It was reported that the fire started at night after the closed daily activities of the market; it consumed not less than 10 warehouses stocked with diapers, items of babies, cosmetics and other goods. The Sun Nigeria (2019) [18] further stated that there are insinuations that the cause of the fire might be owing to some sparks from an electricity outlet or from an electricity generating set near the place. According to Tribune (2022),[20] goods and properties worth millions of Naira were destroyed due to a fire outbreak that occurred at Onitsha main market on 28th November, 2022 and the preliminary information shows that the cause of the fire was as a result of power surge at a cosmetics store in a storey building.

Building Material International Market

According to Punch (2020),[12] there was fire outbreak in the early hours of 11th March, 2020 that razed the Building materials international market. It was reported to have emanated from an articulated vehicle (a standby loaded lorry) parked inside the market. AllAfrica (2021) [23] additionally reported that on 17th August, 2021 there was fire outbreak at night in Building material international market that led to the death of two persons, while several others were injured in a fuel tanker accident at the market. It was revealed that in this fire incident, at least 14 buses and other properties that their value are up to millions of Naira were burnt. From the information obtained from AllAfrica (2021) [23], someone at the venue of this fire outbreak revealed that the incident occurred when an articulated lorry rammed into a stationary tanker laden with fuel and as a result of this, both of them were set ablaze and many luxury buses that were parked in the vicinity of this incident were also set ablaze immediately. Likewise, shops plus other buildings around the area of the incident were set ablaze with a lot of damages before the men of the state fire service were able to reach the market.

CONCLUSION AND RECOMMENDATIONS

This research assessed the causes of fire outbreaks at Onitsha markets in Anambra State, in order to proffer architectural and other safety measures against their repetitions in Nigeria. The research findings showed that the known and suspected causes of fire outbreak in the markets are: epileptic power supply, power surge, cooking gas cylinders, faulty electrical connections, sparks from an electricity outlet, sparks from an electricity generating set, a standby loaded lorry, stationary tanker laden with fuel and fire usually start in the markets at night or early hours of the morning when there are no traders. Having considered these findings, the following guidelines are therefore recommended as architectural and other safety measures against the repetitions of fire outbreaks in Nigerian markets:

Architectural Measures against the Causes of Fire Outbreaks in Nigerian Markets

- i. Materials of every part of buildings around the electricity outlets must be resistant to fire, in order to disallow possible ignition that may be caused by epileptic power supply, power surge and sparks.
- ii. Materials of every part of restaurant and shop buildings where there will be use of cooking gas cylinder must be resistant to fire, so as to disallow possible ignition that may be caused by it.
- iii. Electrical wiring must be embedded in walls, columns and floors to reduce the transfer of fire emanating from faulty electrical connections.

- iv. Every market must have a designed fire resistant electricity generator house to stop fire that may start from the electricity generating set. Functioning fire resistant electricity generator house will put away lading of stationary tanker with fuel in the markets for the purpose of sales of petrol for fueling individual or private electricity generators.
- v. Every market must have vehicle parking spaces and the distances between the parking spaces and their surrounding market buildings must be minimum of eight metres in case of fire that may start from the vehicles, in order to reduce the possible spread of fire from the parking spaces to other buildings.

Other Safety Measures against the Causes of Fire Outbreaks in Nigerian Markets

- i. The problem of epileptic power supply and power surge should be solved by the company that manages electricity in Nigeria, so as to stop fire outbreaks emanating from them in the markets.
- ii. Information should be passed to the traders in the markets to be conscious about the use of gas cylinders with regards to fire.
- iii. Adequate use of fire extinguishers must be advocated in the markets to tackle fire emanating from faulty electrical connections, sparks from electricity outlets and generating set.
- iv. Stationary tanker laden with fuel must be banned in the markets because of the flammability of fuel.
- v. All traders should be mandated by the market authorities to put off their electrical appliances at the close of daily businesses, in order to reduce fire that usually start in the markets at night or early hours of the morning when there are no traders.

RESEARCH GAP

This research only considered the causes of fire outbreaks in the market without considering the effects of the damages caused by fire on the market users and this is a research gap. Therefore, in subsequent research of this kind, this gap should be filled.

REFERENCES

1. Anaedo (2021). JUST IN: Fire Breaks Out at Mgbuka Nkpor, Anambra State (Video). Official Website of Anaedo Online Nigeria. <https://www.anaedoonline.ng/2021/04/22/just-in-fire-breaks-out-at-mgbuka-nkpor-anambra-state-video/>. Retrieved on 14-02-2023.
2. Andrew, O.A. (2019). Causes of Fire Outbreak and its Effects on Man and its Environment. A Fire Blog at the Official Website of Dutable: Educational Research Portal. <https://dutable.com/2019/02/14/causes-of-fire-outbreak-and-its-effects-on-man-and-its-environment/>. Retrieved on 13-02-2023.
3. Channels Television (2022). Goods Worth Millions Of Naira Destroyed As Fire Guts Onitsha Market. An Online News at Channels Incorporated Limited. <https://www.channelstv.com/2022/11/28/goods-worth-millions-of-naira-destroyed-as-fire-guts-onitsha-market/>. Retrieved on 03-12-2022.
4. Federal Fire Safety of Nigeria (2016). Market Fires Killed 600 in 15 Months. A News Blog obtained from the Federal Fire Service of Nigeria. <http://punchng.com/market-fire-killed-600-in-15-months-cg/>. Retrieved on 02-01-2017.
5. Guardian (2022). Four Persons Die as Fire Guts Onitsha Drug Market. An Online Guardian Newspaper. <https://guardian.ng/news/four-persons-die-as-fire-guts-onitsha-drug-market/>. Retrieved on 03-12-2022.
6. Hikersbay (2022). Onitsha - Important Information for Tourists and Travellers 2022. Practical Travel Guide. <http://hikersbay.com/africa/nigeria/onitsha?lang=en>. Retrieved on 14-02-2023.
7. Law Insider (2023). Cause of Fire Definition. A Blog on the Official Website of Law Insider. <https://www.lawinsider.com/dictionary/cause-of-fire>. Retrieved on 13-02-2023.
8. National Population Commission (2022). Brief History. A Blog at the Official Website of the National Population Commission of Nigeria. <https://nationalpopulation.gov.ng/brief-history/>. Retrieved on 28-03-2022.

9. Nigeria High Commission (2022). Key Data. A Blog from the Official Website of Nigeria High Commission, London, United Kingdom. <https://www.nigeriahc.org.uk/about-nigeria>. Retrieved on 28-03-2022.
10. Ou Travel and Tour (2019). List of Major Markets in Onitsha. <https://outravelandtour.com/list-of-major-markets-in-onitsha/>. A Blog at Travelling and Tourism Guide. Retrieved on 03-12-2022.
11. Prashant K. & Supriya B. (2010). Sample Size Calculation. *International Journal of Ayurveda Research*, 1(1), 55–57.
12. Punch (2020). Fire Guts Anambra Building Materials Market. An Online Newspaper of Punch Nigeria Limited. <https://punchng.com/breaking-fire-guts-anambra-building-material-market/>. Retrieved on 05-03-2023.
13. Punch (2022). Fire guts shops in Onitsha market. An Online Newspaper of Punch Nigeria Limited. <https://punchng.com/fire-guts-shops-in-onitsha-market/>. Retrieved on 14-02-2023.
14. Steve, C. (February 26, 2011). What is the Smallest Sample Size I can Use for my Study? The Dissertation Statistics Consultant Blog. <http://www.statisticsconsultant.com/dissertation-advice/what-is-the-smallest-sample-size-i-can-use-for-my-study/>. Retrieved on 22-09-2016.
15. Suresh, K.P. and Chandrashekar, S. (2012). Sample Size Estimation and Power Analysis for Clinical Research Studies. *Journal of Human Reproductive Sciences*, 5(1), 7–13.
16. Terry, B. (2023). What Are Common Causes Of A Fire Accident & Burn Injuries? A Fire Blog at the Official Website of Terry Bryant Accident and Injury Law, Houston, Texas in United States of America. <https://www.terrybryant.com/personal-injury-lawyer/burn-injury-lawyer/what-are-common-causes-fire-accident>. Retrieved on 13-02-2023.
17. The Nigerian Voice (2022). Onitsha: a Great City on the Niger. A Blog on the Official Website of The Nigerian Voice. <https://www.thenigerianvoice.com/news/312043/onitsha-a-great-city-on-the-niger.html>. Retrieved on 14-02-2023.
18. The Sun Nigeria (2019). Tears, Agony at Onitsha Main Market. An Online Newspaper of The Sun Nigeria. <https://sunnewsonline.com/tears-agony-at-onitsha-main-market/>. Retrieved on 04-03-2023.
19. Tom, H. (2023). How Fire Works. A Blog on the Official Website of How Stuff Works, a division of InfoSpace Holdings Company. <https://science.howstuffworks.com/environmental/earth/geophysics/fire1.htm>. Retrieved on 13-02-2023.
20. Tribune (2022). Police Confirm Fire Outbreak in Onitsha market, say Goods, Properties Destroyed. Tribune Online, an Online Publication of African Newspapers of Nigeria. <https://tribuneonlineng.com/police-confirm-fire-outbreak-in-onitsha-market-say-goods-properties-destroyed/>. Retrieved on 15-02-2023.
21. UN-Habitat (2012). Nigeria: Onitsha Urban Profile. Onitsha Report and Project by the United Nations Human Settlements Programme Publications. <https://unhabitat.org/sites/default/files/download-manager-files/Nigeria%20Onitsha%20Urban%20Profile.pdf>. Retrieved on 14-02-2023.
22. Vanguard (2020). Traders Count Losses as Fire Guts 400 Shops at Mgbuka Obosi Market. An Online Newspaper of Vanguard Media Limited, Nigeria. <https://www.vanguardngr.com/2020/01/traders-count-losses-as-fire-guts-400-shops-at-mgbuka-obosi-market/>. Retrieved on 14-02-2023.
23. AllAfrica (2021). Nigeria: Two Killed, 14 Buses Burnt in Anambra Petrol Tanker Accident. An Online Newspaper of AllAfrica. <https://allafrica.com/stories/202108170330.html>. Retrieved on 12-02-2023.