

THE INCIDENCE OF BUILDING COLLAPSE AND EMERGENCY MANAGEMENT IN NIGERIA

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ABSTRACT

The research investigates the causes of building collapse in Nigeria and proffers appropriate solutions. Also, an assessment of the magnitude of the disasters of building collapse is done. An evaluation of the existing capacities to prevent, annihilate and get ready for them is also carried out. Thus by providing necessary tools to provide a haven fit for man. The study is carried out with secondary data which were used to assess the scale of human casualties emanating from reported cases of building collapse in selected Nigerian cities between 1997-2009. The assessment, done with the aid of a model showed that building collapse has killed a good number of people in Nigeria. An appraisal was done, it revealed emergency management is still far-fetched in Nigeria, and different recommendations made which include raising the level of emergency management awareness of the Nigerian people.

Keywords: Building Collapse, Casualties, Capacity Building, Environmental Management.

INTRODUCTION

The place and priority of building to man's existence and survival as he lives and carries out his activities within them is important. Buildings either as temporary, permanent or monumental structures needs to be properly planned, designed, constructed and maintained to obtain the desired satisfaction comfort and safety. (Olagunju *et al.*, 2013).

Building are structure which serve as shelters for man, his properties and activities. (Ayedun *et al.*, 2012). They are expected to be properly planned, desired and erected to obtain desired satisfaction from the environment. Factors considered in the course of building construction include; durability, adequate stability to prevent its failure or discomfort to the users, resistance to weather, fire out break and other forms of accident. The work involved in the design and construction stages of building are largely that of selecting building team, materials, components and structures that will meet the expected building standards and aesthetics on economy basis. The quality of the built environment, both natural and man-made depends on its management. That is, its process of control and organization often, there are forces that cause events that lead to unsafe built environment for water, land and air inhabitants. While these forces are generally categories into natural and man-made, their resultant effects are multifarious, calamitous and disastrous (Adedeji 2013).

The frequency of building collapse in Nigeria in the recent past has become a major issue in the development of the frequencies of their occurrences and the magnitude

of the losses being recorded in terms of lives and properties are becoming worrisome and alarming. Even though, the proportion of building that collapse is very small compared with the vast majority that are in use, but there are human and material wastes associated with such buildings collapse. Apart from psychological wounds often inflicted on both the affected residents of such houses, the owner and the environment also constitute huge loss to the nation at large.

The essence of environment management is to reduce the chances of vulnerability of the environment to disaster through prevention, mitigation, preparedness and capacity building. Going by this, it can be deduced that environmental management has the following components: Disaster management, Hazard management and capacity building. Because of the incessant disaster that is ravaging the world, agencies to undertake environmental management functions have been put in place in many parts of the world.

Several causes of building failure had been attributed to their natural or man-made phenomena. A natural phenomenon may be attributed to earthquakes and landslides while man-made phenomenon consists of disasters which may be borne out of man's negligence in areas such as soil type, building design and planning for extra loads and stress, foundation works, quality of building materials, lack or inadequate monitoring of craftsman and poor quality of workmanship. (Oloyede *et al.*, 2010).

The aim of this study is to examine the level of disaster caused by building collapse that the Nigerian populace and the environment have suffered. The study also reviews the concepts of management and vulnerability to give a theoretical model of reducing the toll of effects on man and his environment. Literature shows that studies in the field are scarce. This study wants to add to the scanty literature available in the area. There is need to tackle this rising incidence of building collapse.

LITERATURE REVIEW

Buildings all over the world constitute one of the most valuable assets of mankind. More so, while these buildings provide humanity with a great variety of accommodation in form residence, churches, mosques, offices, schools, hospitals etc, they also provide employment for the skilled and unskilled person. Oke (2011). The building industry plays an important role in the process of sustainable economic growth and development of any nation due to its size and complexity. Causes of building collapse are mainly ignorance, negligence and greed. Ignorance has to do with when incompetent personnel are in charge of design, construction or inspection. One of the major areas of negligence is in specification writing where that of a past project is adopted without cross checking those areas that need improvement. Greed is seen on the part of diversion of building materials and use of sub-standard materials so as to achieve high profit. Building collapse is also an outcome of progressive deterioration of various components forming the building unit.

Individual opinions differ on the reasons for building collapse. According to Consumer News Nigeria (2012) citing S.A Oloyede, C.B. Omogun and O.A Akinjare,

“building collapse occurs when the structural frame of a building breaks up, when the loads on it are beyond its carrying capacity”. According to this study, the common causes of building collapse have been tracked to:

- (a) Bad design
- (b) Faulty construction
- (c) Foundation failure
- (d) Extra-ordinary loads
- (e) Use of unqualified contractors and poor monitoring.

Oyewande (1992) opined that 50% of building collapse cases in Nigeria is attributed to design faults, 40% to construction faults, 10% to product failure. It has been the concern of numerous authors to search for the solution of prevention, mitigation and preparedness. A few statistics on the building collapse in Nigeria cities are: 20 people killed in an unfinished three-storey building on 12th June 1997, on 18th July, 2006, 57 people were buried as a building collapse on them in Ebute meta Lagos. Adedeji (2013).

In all, it can be seen that all the above studies, poor workmanship, substandard materials etc call cause building collapse. In Nigeria, building collapse is defined as a state of complete failure when the structure has literally given way and most structural members have either caved in, crumbled or bucked. Adebajo (2005) summarized the causes of structural collapse and failures in Nigeria from a series of building collapse investigations by Nigerian institute of structural engineers as:

- a. Non adherence to the approval regulation.
- b. Lack of professional site supervision.
- c. Absence of the involvement of a professional structural engineer in one or more of the stage of the project execution.
- d. Lack of professional site supervision.
- e. Excessively rushed construction.
- f. Unethical dealings between project promoters and the relevant planning authorities.

METHODOLOGY

To achieve the aim of this study which is to examine the magnitude of disaster caused by building collapse on man and environment with a view to proffering solution to identified causes and in attempt to achieve the objective, secondary data are applied for the study and are obtained from dailies, reports and other similar research documents that records causality (death and injuries) in reported cases of building collapse in some Nigerian towns: Lagos, Enugu and Abuja.

Table 1: Building Collapse Causality in Lagos, Enugu and Abuja between 1997-2009

S/N	Description	No. of Deaths	No. of Injured Persons	Total
1	24-storey building belonging to Bank of Industry , Lagos 22-3-2006	4	-	4
2	3-storey building under construction, Enugu 13-6-1997	20	-	20
3	2-storey building Iddo Lagos (June 2009)	7	30	37
4	4-storey shopping center, Utako District, Abuja 29-7-2008	70	30	100
5	Residential building of 36 flats pent house and shops, Lagos 19-7-2006	57	50	107
	Total	158	110	268

A model is generated and applied to assess vulnerability to building collapse in Nigeria. This will help to ascertain possible capacities that could be developed to prevent and mitigate future occurrence of building collapse.

Table 1 above shows the causality of some reported cases of building collapse in selected Nigerian cities which reveals that 158 persons died, 110 persons were injured. The mathematical model can help to assess the great level of disaster and proffer solution in terms of raising environmental awareness and capacity building against future happenings.

The model below is applied in the discussion.

$$Bc = X(R_f + R_m + R_B) (a + b + c)$$

Where

- Bc = Building Collapse
- X = Vulnerability of building collapse from substructure
- R_f = Sum of effects of Force Majeure
- R_m = Sum of effects of Human Unethical Practices.
- R_B = Sum of effects of use of sub-standard materials
- a = Building collapse awareness campaign
- b = Effective disaster response on emergencies
- c = Environmental management procedures.

DISCUSSION

The model can be interpreted in terms of total casualty resulting from building collapse and level of awareness among the people. In Nigeria, the possibility that building collapse will lead to human casualty is very high. This is evident from the high casualty figure of 268 people between 1997 to 2009 in the selected cities. The illustrations of the model clearly points to the fact that greater capacity should be built by individuals, originations populace to incidence of building collapse and thereby lessen the risk of loss of live and injuries to victims.

In Nigeria, a Disaster Management Agency was established known as National Emergency Management Agency (NEMA) with the following as the duties.

- a. Search and rescue
- b. Relief and Rehabilitation
- c. Policy and strategy
- d. Infrastructure, Education and prevention
- e. Administration, Finance and Logistics.
- f. Research and planning.

Federal government through NEMA has a mandate to assist states in disaster response and recovery by establishing State Emergency Management Agency (SEMA). The states are in turn mandates to establish Local Emergency Management Agency (LEMA) in all the local government areas of the respective states. In the event of a disaster, the activities of NEMA, SEMA and LEMA are coordinated through a Disaster Office (D.O). Post disaster concerns are also resolved by these three agencies in the D.O. The response activities include direction and control, early warning, evaluation and emergency services. These are designed to address immediate and short term effects of the onset of an emergency. They help to reduce casualties and damage and also to speed up recovery program.

Juxtaposing the effectiveness of the disaster management agencies in Nigeria with real disaster scenarios, the following are established.

- i) There are lots of bureaucratic bottlenecks in obtaining emergency assistance.
- ii) NEMA's activities are limited to urban centers where the Headquarter or Zonal offices are situated.
- iii) Most or even all the states have no functional LEMA.
- iv) NEMA and indeed SEMA are constantly denied financial support to be effective in their operations.

The Director General buttressed this point in his statement that "in 2007, the Agency was to receive ₦4.7 billion but unfortunately, we got nothing". Adedeji (2013). NEMA does not have the manpower that quails disaster physically. They count on other agencies who are trained for different types of emergency situations to come in and help. For example, when there is flooding, Civil Defense Corps comes in to rescue people physically, but when there is building collapse, they are expected to be there, like wise in fire incidence. NEMA does not have specialized personnel to handle some of the mishaps. The level of emergency response in the country is poor and there are inadequate equipment on ground.

CONCLUSION AND RECOMMENDATION

From the foregoing discussion, looking at the magnitude of human casualty associated with building collapse and the ineffectiveness of the emergency management agencies in Nigeria, there is need for drastic actions to be taken to make the environment safe for human dwelling.

In conclusion, poor workmanship, lack of professional site supervision, substandard materials, foundation failure all lead to building collapse. On the other hand, there is low awareness on the part of populace on the dangers of building collapse.

The following recommendations are put forward:

- Adequate finding and monitoring of the activities of all Emergency Management Agencies should be carried out.
- Each professional body in a state should have the register of their members and address and should as a matter of necessity, help in monitoring physical development going on in their area.
- Building collapse can also be minimized by introducing it into the schools curriculum as a way of raising the level of emergency management awareness of the Nigerian populace.
- Prosecution of defaulting physical development and planning offenders.
- Building collapse can also be minimized if the press can lay more emphasis on educating the public on the dangers of building collapse. The public must be willing to alert government on buildings suspected to be a risk to the lives of people living within a neighborhood.

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