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An Investigation into Factors Responsible for School Building Collapse in Nigeria

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Abstract: This study aimed to examine the factors responsible for school building collapse in Nigeria. Data from secondary data (print and online publications) were used to support the point raised in the paper. Content analysis was used to select the works of literature. Results showed that factors responsible for school building collapse in Nigeria include: unauthorised conversion and modification of building use, unprofessionalism, architectural mistakes, occurrence of nature, quality control, preliminary works that are not up to standard, corruption, faulty foundation and inadequate building inspectors. Based on the findings, the paper recommends that the Federal and state governments should ensure the enforcement of building regulations, especially in school buildings across the country. The Federal and state governments should formulate stringent penalties and impose them on those who violate construction standards, while transparent processes should govern the approval of building plans. The Federal and state governments should enhance the enforcement of building regulations, especially in school buildings across the country.

Keywords: School building, School building collapse.

1.0 Introduction

School building collapse has been one of the national disasters in Nigeria, as all the geo-political zones of the country have experienced the disaster in the last three decades. This menace has been a serious challenge to the government, non-governmental organisations and professional bodies. For instance, on October 4, 2024, Akinrogba reported that Eghereka Primary School, located in Ewu town in Ughelli South Local Government Area of Delta State, which was made up of six blocks of classrooms, collapsed and fell on a student, leading to his death. Salvation met his untimely death yesterday when the block of six classrooms that collapsed fell on him and injured three others. According to reports, the dilapidated building collapsed under the heavy rain. The block of six classrooms, which was without a roof, was said not to have been in use,

just as prompt efforts led to the rescue of the other pupils. Also, a five-storey building under construction at Dennis Memorial Grammar School in Onitsha, Anambra State, collapsed. The building, which was being constructed by the Anglican School old students association, was said to have reached an advanced stage before it collapsed on June 12, 2024. No casualty was recorded (Ogunode, Okpunukpang & Ngozi Ugwa 2024).

2.0 Literature Review

2.1 Concept of School Building

A school building is a planned and organised plan designed for the implementation of teaching and learning. A school building is a plant or facility officially approved for the execution of educational services such as teaching, learning and extra-curricular programmes. A school building is a building set aside for the purpose of providing educational services for the citizens. School building is a plant and facility prepared and organized for students, teachers and school administrators for the implementation of the school curriculum and for the provision of quality education. School building is a special space and location where educational resources are provided for the implementation of teaching, learning and carrying out research (Ogunode, et al, 2024).

School buildings are made up of different components such as classrooms, libraries, laboratories, administrative offices, halls, hostels and workshops. Osagie (2003) opines that infrastructure represents the aesthetic picture of the school conveyed by the position of structures with one another. It also represents the empirical relevance of the totality of the school environment for the realization of the school business (teaching/learning). He asserted in specific terms that the school plan is made up of landscape, trees, lawns, hedges, and accompanying paths, playgrounds, buildings, security facilities and utilities. The collapse of a building has tremendous effects that cannot be easily forgotten by any of its victims. The consequences are usually in the form of economic and social implications, and they include loss of human lives, injuries, economic waste in terms of loss of properties, investments, jobs, incomes, loss of trust, dignity and exacerbation of crises among the stakeholders and environmental disaster (Ede, 2013).

2.3 Types of Collapse

Progressive Collapse:

Ellingwood et al. (1978) have it that a building undergoes progressive collapse when a primary structural element fails, failing adjoining structural elements, which in turn causes further structural failure. Uji 2014 explained that in progressive collapse, there will be signs of weakness noticeable either by seeing cracks which become wider with time, or when an unusual sound becomes noticeable in the building due, perhaps, to structural members gradually giving way from one another.

Partial Collapse:

Partial collapse occurs when a part of the building is affected, i.e. when perhaps a small fraction of the building, or only one side of it falls.

Total Collapse:

Also known as sudden collapse, the entire building may suddenly fall, without giving any prior sign of distress, failure, weakness or even vulnerability to imminent collapse.

3.0 Method

This paper discusses the factors responsible for school building collapse in Nigeria. The paper depends on secondary sources of data, which relied on secondary sources of evidence inform including published books, journal articles, newspapers, government official documents, seminar papers, conference papers, as well as related information from the internet.

4.0 Result and Discussion: Factors Responsible for School Building Collapse in Nigeria

There are many factors responsible for school building in Nigeria. Some of the factors includes: unauthorised conversion and modification of building use, unprofessionalism, architectural mistakes, occurrence of nature, quality control, preliminary works that are not up to standard, corruption, faulty foundation and inadequate building inspectors.

Unauthorized Conversion and Modification of Building Use

In Nigeria, Orikpete and Ewim (2023) noted that it is common practice to add additional floors above what the initial plan allows. For instance, converting a single-story building to a two-story structure places additional stresses on the suspended floor and puts additional strain on the foundation of the structure. Adding extra apartments to suspended storeys, changing the purpose of the building (for instance, transforming a residential building into a mini factory with heavy-duty equipment on suspended floors), and so on, has been the reason for the reoccurrence of the unfortunate collapse of buildings in Nigeria.

Unprofessionalism

In general, it is thought that unethical conduct contributes significantly to the threat to the collapse of buildings in Nigeria. Unethical conduct, such as bribery from site managers or contractors, professionals operating in capacities beyond the purview of their profession, and so on, has an indirect harmful influence on the structure and may eventually result in its collapse. The importance of specialists in building construction in Nigeria cannot be overstated (Ogunbiyi, 2020). As a result, it's sad that a large portion of the country's construction industry still lacks full involvement from qualified professionals (Orikpete et al, 2023).

Architectural mistakes

If the client fails to supply all necessary information on the building's requirement specification, flaws in the brief provided by the customer may cause problems even before the project begins [4]. He went on to say that design flaws include things like inaccurate measurements, bearing support issues, deformation, secondary stress and strain, elastic cracking, temperature and contraction issues, detailing and designing issues, assumed loading errors, and changes and alterations in existing buildings, all of which contribute to structural defects, disasters, and, eventually, building collapse (Orikpete, et al 2023).

Occurrence of nature

Rainfall is one of the key natural variables that cause structure collapse; others may include landslides, earthquakes, and so on. According to Chinwokwu (2020), whenever there is a heavy downpour, there is a chance that one or more buildings whether finished or uncompleted, will be covered in mud. The reality remains that this is an uncontrollable natural factor; structures must thus be built with such uncontrollable factors in mind.

Quality control

The importance of tight quality management in material consumption in the Nigerian construction sector cannot be overstated (Ede, 2020). The construction industry's disregard for quality control has resulted in numerous defective and unsightly buildings, as well as an increase in the number of collapsed structures in recent years. The quality achieved in the Nigerian building industry is influenced by several elements, which are addressed below (Orikpete et al, 2023).

Preliminary works that are not up to standard

The term "preliminary works", according to Orikpete and Ewim (2023), refers to procedures such as site investigation and foundation. Where these operations are carried out haphazardly, building collapse is imminent. The purpose of a site study is to ascertain the qualities of the soil layers. According to Udo-Udoma (2019)**,** all prospective construction sites must be assessed for

building compatibility as well as the type and nature of the required preparatory work. Because there may be variances across the site, special consideration should be paid to the composition of the soil and its anticipated capacities to bear load. The site's prior history should be researched, paying special attention to the presence of trees, water levels, borehole logs, beneath soil strata, and garbage dumps. A comprehensive examination of nearby structures should be performed to determine whether failure can occur as a result of localised circumstances.

Corruption

According to the Global Corruption Report (2005), corruption has resulted in a substantial increase in the cost of building supplies, which has increased the use of building materials of poor quality are used in the construction, affecting the economy's quality and standard of construction. award of contract, planning, implementation, and handover after completion are all examples of corruption. Corruption, on the other hand, may exist in one or more forms in any of the above-mentioned stages. It involves bribery, fraud, and collusion, with the effect that the building industry's quality is lowered, repair and maintenance costs are increased, and some flaws may go undetected until the project falls, according to Kazeem et al. (2020).

Faulty Foundation

A faulty foundation is one of the problems responsible for structural problems in school buildings. A faulty foundation has implications for the life span of the building (Ogunode et al, 2024). Fadamiro (2002) maintained that the crushing and collapse of concrete footing or other foundation members are usually due to unequal settlements, which may be caused by changing sub-grade conditions or by wrong assumptions in the design, inadequate or unequal support for foundations, soil and ground water movements, 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 a new use or having additional floors. Abraham and Omogbolagun (2024) and Oloyede, Omoogun, and Akinjare (2020) revealed that the physical observation of the building looked distressed, while weak materials were used for the building. He said the report also depicted that the quality of the concrete used to construct the two-storey building was in doubt, as there was no boundary between the concrete and the steel reinforcement. The quality of concrete is in doubt because there was no boundary between the concrete and the steel reinforcement. The slab reinforcement anchorage provided was inadequate. The sizes of the footing (foundation) provided were less than the required number (1200 mm X 1200mm) (Abraham et al, 2024).

Inadequate Building Inspectors

Ogunjide (2020) and Lakshmi (2019) asserted that there is an inadequate number of government officials to carry out assessments and monitor construction sites to ensure that projects adhere to basic requirements in line with the National Building Code. Thisday (2024) noted that authorities at all levels should therefore be concerned that too much blood is being spilt needlessly in Nigeria's building industry for all sorts of reasons that even professionals in the sector recognise as avoidable. Cases of building collapse cut across offices, schools, residential areas, churches, and business premises. Yet, the construction of a building, according to the Nigerian Society of Structural Engineers, "is expected to be managed by qualified professionals, including structural engineers, mechanical engineers, electrical engineers, architects, quantity surveyors," among others. Lack of professionalism in the industry has led to unethical dealings like the use of cheap and inferior materials, improper supervision, and distortion of original building plans, like when a 10-year-old two-storey building has five floors added onto it without approval.

Effects of Building Collapse

The following are the impacts of school building collapse;

1) Physical, mental, emotional and psychological trauma and death to the victim

2) Loss of property and a huge sum of invested money. About 968 people lost their lives and over 336 people were injured between 1974 – 2017.

3) Professionals, contractors and other stakeholders in the construction team lose confidence, reputation and integrity before clients and employers each time a building collapse happens

4) Loss of capital invested in the construction of the collapsed buildings. Components and materials so damaged during collapse are not recoverable and cannot be reused. Capital investments are not recoverable, leading to bankruptcy and extra costs in burying victims.

5) A lot of money that would have been used for other purposes is always wasted when cleaning debris from the collapsed building site.

6) Money and time will be wasted by setting up a committee, and the sessions the committee members will be meeting to investigate causes of building collapse for the production of reports that may not be published for others to correct themselves.

Conclusion and Recommendation

This paper discusses factors responsible for school building collapse in Nigeria. The paper concluded that **u**nauthorized conversion and modification of building use, unprofessionalism, architectural mistakes, occurrence of nature, quality control, preliminary works that are not up to standard, corruption, faulty foundation and inadequate building inspectors are the factors responsible for school building collapse in Nigeria.

Based on this, the paper recommends that;

1. The Federal and state governments should ensure the enforcement of building regulations, especially in school buildings across the country.

2. The Federal and state governments should formulate stringent penalties and impose them on those who violate construction standards, while transparent processes should govern the approval of building plans.

3. The Federal and state governments should enhance the enforcement of building regulations, especially in school buildings across the country.

4. The Federal and state governments should provide effective capacity building that ensures the implementation of the programme for people in the building industry to enhance the capabilities of construction workers.

5. The federal government should prioritise the rigorous implementation and enforcement of building codes and regulations in school buildings across the country.

6. The federal government should ensure effective supervision and inspection of all ongoing school buildings to curtain corruption practices in the industry.

References

1. Abraham, J., & Omogbolagun, T. (2024, January 19). *FG panel report reveals reasons for Plateau school collapse*. Punch. https://punchng.com/fg-panel-report-reveals-reasons-for-plateau-school collapse/#:~:text=The%20two%2Dstorey%20building%20housing, were%20evacuated%20to%20various%20hospitals
2. Chinwokwu, G. (2020). The role of professionals in averting building collapse. In *Proceedings of a workshop on building collapse: Causes, prevention and remedies* (pp. 12–28). The Nigerian Institute of Building, Lagos State.
3. Ede, A. N. (2013). Building collapse in Nigeria: The trend of casualties in the last decade (2000–2010). *International Journal of Civil & Environmental Engineering*, *10*(1), 32–36.

4. Ede, A. N. (2020). Structural stability in Nigeria and worsening environmental disorder: The way forward. In *Proceedings of the West Africa Built Environment Research Conference*, Accra, Ghana (pp. 489–498).
5. Ellingwood, B. R., & Leyendecker, E. V. (1978). Approaches for design against progressive collapse. *Journal of the Structural Division, 104*(3), 413–423.
6. English Dictionary - Wiktionary texts. (n.d.). *Wiktionary*. http://wikitionary.org
7. Fadamiro, J. A. (2002). An assessment of building regulations and standards and the implication for building collapse in Nigeria. In D. R. Ogunsemi (Ed.), *Building collapse: Causes, prevention and remedies* (pp. 28–39). The Nigerian Institute of Building, Ondo State.
8. Kazeem, K. A., Joy-Felicia, O., & Wasiu, O. A. (2020). Incessant collapse of buildings in Nigeria: The possible role of the use of inappropriate cement grade/strength class. *International Journal of Civil, Environmental Structural, Construction and Architectural Engineering, 8*(1).
9. Lakshmi, R. (2019). Quality control and quality assurance in building construction. In *National Conference on Research Advances in Communication, Computation, Electrical Science and Structures*.
10. Ogunbiyi, M. (2020). The national building code and the construction industry professionals in Nigeria. *International Journal of Social and Entrepreneurship*. [Online].
11. Ogunode, N. J., Okpunukpang, E. P., & Ugwa, N. (2024). School building collapse and psychological impacts on teachers and students in Nigeria: Implication for educational planning and administration. *Journal of Preschool Education and Psychology Research, 1*(1), 42–64.
12. Oloyede, S. A., Omoogun, C. B., & Akinjare, O. A. (2020). Tackling the frequent building collapse in Nigeria. *Journal of Sustainable Development, 3*, 127–132.
13. Oseghale, G. E., Ikpo, I. J., & Ajayi, O. D. (2015). Causes and effects of building collapse in Lagos State, Nigeria. *Civil and Environmental Research, 7*(4), 34–43.
14. Orikpete, O. F., & Ewim, D. R. (2023). Investigating the root causes of recurring building collapse in Nigeria: A systematic review and meta-analysis. *Journal of Earth and Environmental Sciences*, 61–70.
15. Tribune. (2020, August 6). No building collapse again, FG orders enforcement agencies. *Tribune Online*. http://tribuneonlineng.com/no-building-collapse-fg-ordersenforcement-agencies/
16. Uji, Z. A. (2014). Building collapse in Nigeria and the collapse of national values.