

**ANALYSIS OF CAUSES AND CHARACTERISTICS OF MARKET FIRES IN LAGOS STATE,
NIGERIA.**

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ABSTRACT

The weak documentation of disasters has resulted into poor monitoring as regards such disaster. Urban market has been affected by incidences of inferno. Lagos state market fire saga continued throughout 2007 and began also early in 2014. The lack of documentation as regards the characteristics of this fire has limited the understanding of the market inferno. This study is centred on providing a time series documentation of incidences of fire disaster in Lagos State markets. The objectives were to carry out a time-dimensional analysis of market fire incidences; examine the various causes of fire outbreaks; assess the impacts of fire incidences on traders and the immediate environment. A review of secondary data was done and descriptive method was used to analyse primary data. The study revealed that Lagos metropolitan area witnessed more of the outbreaks of fire in markets between 2007 and 2014 accounting for about 92% of the total occurrence within that period. During this period, shops were mostly affected and only cases where people resided within the market environment witnessed significant displacement of people. Most (57%) of the fire incidents occurred in the night which was responsible for late discovery and also extensive damage. It was gathered that most (95.2%) of the cases during this period involved losses in the tune of over hundreds of thousands of naira except a few (4.8%) which recorded losses less than 20,000. The study recommends that there is the need to increase government's support of rapid response research to secure critical social science and geo-spatial data and information in disasters. This would help solve the problem of late discovery and enhance quick detection of fire events before the damage becomes extensive.

Keywords: *Causes, Characteristics, Market, fire, documentation*

BACKGROUND TO THE STUDY

Increase in the cases of settlement fire disaster has marked the era of urbanisation. Urban centres due to congestion are prone to disaster outbreaks as a result of pressure, planlessness, and non-chalant dangerous actions of residents. Fire disaster as an example of an urban disaster can be human-induced or climate driven. Mutch, (1995) stated that periodic forest, grassland, and tundra fires

are part of the natural environment, as natural and as vital as rain, snow, or wind. Increasing temperature coupled with heat has been identified as a natural causal factor of fire disasters.

Human activities such as burning, improper electrical works, high voltage electricity, in-door/out-door explosions are some of the causes of fire disaster. Incidences of fire are not restricted to time or season. Wikipedia, (2014) stated that from ancient times, periods dating about several hundred B.C (Before Christ), up till the 20th century, fires have been a major hazard to urban areas and the cause of massive amounts of damage to cities. City conflagrations were highly devastating spreading over a wide range with incredible loss figures. Most, if not all, major cities of the world had their share of the massive inferno mishaps. In the 13th century, one of the two medieval fires of London also called the Great Fire of Suthwark, broke out and left about 5000 people dead while fleeing on the London Bridge. Also, about 80% of all residential houses and almost all public buildings were destroyed when fire razed Reutlingen, Germany in 1726, displacing 1,200 families (Wikipedia, 2014). Although, fire disasters still ravages some urban centres of the world in recent times, the level of damage is minimal and can be attributed to increased awareness and precautions as well as improved fire combating techniques.

Nigeria has also had its share of the ravaging fire story. The most devastating of the fire disasters in the nation's history was the pipeline explosion in Jesse, Delta State on 18th October, 1998 which claimed 1,082 lives, the highest number of casualties for a single fire event (Savid News, Sports and Politics, 2010). Bomb explosions at the Nigerian Military Cantonment in Ikeja, Lagos on January 27, 2002 was another terrifying fire outbreak leaving 800 dead and thousands homeless. About 5,127 persons have died between 1998 and 2013 owing to fire disasters (Savid News, Sports and Politics, 2010). More so, about 50 billion worth of property was disclosed lost annually to fire disasters by the Minister of Interior, Abba Moro (Premium Times, 2012).

Lagos, the commercial hub of Africa's most populous nation, has also been a victim of severe urban fires ranging from residential apartments, along transport routes, industrial and public buildings and even market places. Most of these fire incidences have claimed lives, properties worth millions of

naira, displaced many and sad enough, the culture of insurance has not been sufficiently imbibed, thus making recovery from such mishaps take longer than necessary.

Market fires have become a regular occurrence in Lagos State in recent times. Between the years 2012 and 2013, the frequency was phenomenal as market fire tales made headlines in the dailies almost every month within this period. One remarkable market fire during this period was the 2012 Boxing Day explosion in Jankara market, Idumota, Lagos. This fire, which began from a shop where assorted fireworks/firecrackers (knockouts) were stored, spread very quickly destroying several shops, residential apartments and sent people running in all directions even as some misconstrued it for bomb blasts due to the noise of the explosion (Nigerian Current, 2012).

Millennium Development Goal (MDG) number one bothers on the eradication of extreme poverty, unemployment and hunger by 2015 (Sharma, 2012). Although according to the UN (2000), the MDG 1 reads: "Eradicate Extreme Poverty and Hunger", employment rate plays a significant role in its achievement. As a matter of fact, target two (1B) of the MDG 1 reads: "Achieve full and productive employment and decent work for all, including women and young children" (UN, 2014). Employment is therefore, pivotal to the eradication of poverty. This implies that as long as unemployment lingers, MDG 1 remains a mirage.

For the African continent as a whole, Target 1A is not achievable within the time frame. The UN estimates that 35.8% of the population in sub-Saharan Africa is still in a situation of extreme poverty. The population of working poor (i.e living below \$1.25 per day) accounted for 39.1% of total employment in 2011 while vulnerable work accounted for 70% of employment growth from 2007 to 2011 in Africa (Sharma, 2012). This leaves the achievement of Target 1B also improbable by 2015.

In Nigeria, unemployment rate increased to 23.90%, a record high value, in 2011 from 5.3% in 2006. This represents the number of people looking for a job as a percentage of the labour force (Trading Economics, 2013). This level of unemployment has caused many to resort to all forms of trading which appears to be the only "job" without a gateway. Most trading activities take place in the markets and goods sold range from petty perishable items to heavy duty

gadgets. This represents the sole means of livelihood of many of the traders. Yet, this means of livelihood is threatened by the incidences of fire disaster.

The spate of fire mishaps in markets within Lagos State has stripped many traders of their jobs or means of livelihood; hence adding to the number of people seeking jobs. Despite the increasing rate of mishap, the incidences of fire disaster have not been fully documented. These market fire saga continued throughout 2013 and began also early in 2014. The lack of documentation as regards the characteristics of this fire has limited the understanding of the market inferno. This study is centred on providing a time series documentation of incidences of fire disaster in Lagos State markets. The objectives are to carry out a time-dimensional analysis of market fire incidences; examine the various causes of fire outbreaks; assess the impacts of fire incidences on traders and the immediate environment.

METHODOLOGY

The survey form of research was employed in this study which involves both the longitudinal and cross sectional procedures. The longitudinal procedure entails the time-dimensional analysis of market fires from the period before the study's time frame - 2012/2013. The cross sectional procedure involves data collection from specific cases of fire outbreaks in markets between 2012 and 2013 which is adopted throughout the study. This study relies on the secondary and primary data sources for drawing inferences. The various avenues of secondary data explored in the course of the study include: Libraries, newspaper publications, archives, Lagos State Environmental Management Agency (LASEMA), Lagos State Market Board, National Emergency Management Agency (NEMA) and the internet. Information on the location and characteristics of the markets affected and the records of market fires were obtained from the Lagos State Fire Service. Also in-depth interview, field observation was also conducted to establish the level of market accessibility, establish the causes of fire. This served as the primary source of data. This study is basically concerned with markets that were gutted by fire between the year 2012 and 2013. According to the data obtained from the Lagos State Fire Service, a total of thirty nine (39) markets were conflagrated between the years 2012 and 2013.

Table 1: Local Governments and Markets affected and Sample size

S/N	Local Governments Affected	No. of Markets Affected	Sample size/LGA (50%)	Sample size/Market
1	Metropolitan Lagos	Ojo	2	1
2		Mushin	3	2
3		Ikeja	7	4 (approx.)
4		Ajeromi	1	1 (approx.)
5		Ifako-Ijaye	1	1 (approx.)
6		Lagos Island	4	2
7		Amuwo Odofin	1	1 (approx.)
8		Lagos Mainland	2	1
9		Kosofe	5	3 (approx.)
10		Eti-Osa	2	1
11		Oshodi	3	2 (approx.)
12		Apapa	2	1
13		Somolu	1	1 (approx.)
14		Alimosho	3	2 (approx.)
	Sub total	37	23	230
15	Non Metropolitan Lagos	Ikorodu	2	1
16		Epe	1	1 (approx.)
	Sub total	3	2	20
	Total	40	25	250

Source: Lagos State Fire Service, 2014

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

This study is anchored on the concept of governance. According to the UNDP (1997), governance is the exercise of political, economic and administrative authority to manage a nation's or society's affairs. This implies the management of all spheres of human life within the society backed up law. Governance encompasses all of the means that societies use to distribute power and manage public resources and problems (UNDP, 2004). Good governance means government is well managed, inclusive, and result in desirable outcomes (Agbola and Alabi, 2009). An assessment of good governance is evident in the extent to which land administration system enhance a pro-poor agenda placing a high priority on areas such as security of tenure, enforcement of planning standards, waste disposal management, the clarity of regulations for planning and building and the procedures for changing land titles. Governance can be poor if government or its agency is corruptible, tyrannically undemocratic, incompetent and ineffective (Falola, 2012). The negligence to duty and lack of information on subject matters have been identified as a daily character of government in Africa.

Africa, in the United Nations ranking, is the fastest urbanizing continent. Interestingly, urbanization has tremendous potential for employment growth, poverty reduction and overall improvements of both local and national economies. However, on the other side of the divide, urbanization could become undesirable. Reaping the benefits of urbanization is therefore dependent on strict adherence to the norms and tenets of good urban governance (UNCHS, 2001; Falola, 2012). These norms actually mean the qualities we expect of a model or ideal good urban governance. Among these must be included the promotion of local democracy, equal access, inclusiveness, decentralization, transparency and accountability, efficiency, participation, gender sensitivity, effectiveness, openness, safety and security, innovativeness, humaneness, firmness, resourcefulness, sustainable development, equity and incorruptibility. The United Nations Centre for Human Settlements (UN-Habitat) has categorised these norms into seven, namely: sustainability, subsidiary, equity, efficiency, transparency and accountability, civic engagement and citizenship and security.

The problem of vulnerability of the people and their properties to fire outbreaks should be a

point of concern for a responsive government. Reducing vulnerability and enhancing the adaptive capacity to deal with fire incidents are crucial governance issues. Effective recovery measures is reliant on policies and strategies that are put in place to respond to the needs as well as enhance the resilience of the most vulnerable systems and groups in society (Falola, 2012). Thus, the absence of proactive policies and legislative frameworks to enhance the implementation of adaptation responses, only increase the vulnerabilities of certain groups such as women and the poor. Inadequate institutional support and inappropriate policies can act as a constraint to adaptation and limit access to much needed resources by communities dependent on such resources for adaptation to environmental change and climate variability that enhances conflagrations e.g. Harmattan. Furthermore, good governance requires the effective incorporation of the interests of various stakeholders, especially the poor, in fair processes and in policies and programmes to manage fire risks. Stakeholder participation is undeniably invaluable to strengthening and widening the range of adaptive strategies accessible to the poor.

Adapting to fire risks, to a great extent, has not been a cause of worry for most thriving and well-governed cities for some few decades now, except for wild forest fires which are most times unpredictable and naturally occurring. However, other human-induced fires are within control and this has been possible through adapting buildings and infrastructure to fire risks by incorporating latest intelligent technologies; working with population groups and settlements most at risk to find solutions that serve them; and good disaster preparedness. In developing countries, such technologies are not readily available even in some renowned high rise office structures let alone in residential buildings or markets. The vulnerability of low-income urban dwellers to fire risks can indeed be attributed to poverty. However, it is more a result of failures or limitations in local governments to ensure needed infrastructure and information is in place.

Availability of information helps provide a light into the trend of invent as regards such subject matter.

LITERATURE REVIEW

Fire disasters are caused by several factors which could be either natural processes or human activities. Globally, fire disasters are dual pronged. On one edge is the natural and human-induced mishap or the trigger mechanism which could be fire, earthquake, tremor, thunder/windstorm, technological disasters amongst others. On the other edge is the receiving end, where damage is done to the built environment, injuries are sustained and losses are incurred of both human life and property (Wahab *et al.*, 2013).

In this part of the world, naturally induced fires caused by earthquakes, volcanic eruptions etc are not common. Many of the fire outbreaks are due to anthropogenic activities or causes. They are referred to as man-induced fire and include all residential and non-residential structural fires, industrial and chemical fires due to explosions and/or fires made by humans or due to machine failures (Wahab *et al.*, 2013). Man-induced fires also include electrical short circuit accidents, kitchen fires as well as improper storage of fuel and other combustible materials.

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 categorised into personal (human) factors and job (environmental) factors (Wahab *et al.*, 2013). This implies some factors are the culprits of fire disasters while others enhance the event. The table below gives a clearer insight into this.

Table 2: Causal and Contributing Factors to Fire Disasters

Causal Factors	Contributing Factors
Cooking/heating equipment	Wood shingle
Electrical	High wind
Intentional (Arson)	Congested access
Open Flame or Ember	Inadequate water distribution system
Appliance, tool	Lack of exposure protection
Child playing with fire	Inadequate public protection (Fire Department inadequacy)
Other heat source	Unusual hot or dry weather condition
Natural causes	Delay in discovery of fire
(Earthquake, volcanic lightning)	Inadequate personal fire protection
Other Equipment	Delay in ringing the alarm.
Smoking Material	

Source: Adapted from Netherlands Institute for safety, 2009 in Wahab *et al.*, 2013

Fire outbreak is triggered by three elements: fuel, heat and oxidizer (Wahab *et al.*, 2013). A study conducted in the six geopolitical zones of Nigeria by the National Emergency Management Agency (NEMA) in collaboration with the Federal and State Fire Service revealed that many causes were responsible for fire disasters in the country. Some these causes include: accidents and carelessness, faulty wiring, reckless use of electrical appliances and heating gadgets, unattended stoves and gas cookers, children playing with matches amongst others (Jimoh, 2012). Jimoh also identified smoking as a leading cause of fire outbreaks in homes, offices and public domains stating that several disastrous fire occurrences have resulted from reignited discarded cigarettes that are not properly extinguished.

Jimoh (2012) stated that electrical appliances are also another cause of fire outbreaks. (Srinvas Katta, 2011 in Ogunlere 2012) buttressed that damaged electrical conductors, overloaded sockets and extension cords, faulty wirings, blown fuses, low quality electrical equipment, malfunction of electrical devices, loose electrical connections and lack of clearance between electrical heating devices and combustible materials can pose fire threats: NEMA also says 90% of fire outbreaks in Nigeria are caused by human negligence.

Fire disasters are usually devastating and impacting on human lives and economy. In 2008, United State Fire Administration (USFA) gave a statistical analysis that showed there were about 3,320 deaths and 17,000 related injuries occurred from series of fire accidents (Jimoh, 2012). Another statistics released by the USFA revealed that 362,100 fire incidents occurred in residential buildings in the US in 2010. Death toll was put at 2,555, 13,275 were injured and losses were in the tune of \$6,646,900,000. In the same year, 84,900 non-residential fires accounted for 80 deaths, 1,375 injuries and destroyed properties worth \$2,400,700,000 (Punch Editorial Board, 2012).

In Nigeria, the effect of fire disasters has been deepening over the years. Kasim, (2012) identified 257 deaths in Lagos State from various fire-related disasters between 2008 and 2012. Annual

fire outbreaks in Nigeria are put at 7000 with resultant deaths of over 1000 persons. The State Fire Service in Kano State reported the loss of 1,017 lives to fire outbreaks in 2009. In the FCT, 262 deaths resulted from 368 fire outbreaks in 2011 while 209 occurrence of fire outbreaks between January and June, 2012 claimed 12 lives within the same region (Punch Editorial Board, 2012).

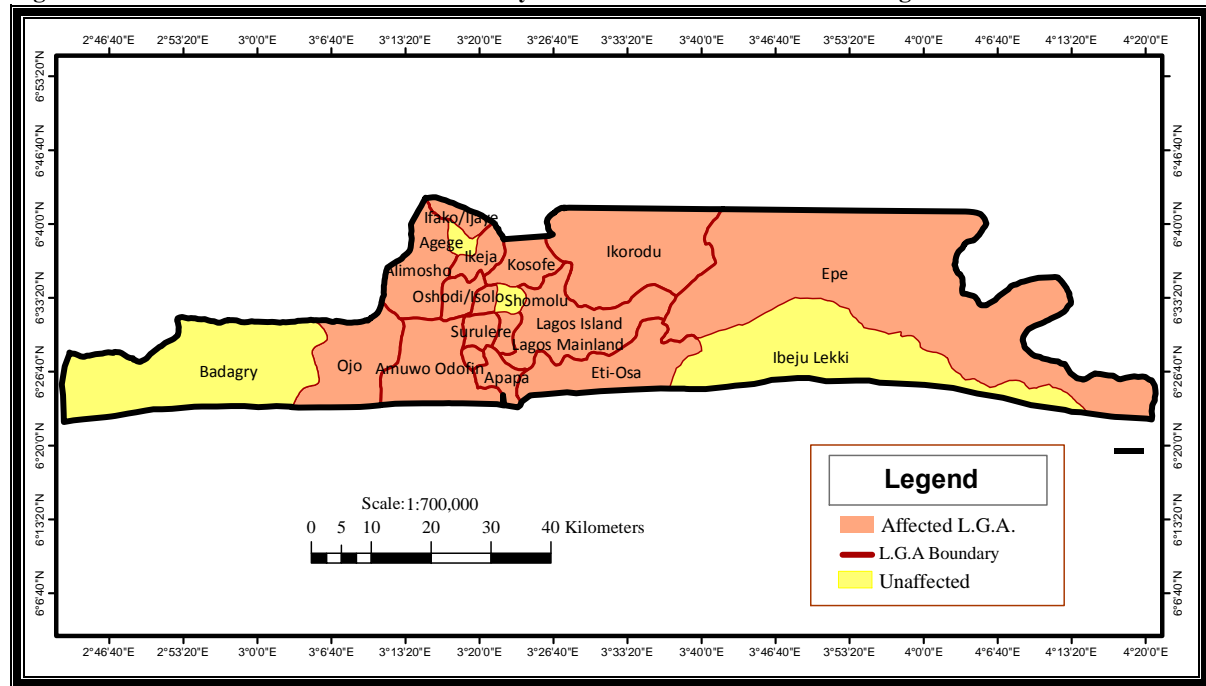
The post-fire experiences of fire disasters also cause mental and psychological break down. Emotional stress on victims being unpredictable and terrifying, as displaced victims are faced with immediate problems of shelter, food, water, money, sufficient clothing etc. Fire disasters, many a time, isolate its victims unlike natural disasters which affects an entire community. This could lead into breaking up family ties temporarily as members are distributed around to neighbours and extended family members. This is often an additional stress (Applegate *et al.*, 2001).

Victims of residential fires (children and families) may have these common emotional reactions: increased worry about safety of loved ones, feelings of distress and anxiety when reminded about the fire, marital conflicts etc. Physical complaints of victims could range from headaches and stomach aches to negative behavioural changes in children (National Disaster Education Coalition, 2013).

THE STUDY AREA

Lagos state is located on latitude 6°35' N and Longitude 3°45' E in the south-western part of Nigeria and covering a land mass of about 3,474 km² (1,341 square miles), Lagos State is adjudged by many as the smallest state in the country (Federal Ministry of Information, 2012, NigerianWiki, 2010). Although it is regarded as the smallest of states in the country, it has the highest population density in the nation. Lagos state borders Ogun State to the North and East and Atlantic Ocean to the South. It stretches for about 180km along the Atlantic Coast and also borders the republic of Benin to the West (Wikipedia, 2014).

Figure 1 Local Governments affected by Market Fires in the Context of Lagos State



Source: Field Survey, 2014

Lagos State accounts for over five (5%) percent of the national population estimate thus having the highest population density within an area of 356,861 hectares, 75,755 hectares of which are wetlands (Lagos State Government, 2011).

The emergency agencies in Lagos State have been over stretched in recent times with the spate of disasters in the last decade. The level of preparedness for disasters both natural and human-induced within the State is questioned all the time these unfortunate events happen.

The level of damage wrought by the last flood disaster in 2011 was such that attracted national attention and support for the State. However, this was avoidable as the drainages which failed to channel run-offs adequately during the heavy rainfalls have shown signs of blockages and inadequacy earlier but got no attention thus making such areas vulnerable. The deadliest aviation disaster on Nigerian soil took place in 2012 when a Dana Air Flight 992 was forced to land after dual engine failure which claimed 153 lives on board and 10 more on ground. The plane crash which happened in Iju Ishaga destroying a print house is second in severity only to that which happened in Kano sometimes in 1973 (Wikipedia, 2014). It was learnt later on that some 30 minutes after the crash, there was no fire but the trapped victims could not escape until fire broke out burning them all before any emergency agency arrived the scene (Wikipedia, 2014).

Fire disaster is one common disaster in Lagos State. Hardly is there any year in the last

decade that fire disasters of different categories have not been recorded. One devastating fire disaster that outwitted all emergency management efforts happened a little over a decade ago. This was the Lagos State Ikeja Military Cantonment explosions in 2002 which claimed about 1,100 lives and displaced another 20,000 residents. This remains the deadliest in recent times. However, other fire disasters have taken place in residential buildings, offices and even markets with little success by the emergency agencies to prevent the colossal losses incurred. Market fires are increasingly becoming prominent amongst categories of fire disasters in Lagos State going by the frequency in the last two years. This is the focus of this study. It is interesting to know that the Ikeja Cantonment bomb explosion was caused by debris from a market fire behind the cantonment alighting on the armour store (Wikipedia, 2014)

The oversight of emergency management in Lagos State is taken by the Lagos State Emergency Management Agency (LASEMA). The agency was established in February, 2007 and empowered by the LASEMA Law 16 of 2008 for emergency and disaster management in the State in pursuance to decree 12 of 1999 as amended by Act No. 50 of 1999 which established the National Emergency Management Agency (NEMA) (Lagos State Government, 2011).

LASEMA is empowered, according to the law that established it, to coordinate the activities of all its stakeholders and NGOs categorised into primary, secondary and tertiary responders in management of all emergency and disaster situations

in the State. Primary responders include: Lagos State Fire Services, Lagos State Physical Development Authority (LASPHYDA), LASTMA, RRS, Nigeria Security and Civil Defence Corps, Ministry of Environment, State Environmental Health Monitoring Unit (SEHMU), Lagos State Ambulance Services (LASAMBUS), Red Cross, Kick Against Indiscipline (KAI), Lagos State Environmental Protection Agency (LASEPA) and the PHCN. The

secondary Responders include: National Emergency Management Agency (NEMA), Emergency Service Department of General Hospitals, Julius Berger Nig Ltd, Nigerian Maritime Authority, Nigerian Air Force, Nigerian Army, Nigerian Navy and the Police Force while the tertiary responders are organisations such as: UNICEF and WHO (Lagos State Government, 2011).

Table 3 List of Fire Stations in Lagos State

S/N	Fire Stations	Address	Local Government Area
1	Epe	Itamarun road, Epe	Epe
2	Ikorodu	Sagamu road, Ikorodu beside P.Z Company ikorodu	Ikorodu
3	Ilupeju	Opposite Anthony under bridge, Anthony	Oshodi
4	Ikeja	Mobolaji Bank Anthony way, Ikeja	Ikeja
5	Alausa Headquarters	Governor road, Alausa secretariat, Ikeja	Ikeja
6	Agege	Abeokuta expressway, opposite oke-odo market, Agege	Agege
7	Isolo	Oshodi Mile 2 Expressway, Toyota busstop, beside P.Z. Isolo	Oshodi
8	Badagry	Topo road, Badagry	Badagry
9	Onikan	Onikan road, Badagry	Lagos Mainland
10	Ojo	Old Ojo road	Ojo
11	Sari-Iganmu	Orile Iganmu road	Apapa
12	Eti-Osa	Oniru Estate	Eti-Osa
13	Ikotun-Igando	Ikotun-Igando road	Kosofe

Source: Lagos State Fire Service, 2014

FINDINGS AND DISCUSSIONS

Impact of Fire Disasters on Physical and Human Environment of Market

This section discusses and presents the impacts of fire disasters on the physical and human environment of markets in Lagos state. The information supplied here is however, based on the data obtained from markets affected by fire within the study area between year 2012 and 2013. A seven-year time dimensional analysis of fire outbreaks in markets within Lagos state was also captured. Thus, emphasis were laid on the number of shops affected; building characteristics; the worth of losses incurred; frequency of occurrence; response to the incident and recovery duration thereafter.

Markets Affected By the Fire and Their Characteristics

This section presents a detailed analysis of the characteristics of the markets affected by the fire disasters of the year 2012 and 2013. The elements of the markets considered include: location characteristics; use of buildings; building materials and building height as well as the nature of goods sold.

Locational Characteristics of Affected Markets

According to the information obtained from the Lagos State Fire Service and other sources on the internet, about Sixty Eight (68) incidents of fire outbreaks in markets within Lagos State were reported and attended to between 2012 and 2013 involving forty (40) different markets in sixteen (16) Local Government Areas of the State. Both the Lagos metropolitan and nonmetropolitan areas were involved in these phenomenal market infernos. 14 of the 16 local government areas in the metropolitan areas were affected while 2 of the 4 local government areas that comprise the nonmetropolitan areas, experienced market infernos during the study period.

The Table 1, earlier presented, shows the number of markets affected in each Local Government involved. Based on the data obtained from the Lagos State Fire Service, Ikeja, Kosofe and Lagos Island Local Government Areas (LGAs) had the highest number of markets conflagrated within the study period involving 7, 5 and 4 markets in each LGA respectively. The least affected LGAs include Ajeromi, Ifako-Ijaiye, Amuwo-Odofin, Somolu, and Epe with only a market affected in each. It was observed that the metropolitan area of the state was worse hit by this disaster accounting for over 90% of all market fire occurrences within 2012 and 2013. This part of the state has experienced the greater influx of people from different parts of the country

over the years that have come mostly as settlers than as tourists. This is evidenced by its rapid population increase put at 275,000 persons per annum (Wikipedia, 2014). Owing to the unemployment rate within the country, most of these migrants resort to trading to earn a living, mostly in the markets and also along road sides being the easiest means of employment. This fact is corroborated by the prevalence of tribes other than the original tribe (Yoruba) in many of the markets surveyed.

Naturally, the available spaces within the markets were becoming unable to accommodate the influx of traders to them. These must have resulted in the construction of temporary structures made of wood, portal cabin, plastics and all other sorts of frail materials vulnerable to fire, that characterize majority of the markets by the traders. These structures, most of which are illegal, are usually closely built leaving insufficient airspaces which

makes it easy for an inferno to spread when it breaks out. Although fire outbreaks could be unforeseen sometimes, however, the level of damage and losses due to fire in the markets of Lagos state could have been lesser if less congested. The recent fire outbreaks in markets between year 2012 and 2013 had an unmatched frequency within such period over the years and could be a reflection of increasing congestion within the markets.

In addition, a few of these markets are remotely located and virtually inaccessible which makes it difficult for rescue and response teams to get there easily during emergencies. The road leading to Boundary market in Apapa LGA is in a terrible state laden with rocks which retards speed drastically and appears to be an effort by the Ajegunle community to fill pot holes along the road. The roads leading to other affected markets are not totally inaccessible but not in their best state.

Table 4 Division of the affected markets into Metropolitan and Non-metropolitan Areas

S/N	Local Governments Affected	No. of Markets Affected	% occurrence	
1	Metropolitan Lagos	Ojo	2	5
2		Mushin	3	7.5
3		Ikeja	7	17.5
4		Ajeromi	1	2.5
5		Ifako-Ijaye	1	2.5
6		Lagos Island	4	10
7		Amuwo Odofin	1	2.5
8		Lagos Mainland	2	5
9		Kosofe	5	12.5
10		Eti-Osa	2	5
11		Oshodi	3	7.5
12		Apapa	2	5
13		Somolu	1	2.5
14		Alimosho	3	7.5
	Sub total	37	92.5	
15	Non Metropolitan Lagos	Ikorodu	2	5
16		Epe	1	2.5
	Sub total	3	7.5	
	Total	40	100	

Source: Lagos State Fire Service- record of fire outbreaks in markets, 2014,

Findings revealed that only a few of the affected markets have a good network of roads within the market that permits easy access to vehicles (see table 5). The roads within most of the markets are only good for pedestrians and perhaps motorcycles, which makes it difficult for the rescue

team to reach easily the source of the inferno if deeply located within the market. Based on the observation made by the researcher during the field survey, the sampled markets can be classified in terms of accessibility into the following groups as shown in the table below:

Table 5: Accessibility of Markets Sampled

Accessibility Status	Number of Markets	Percentage (%)
Accessible	18	72
Partially Accessible	5	20
Inaccessible	2	8
Total	25	100

Source: Field survey, 2014

The classification in the table above describes how reachable the affected markets are to the response team. The classification 'accessible' refers to the markets that can be easily reached, having fair road network leading to them from outside as well as a fair internal (within the markets) road network permitting vehicular movement. The class, 'partially accessible', refers to the markets accessible from the outside but allows no vehicular movements within it while the 'inaccessible' group refers to markets having accessibility issues both externally and internally.

From the table 5, majority (72%) of the sampled markets are well accessible which implies that response team would have no problem reaching them promptly. The few (8%) which are poorly accessible both internally and externally pose some difficulty to response team and usually suffer longer fire duration. An example is the Oko Baba Sawmill where the highest number of people was displaced due to the inability of the fire service team to reach them as a result of the swampy and impassable road. 20% of the sampled markets have partial cases of inaccessibility constraints ranging from bad roads, poor drainage conditions and others.

Building Use and Type

Studies in Nigeria on incidences of fire lack valid detailed inventory of the buildings affected and lost to market fires over the years. Among those reported, there are disparities in the figures. For some that were reported, there was no distinction in terms of use of the building. However, a few were reported with a disaggregation into residential, commercial and mixed uses. Thus, the figures presented in this study do not represent all buildings affected by market fires within the study period but those that could be obtained. It was impracticable, within the time limit of the study to visit all the markets affected. However, for those markets visited, the perception of the traders was sought and is presented in the next chapter.

From field observation, FGD with emergency agencies like NEMA, and Lagos State Fire Service, various sources on the internet, especially those of some dailies such as PM News, Vanguard etc, over 580 shops, 3 residential buildings and 312 commercial cum residential buildings (mixed use) were affected by the market infernos that ravaged markets in Lagos between 2012 and 2013.

Table 6 Use of Buildings Affected by Market Fire Outbreaks

Building Use	Number of Buildings	Percent
Residential	3 buildings	0.36
Commercial	508 Shops	61.73
Mixed (residential and commercial)	312 buildings	37.91
Total	823 buildings	100.00

Source: Lagos State Fire Service, 2014, P.M. News Nigeria

Table 6 reveals that most of the buildings affected were mainly for commercial purpose which is expected since the fire outbreak scenes were markets. However, a good percentage (37.91%) of the buildings affected served both as residence and location for commercial ventures. This implies that some traders lived and sold within the same confines while some other building owners gave some parts of their buildings out for commercial use. These buildings were actually located within the markets and were the major reason for the increased number of displacements from homes though buildings

exclusively for residential purposes were also involved.

Markets Affected by the Inferno

The Lagos State Fire Service claims that about 40 different markets were reported to have been conflagrated and attended to between year 2012 and 2013 in Lagos State (see table 7). According to the data obtained from the number one responder to fire emergencies in Lagos (Lagos State Fire Service), about nine (9) markets were conflagrated at least twice between 2012 and 2013. These markets were all visited by the Fire Service and experienced different levels of damage.

Table 7 Lagos Markets razed by fire at least twice between 2012 and 2013

S/No	Market Name	Frequency of Conflagration	LGA
1	Alaba International	10	Ojo
2	Daleko	2	Mushin
3	Owode Onirin	4	Kosofe
4	Balogun	2	Lagos Island
5	Ayangburen	2	Ikorodu
6	Katanguwa	3	Alimosho
7	Computer Village	3	Ikeja
8	Mammy, Ojo	2	Ojo
9	Aiyetoro	2	Epe

Source: Lagos State Fire Service, 2014

From this table above, Alaba market appears to be the most vulnerable being razed by fire ten (10) different times within the space of two years. The market is a huge one and should have been well responded to owing to the presence of a fire station in the Ojo Local Government. However, some of the fire cases were devastating destroying completely a whole section where second hand refrigerators were sold. Furthermore, some markets have suffered extensive devastation due to the distance of the Fire Stations which attended to them from the fire scenes. The list of the fire stations and their locations has been presented earlier in table 3. The existing fire stations in the state are not evenly distributed rather they form clusters around certain regions thus increasing travel time to some fire scenes couple with the customary traffic bottlenecks.

Market Fire Profile and Time Dimensional Analysis

In recent times, market fires have become common place all over the nation. Lagos State appears to be the focal point of such occurrence in the past few years. Most of the market fire outbreaks

take place during the dry season when the Harmattan winds are boisterous aiding the spread of the inferno as well as accelerating combustion period of materials. The dry season usually occurs between December and March. However, due to climate change which has seen an extension or earlier commencement of the dry season, market fires have been witnessed in Lagos at almost all months of the year. Most of the fire outbreaks occurred between October and April.

One common factor to the market fires in Lagos State is that majority were caused due to electricity related issues (Table 8). More so, a good number of them took place in the night which made early discovery unlikely. Another notable fact from table 6 is that the year 2013 witnessed the highest number of market fires involving 16 of the 20 Local Government Areas of the state. Furthermore, it appears response to market fires has not improved over the years as the quantum of losses is still very high. In addition, evident from table 6, three (3) Local Governments, Agege, Badagry and Ibeju-Lekki have not recorded fire outbreaks in markets in the past seven (7) years.

Table 8 Profile of Market Fires in Lagos State

S/No	Market Name	Local Government	Lives and Properties Lost	Causes	Date of Incidence
1	Tejuoso	Lagos Mainland	Several shops, 5 deaths	Power surge	20/12/2007
2	Alarape	Somolu	25 shops	-	08/04/2008
3	Idera	Alimosho	Several shops and stalls burnt and 2 deaths	-	2009
4	Ketu Plank Market	Kosofe	Several shops	Power surge	30/07/2010
5	Yaba	Lagos Mainland	Several shops	-	15/01/2011
6	Oluwole	Apapa	Several shops and wares	Power surge	02/02/2011
7	Mammy	Oshodi	100 shops	Power surge	13/02/2011
8	Berger Auto	Apapa	Several shops and 10 vehicles	Bush burning	05/03/2011
9	Aguda	Surulere	106 shops	Power surge	30/07 2011
10	Mile 12	Kosofe	Several shops, 2.8 million naira cash in shops burnt	Power surge	04/12/2011
11	Alaba International	Ojo	Several Shops	Power surge	15/01/2012
12	Idi Iroko	Ikorodu	Several shops and houses	Kerosene stove	04/02/2012
13	Daleko	Mushin	-	-	21/02/2012

14	Ketu Plank Market	Kosofe	Several shops	Power surge	07/03/2012
15	Owode Onirin	Kosofe	-	-	12/03/2012
16	Mammy (POWA)	Ikeja	100 shops	Electricity generating set	23/03/2012
17	Ladipo	Mushin	-	-	06/04/2012
18	Irewole Plank Market	Alimosho	-	-	21/07/2012
19	Ibamon	Apapa	-	-	17/09/2012
20	Oke Afa Plank Market	Oshodi	100 shops, several goods and equipment	Power surge	11/10/2012
21	Ladipo Oluwole	Apapa	Several shops	Power surge	11/10/2012
22	Boundary	Ajeromi	-	-	05/11/2012
23	Irepodun Plank Market	Alimosho	-	-	06/11/2012
24	Jankara	Lagos Island	12 buildings and 4 deaths	Fireworks or firecrackers	26/12/2012
25	Ayangburen	Ikorodu	-	-	29/12/2012
26	Oko Baba Plank Market	Lagos Mainland	5000 residents displaced, 300 wooden buildings burnt and several properties	Power surge	10/01/2013
27	B and K supermarket	Lagos Island	-	-	14/01/2013
28	Shop Rite Shopping Mall	Ikeja	Electric bulbs	Power surge	15/01/2013
29	Kataguwa	Alimosho	-	-	06/02/2013
30	Aswani	Oshodi	Several shops and goods	Power surge	10/02/2013
31	Agboju	Amuwo Odofin	Several shops	Refuse Burning	15/02/2013
32	Ido	Lagos Mainland	-	-	17/02/2013
33	Alade	Ikeja	9 shops	Power surge	07/04/2013
34	Computer Village	Ikeja	Clothes on display burnt	Generator set	16/04/2013
35	Salako Adeogun	Ikeja	-	-	25/04/2013
36	Ikota Shopping Complex	Eti-Osa	A shop burnt	Electrical appliance	25/04/2013
37	China Town	Kosofe	A shop	Power surge	26/04/2013
38	KASVA	Eti-Osa	-	-	29/04/2013
39	Mammy	Ojo	Over 100 shops	Power surge	18/05/2013
40	Adebayo	Somolu	-	-	21/05/2013
41	Bakare-Bello	Kosofe	-	-	26/05/2013
42	Trinity	Apapa	150 shops, 3 injured	Power surge	08/06/2013
43	Wood	Kosofe	-	-	31/08/2013
44	POWA modern Market	Ikeja	-	-	31/08/2013
45	Oke arin	Lagos Island	-	-	14/09/2013
46	Mosafejo	Ikeja	-	-	21/09/2013
47	Aiyetoro	Epe	Over 39 shops	Electricity generating set	20/10/2013
48	Balogun	Lagos Island	3 floors of the 25 storey building were burnt	Power surge	04/11/2013

49	Oshodi New market	Oshodi	-	-	18/11/2013
50	Jankara	Ifako-Ijaiye	10 shops, 3 houses and 1 injured	Power surge	29/12/2013
51	Itokin	Epe	-	-	20/12/2013

Source: Lagos State Fire Service- record of fire outbreaks in markets, 2014; P.M. News Nigeria 2012, 2013.

Table 9: Incidences of Market Fire Outbreak within Seven Years

Year of Occurrence	Frequency
2007	1
2008	1
2009	1
2010	1
2011	6
2012	15
2013	26
Total	51

Source: Field survey, 2014

Impact of Fire on Traders, Markets and Community

The means of livelihood of many traders rest solely on the wares for sale at the various markets. Most of these wares are stored in the stalls or shops within the markets. Therefore, during fire outbreaks, the survival of these traders are threatened especially when it occurs in the night and nothing could be salvaged.

Most (57.1%) of the market infernos in the year 2012 and 2013 occurred in the night. Discovery was usually late which has led to the colossal losses incurred in most of the incidents. Some traders have lost their lives and others sustained severe injuries while salvaging their goods. Although some (32.4%) have returned to active business after the incident, an unnumbered sum has not regained their footing since then. Many have run into debt due to this mishap having borrowed from the bank to stock their shops or bought goods on credit expecting to pay back after sales.

Unfortunately, the government’s response to these events has been basically to rebuild the entire market or the affected parts and not to help affected traders monetarily. Due to this pattern of response of the government, some have alleged that some market infernos were due to arson by the government, who longing to remodel the markets, set it ablaze for easy evacuation of the traders. It appears that market fires opened ways for the remodelling of markets as some (64.8%) of the affected markets have since being rebuilt to modern standard (E.g. Tejuoso Market) while others are under construction.

Market infernos in some cases have extended to some residential buildings nearby displacing the residents. There was a case in Jankara

market where one of the residents of a building, probably having a siesta, was burnt to death while asleep when the fire from the market extended to the house. Another case in Oko Baba Sawmill resulted in the displacement of over 5000 residents of the community living within the market. Communities where market fire breaks out have always been put into pandemonium during this period. Many have been startled out of sleep while others have sustained varying degrees of injuries while helping to put out the fire.

From the history of fire outbreaks at markets beginning at 2007 up till 2013, it can be deduced that the fire outbreak at Oko Baba Sawmill on the 10th of October, 2013, was the most devastating destroying several shops, about 300 houses and displacing 5000 residents. For the first time in the history of fire disasters in markets, 40 markets were conflagrated involving 16 Local Governments within the space of two years (2012 and 2013). More so, throughout history only three Local Governments, Agege, Ibeju-Lekki and Badagry, have not had a taste of market fires in Lagos State. Still going down history lane, power surge or electricity issues accounts for most (20 of 51) of the fire occurrences in markets. Based on the data available, a total of 11 deaths have been recorded so far due to market fires between 2007 and 2013.

Lagos Metropolitan area witnessed more of the outbreaks of fire in markets between 2012 and 2013 accounting for about 92% of the total occurrence within that period. During this period, shops were mostly affected and only cases where people resided within the market environment witnessed significant displacement of people. Most

(57%) of the fire incidents occurred in the night which was responsible for late discovery and also extensive damage. It was gathered that most (95.2%) of the cases during this period involved losses in the tune of over hundreds of thousands of naira except a few (4.8%) which recorded losses less than 20,000 e.g. the fire at Shop Rite shopping mall at Ikeja where nothing but few electric bulbs got burnt when power surge resulted in a fire outbreak that was foiled by the prompt response of the Lagos State Fire Service who were located just behind the mall. Power surge accounted for most (68.6%) of the cases of fire outbreaks between 2012 and 2013. Other causes include: inflammable products (19.0%), refuse fire (9.5%) and a fallen truck (2.8%).

CONCLUSION AND RECOMMENDATIONS.

Fire is one of the most dangerous and common hazards capable of destroying so much within a short while. Fire disasters are not seasonal in most cases and are not tied to any natural factor unlike floods which cannot take place without increased precipitation. All categories of fire disasters can be devastating but market fires are worst affecting the means of livelihood of many victims at a time. Although fire disasters are wilder in dry seasons, this study revealed that fire outbreaks, especially in market places, is not a respecter of seasons occurring in wet seasons during the study period 2012 and 2013. Historically, market fires is not a new phenomenon in the study area, however recent trends are taking phenomenal dimensions.

To further understand the dimension of the disaster, there is a need to document the incidence of such disaster. Thus, it is imperative to know that fire disaster over the years have accounted for means of livelihood for traders and in some cases loss of life leading to mental break down.

There is need to establish a multi-disciplinary national centre to facilitate the development and improvement of the nature of data gathered, methods, and models for understanding fire vulnerability and more importantly, developing tools and strategies for improving nation's resiliency to future fire events. The Planning and Preparedness Phase includes the time period before a disaster. Activities should also include the development of plans and participation in local, regional or state-wide training exercises. Fire disaster plans need to include the role of the hospital or health centre as a responder. Internal lines of authority and action need to be addressed in the plans which would include provision of appropriate training for staff and a comprehensive review of the plan.

Also, there is the need to increase government's support of rapid response research to secure critical social science and geo-spatial data and information in disasters. This would help solve the problem of late discovery and enhance quick

detection of fire events before the damage becomes extensive.

There is need to understand the human decisions and organizational failures that contributed to the fire disasters that affected different states. There is immediate need for an independent review of the local, state, and federal fire response agencies to fire outbreaks so that we can learn the lessons of what went right and what went wrong in the response and use these to improve our preparedness and responses to future disasters.

Most of the fire outbreaks at markets have been attributed to power surge and vulnerable building materials. Thus, practical efforts should be taken by the government to put every market in a safe State. This includes demolishing every vulnerable and illegal structure in markets and reconstruction to modern and resilient standards after proper and adequate consultations with stakeholders. In fact, it better to take this action before the event of fire as attempts to do this after the fire in previous times, has brought about the allegation of arson levelled against the government. Furthermore, there should be a workable collaboration with the public power supply body, PHCN, to ensure sustainability of power supply to the markets. Illegal connections should be corrected and possibly rewiring of the entire market. More so, significant attention should be given to power supply to the markets to monitor the voltage supply at all time. Also, there should be a central way of cutting off power supply to markets at night. Other sources such as solar energy can be used to power lightings within the markets at night times.

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