A Study of Building Collapse in Akungba-Akoko, Ondo State, Nigeria

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ABSTRACT

The study focuses on building collapse in Akungba-Akoko, Ondo State, Nigeria, with the aim of providing updated information that could enhance sustainable building development in the local communities of Ondo State. To achieve this, primary and secondary data were sourced for the study. Primary data were retrieved from structured questionnaire, oral interviews as well as field observation. The total number of questionnaires administered were twenty-two (22). A multistage-sampling technique was adopted for the study. The study revealed the top ranked causes of building collapse in Akungba- Akoko. These include the use of unskilled artisans/craftsmen; poor construction work; substandard materials and poor architectural; and structural designs defects. It was further established that poor quality of materials and workmanship accounted for more than 50% of causes of building collapse in the study area. The study concluded that there should be a review of existing building laws that will guide standard code of practice and all professionals in the built environment.

Keywords: Building collapse, building industry, construction

INTRODUCTION

The building industry is the most complex of all the industries in the economy and the basis of its complexity is founded on the simple fact that, all other industries and sector of the economy depend on it for development and productivity enhancement. However, building serves several purposes within the spatial system such as infrastructure development, prestige, measure of economic prosperity and shelter to mention a few; in essence, building industry represents complex system of nation's economic development with huge potentials for employment (direct or indirect) and a sure plug to community sustainability (Akindoyeni, 2012; Ibidapo, 2025). Thus, a reverse situation in underdevelopment building sector or incessant building collapse could exacerbate tension and economic stagnancy a community (Ibidapo, 2025).

The incidence of building collapse is fast becoming a problem in urban and rural communities. For instance, in developing country such as Nigeria, serious measures have not been put in place to rescue the rural dwellers from incessant building collapse which has engulp their community landscape (Chendo and Obi, 2015). Basically, buildings are structures, which serve as shelters for man; and when properly planned, designed and constructed gives desired satisfaction to the client or user (Oseghale, Ikpo & Ajayi, 2015; Chiemezie & Zima, 2021). Ndububa (2021), noted that buildings are one of the fundamental necessities of man after food and the need to ensure its safety and functionality become paramount.

The styles of building construction are constantly changing with introduction of new materials and techniques of construction. Consequently, the work involved in the design and construction stages of buildings are largely that of selecting materials, components and structures that would meet the expected building standards and aesthetics of the population (Okeke et al., 2021). Several building codes of practice universally accepted are available for the design and construction of buildings for examples the built environment encompasses diverse fields such as architecture, engineering, construction and planning, with key professional bodies including the

American Institute of Architects (AIA**)**, American Society of Civil Engineers (ASCE), Chartered Institute of Building (CIOB) and Nigeria Institute of Town Planning, Nigeria Institute (NITP) and Nigeria Institute of Architects (NIA), among others. These organisations set standards, provide certification, offer training, and represent professionals in areas from building surveying and quantity surveying to landscape architecture and construction management. Buildings are meant to provide conveniences and shelter to the people, but the same building has been danger (Oke, 2011). Building is expected to meet certain basic requirements such as build ability, design performance, cost effectiveness, quality, safety and timely completion (Olusola, Atta & Ayangade, 2008).

Furthermore, the study of Qurix et al, *(*2020) on building collapse mitigating in Nigeria revealed that poor supervision, substandard material, poor monitoring, inadequate material like cements are the major factors that contributed to building collapse in Nigeria. Building collapse poses significant risks to human life and safety. Despite the government's efforts to regulate the construction industry, the widespread negligence among contractors, builders, and regulatory agencies continues to result in avoidable tragedies. These collapses often lead to significant loss of life and economic damage. It is important to explore the specific options available to Professionals, policy makers and the public in tackling this menace, which appears to be a global phenomenon. However, understanding the causes of building collapse in communities such as Akungba-Akoko would assist identifying measures to prevent building collapse in communities. Thus, this study examined the causes of building collapse in Akungba Akoko, Ondo State Nigeria, with a view to enhancing policy for preventing building failure in a community system.

LITERATURE REVIEW

Building industry

The building industry is the most complex of all the industries in the economy and the basis of its complexity is founded on the simple fact that, all other industries and sector of the socio-economy depend on it for the environment in which they operate. The building industry is to all practical purpose an all-comers affair (Akindoyeni, 2012). It is an industry where all manners of local and foreign materials, professionals and equipment's co-habit in order to achieve quality buildings of high standard. The building industry plays an important and dynamic role in the process of sustainable economic growth and development of any nation due to its size and complexity. It is to be noted that up to one-sixth of the total amount allocated to construction projects by Nigeria governments takes the form of building as observed from past budget of the country. Whether a country is just developing like Nigeria or is already developed like Britain, buildings all over the world, constitute the most valuable assets of mankind (Chinwokwu, 2012). More so, while these buildings provide humanity with a great variety of accommodation in form of residences, mosques, churches, offices, schools, factories, hospitals, stadia, ports, hotels, and so on, it also provides employment for the skilled and unskilled persons. The building industry plays an important and dynamic role in the process of sustainable economic growth and development of any nation due to its size and complexity. .

Causes of building collapse

Buildings fail through mainly ignorance, negligence and greed (Bolaji, 2014). 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 crosschecking those areas that need improvement, addition or omission. Greed on the part of building contractors e.g., diversion of building materials, cement in particular, meant for the production on the client's site to his own site, the use of substandard materials so as to achieve high profit, etc. In discussing the issue of building collapse, distinction must be made between buildings, which fail during construction or within the service life and to those that fail after the service life, which is usually 25 years (Olusola, 2010). It can be deduced that the collapse that causes the greatest loss is that which occurs when a building has been in use for long a time or shortly after its construction.

Foundation is one of the major structural members of any building and any problem arising from it will surely affect the whole building. Fadamiro, (2010) averred that the crushing and collapse of concrete footing or other foundation members are usually due to unequal settlements which may be cause by changing sub-grade condition or by wrong assumptions in the design, inadequate or unequal support for foundations, soil and ground water s

as well as expanding soils. Hence, the most common form of abuse of foundation occurs due to abnormal loading situations especially in structures being converted to new use or having additional floors.

One of the major natural factors that result into building collapse is rainfall; others may include temperature, pressure, etc. When there is a heavy downpour of rain, there is a possibility that one or more buildings (completed or uncompleted), somewhere, would carve in (Chinwokwu, 2013). The fact remain that this is a natural factor that cannot be stopped, buildings therefore need to be constructed adequately bearing in mind such uncontrollable factors.

This has to do with the difficulties that contractors experience in consistently obtaining and/or producing good quality materials as well as the ability of the client's representative to understand the correct control values or make the necessary computation in the field. It goes further into the inability of manufactures to make products of the same sizes and specified quality at all times (Chendo and Obi, 2015). More so, there is difficulty of the client's representative in producing or interpreting field test results. It is often that many of them present on the field are usually no more than clerk of works put there by the architect to record the daily operations.

This is the difficulty a client or his representative experiences on large-scale projects in having all the contractors produce uniform standards of materials and workmanship. Different contractors have their different means of production in terms of method of construction, technology involved (Omenihu., Onundi, & Alkali, 2025). This sometimes in conjunction with contractors' variability is one of the reasons behind the incidents of building collapse in Nigeria. The level of competencies of different categories of labour in Nigerian building industry (though varies from one city and contractor to another), through investigation, is found to be reducing day after day. It has been noted that even the workmen that went through apprenticeship training are no better than their master. Poor skill makes it difficult or impossible for workers to perceive and apply the concepts of quality control and limits of tolerance for building production (Ayedun et al, 2010).

MATERIALS AND METHODS

Methodology

Both primary and secondary data were employed for this study. The primary data involved multistage-sampling techniques of data collection. The first stage involved stratification of Akungba Akoko into different political wards as delineated by Independent National Electoral Commission (INEC, 2006): Akungba I and Akungba II. The second stage involved the identification of total number of streets in the political wards of the study area. In order to reduce the study population into homogeneous unit, 30% (32) of the total number of streets identified were selected (Table 1). The third stage involved the identification of the total number of buildings in the selected streets (928) of the study area. Through systematic sampling technique one out of every 6 (15%) buildings were selected for the study. A total number of 139 buildings were identified as the sample size. Thus, 139 questionnaires were administered to the household heads or its equivalent in the study area.

Table 1: Sampling Frame and Sample Size

Political wards	No. of streets identified in ward	No. of streets selected in ward (30%)	No. of buildings in selected wards	No. of buildings selected (15%)
Akungba I (ward 12)	50	15	426	64
Akungba II (ward 13)	62	17	502	75
Total	**42**	**32**	**928**	**139**

Source: Authors Field Survey, 2026

The secondary data for the study were sourced through journals, textbooks, information from the internet, library materials and publications. On the other hand, Primary data were retrieved from structured questionnaire, oral interviews as well as field observation.

RESULTS AND DISCUSSION

Causes of a building collapse in Akungba-Akoko, Ondo-State, Nigeria

The study revealed that the use of unskilled artisans/craftsmen ranked highest with mean response of 3.86, vibration from nearby activities (3.23), poor construction work (3.18), substandard/inferior materials (3.09), poor architectural and structural designs with (3.00), overloading of buildings (2.95), lifespan of the structure (2.86), poor maintenance culture (2.59), natural disasters (2.45) and unstable soil (2.45) were accounted for by the respondents in the area. The study revealed that the top ranked causes of building collapse in Akungba-Akoko are the use of unskilled artisans/craftsmen, poor construction work, Substandard/inferior materials and poor architectural and structural designs.

Based on the findings, it was revealed that poor quality of materials and workmanship has accounted for more than 50% of causes of building collapse in Akungba-Akoko, Ondo State, Nigeria. The study affirmed that Ogunsemi (2014) confirmed that this factor has been responsible for only 37% while the study of Fadamiro (2010) accounted for 27%. This is due to the fact that others research relies on a larger number of past building collapse in Nigeria for its finding (making use of sixty cases and five major causes). The discrepancy in this findings is logically attributed to the breadth of data (number of cases) and the depth of variables (number of causes) analyzed in each study and this study is attributed to our local environment (Table 2). Furthermore, Plate 1 showed array of building collapse in the study area. These building are traditional building which are physical found weak and characterised with advance age and poor materials. These issues combined caused the incessant rate of building collapse in the area. However. Akungba remains an academic town interwoven with traditional features in terms of housing types and socio-cultural attachments.

The visual evidence of collapsed buildings, described as being of traditional construction, weak physical condition, advanced age, and poor materials, directly corroborates the findings of numerous studies. Studies consistently identifies the use of substandard materials and poor workmanship as primary, immediate causes of structural failure (Waziri & Vanduhe, 2018; Oloyede et al., 2010). The reference to advanced age further supports the concept of buildings exceeding their intended design life or suffering from a lack of maintenance, a factor extensively discussed by Windapo and Rotimi (2012) in their analysis of building collapse in SouthWest Nigeria. The observation that these issues are combined is also critical, as it reflects the multi-causal nature of building collapse, where a convergence of deficiencies, rather than a single factor, typically leads to failure (Ogungbile & Oke, 2015).

Furthermore, the characterisation of Akungba as an academic town with traditional features provides a crucial contextual layer. This duality places the town's building stock at a specific intersection of pressures. While the area retains traditional housing types, the influx of population and economic activity associated with a university often accelerates urban development in a way that can outpace regulatory oversight and strain existing infrastructure (Afolabi & Fagbemi, 2019). This rapid, sometimes unplanned, growth can lead to a proliferation of buildings that may not adhere strictly to modern construction standards, thereby perpetuating the cycle of vulnerability associated with traditional methods while also introducing new risks from hurried, poorly supervised modern construction (Arayela & Ilesanmi, 2021). Therefore, the collapse issue in Akungba is not merely a case of old buildings failing, but a symptom of a town navigating the complex transition between its traditional roots and its modern identity as a higher education hub.

Table 2: Causes of a Building Collapse in Akungba-Akoko, Ondo-State, Nigeria

S/N	Statements	N	SD 1	D 2	N 3	A 4	SA 5	Mean Index
1	Poor architectural and structural designs	139	4 18.2%	6 27.3%	3 13.6%	4 18.2%	5 22.7%	3.00
2	Exceeding of lifespan of the structure	139	4 18.2%	5 22.7%	6 27.3%	4 18.2%	3 13.6%	2.86

3	Rise in water table level	139	2 9.1%	9 40.9%	5 22.7%	4 18.2%	2 9.1%	2.77
4	Vibration from nearby activities	139	1 4.5%	6 27.3%	5 22.7%	7 31.8%	3 13.6%	3.23
5	Overloading of buildings	139	3 13.6%	4 18.2%	8 36.4%	5 22.7%	2 9.1%	2.95
6	Substandard/inferior materials	139	2 9.1%	7 31.8%	4 18.2%	5 22.7%	4 18.2%	3.09
7	Use of unskilled artisans/craftsmen	139	1 4.5%	3 13.6%	1 4.5%	10 45.5%	7 31.8%	3.86
8	Natural disasters	139	6 27.3%	7 31.8%	4 18.2%	3 13.6%	2 9.1%	2.45
9	Poor maintenance culture	139	3 13.6%	9 40.9%	5 22.7%	4 18.2%	1 4.5%	2.59
10	Unstable soil	139	6 27.3%	7 31.8%	4 18.2%	3 13.6%	2 9.1%	2.45
11	Poor construction work method	139	2 9.1%	8 36.4%	- -	8 36.4%	4 18.2%	3.18

Source: Authors Field Survey, 2026

SD= Strongly Disagree, D= Disagree, N= Neither, A= Agree, SA Strongly Agree.

Plate A

Plate B

Plate C

Plates 1: Evidence of Building Collapse in Akungba, Ondo State

Source: **Authors Field Survey, 2026**

Measures to prevent building collapse in the study area.

Findings were made to know the measures to prevent building collapse in Akungba Akoko, the study revealed that various effort of government, professionals, and all others stakeholders in eradicating building collapse were observed. The study revealed that each statement scored above average (3) and high (4) in most cases. Building code, mean score was 3.32. Also, intensified publicity by professional bodies (3.18); abolition of quackery by means of efficient task force (3.36); supervision of all workers on site (4.18); elimination of greed on part of the contractor (4.24); verification of soil bearing capacity prior to construction (4.68); use of specifications in terms of materials and method (4.05); actual engagement of professionals by clients (4.09); absolute revamp in the technology education sector (4.18); severe punishment to defaulters (3.64) were equally investigated with their corresponding mean indexes (Table 3).

Based on findings, the various efforts of Government, professionals, and all other stakeholders in eradicating building collapse in Akungba Akoko are: verification of soil bearing capacity prior to construction; elimination of greed on part of the contractor; supervision of all workers on site; absolute revamp in the technology education sector; actual engagement of professionals by clients; use of specifications in terms of materials and method; severe punishment to defaulters; abolition of quackery by means of efficient task force; strict adherence to building code; intensified publicity by professional bodies. This study affirmed with the study of Chendo & Obi, (2015), on the remedy to building collapse in Nigeria. Furthermore, the emphasis on strict adherence to the building code, use of specifications, and severe punishment for defaulters resonates strongly with existing literature. Many researchers argue that Nigeria's primary challenge is not the absence of codes and regulations, but a systemic failure of enforcement (Omenihu, Onundi, & Alkali, 2016). The call for severe punishment in your findings is a direct response to the impunity often cited in these studies. This is closely linked to the recommendation for intensified publicity by professional bodies, which serves as a proactive measure for public education, a strategy supported by Dimuna (2010) to create a society that demands accountability and quality in construction.

Table 3: Measures to prevent building collapse in the study area.

S/N	Statements	N	SD 1	D 2	N 3	A 4	SA 5	Mean Index
1	Strict adherence to building code	139	3 13.6%	3 13.6%	4 18.2%	8 36.4%	4 18.2%	3.32
2	Intensified publicity by professional bodies	139	3 13.6%	5 22.7%	3 13.6%	7 31.8%	4 18.2%	3.18
3	Abolition of quackery by means of efficient task force	139	2 9.1%	5 22.7%	3 13.6%	7 31.8%	5 22.7%	3.36
4	Supervision of all workers on site	139	1 4.5%	1 4.5%	13 59.1%	- -	7 31.8%	4.18
5	Elimination of greed on part of the contractor	139	- -	1 4.5%	2 9.5%	9 40.9%	9 40.9%	4.24
6	Verification of soil bearing capacity prior to construction	139	- -	- -	- -	7 31.8%	15 68.2%	4.68
7	Use of specifications in terms of materials and method	139	- -	1 4.5%	3 13.6%	12 54.5%	6 27.3%	4.05
8	Actual engagement of professionals by clients	139	- -	3 13.6%	3 13.6%	7 31.8%	7 31.8%	4.09
9	Absolute revamp in the technology education sector	139	- -	2 9.1%	3 13.6%	6 27.3%	11 50.0%	4.18
10	Severe punishment to defaulters	139	1 4.5%	6 27.3%	2 9.1%	4 18.2%	9 40.9%	3.64

Source: Authors Field Survey, 2026

SD= Strongly Disagree, D= Disagree,   N= Neither,   A= Agree, SA Strongly Agree.

CONCLUSION AND RECOMMENDATION

Akungba-Akoko has witnessed collapsed of buildings in various dimensions, either those under construction or those already in existences for years. Causes were identified as mainly man-made but less often by forces of nature. Corruption as man-made factor manifest in greedy contractors and the tendency of clients or landlords cutting-corners resulting to the use of substandard materials, use of quacks and poor remuneration for building works and services. The building consultants are guilty of negligence, incompetency, poor supervision and the tendency to allow defective works intentionally for a fee or due to ignorance or inexperience.

There should be a review of existing building laws that will guide standard code of practice and all professionals in the built environment.

Strict adherence to building code and monitoring of all professionals in the building industry would reduce building collapse. Building compliance backsliders should be sanctioned and punish. In addition, there should be absolute revamp in the technology education sector which serves as medium and connection between the educators and builders. This would raise the consciousness of good practice in building industry. Also, there should be a taskforce checkmating incompetence among contractors with intensified publicity by and for stakeholders in the construction industry.

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