

# **Structural Failure of Buildings in Nigeria: A Review of Reported Cases of Building Collapse from 1999 to 2019**

**Presented**

**By**

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# Outline of the Presentation

Introduction

Reported cases of building collapse in Nigeria (1999 – 2019)

Causes of building collapse in Nigeria (1999 – 2019)

Locations where building collapse took place

Types of buildings that collapsed

Prevention of Building Collapse

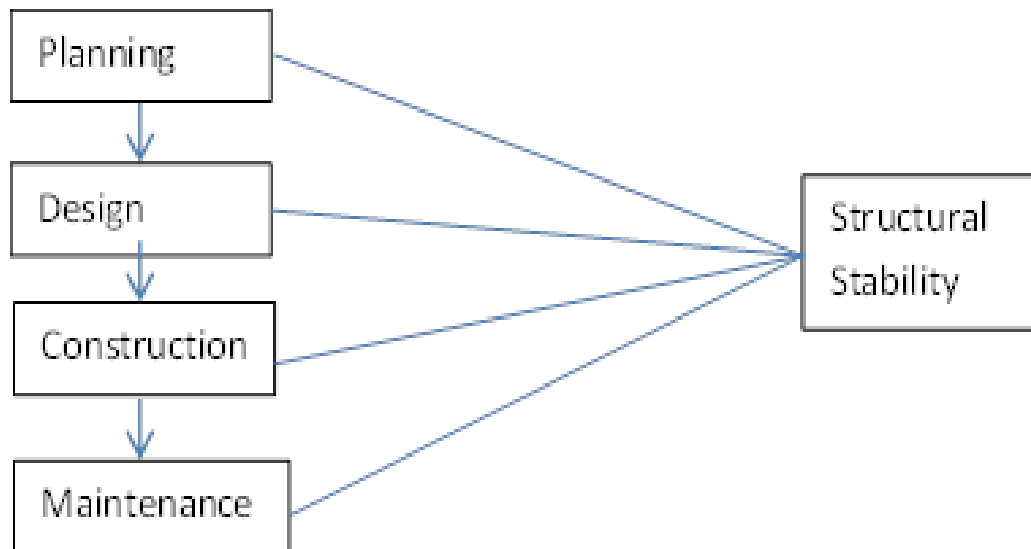
Conclusions

Recommendations

# INTRODUCTION

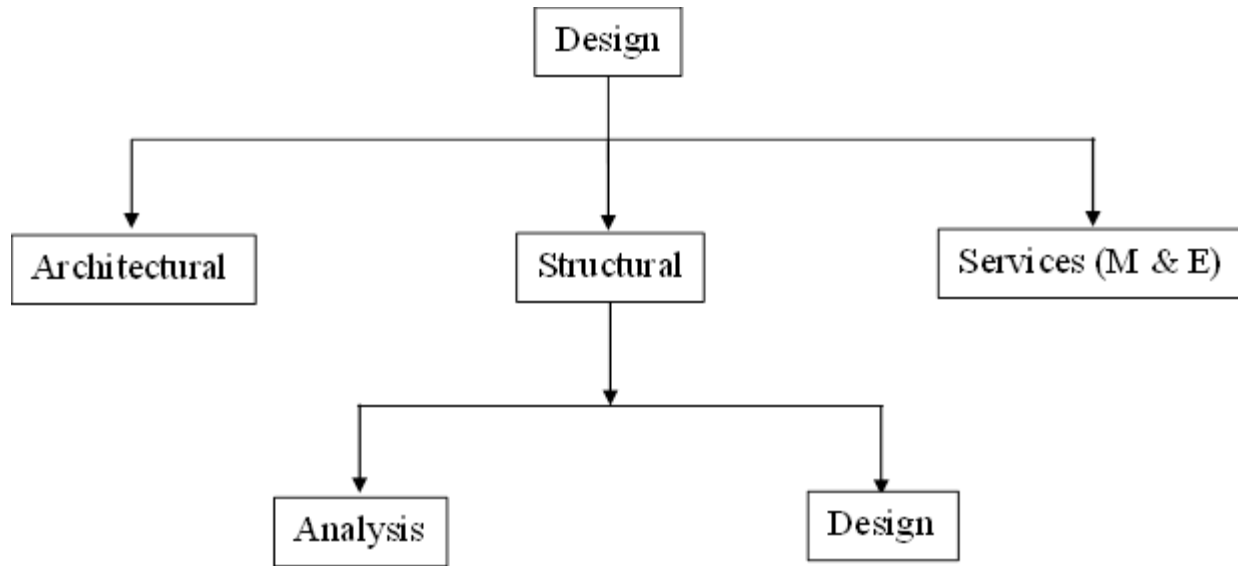
Building are structures that provides shelter

The major factors to be considered in the design of buildings are durability and adequate stability



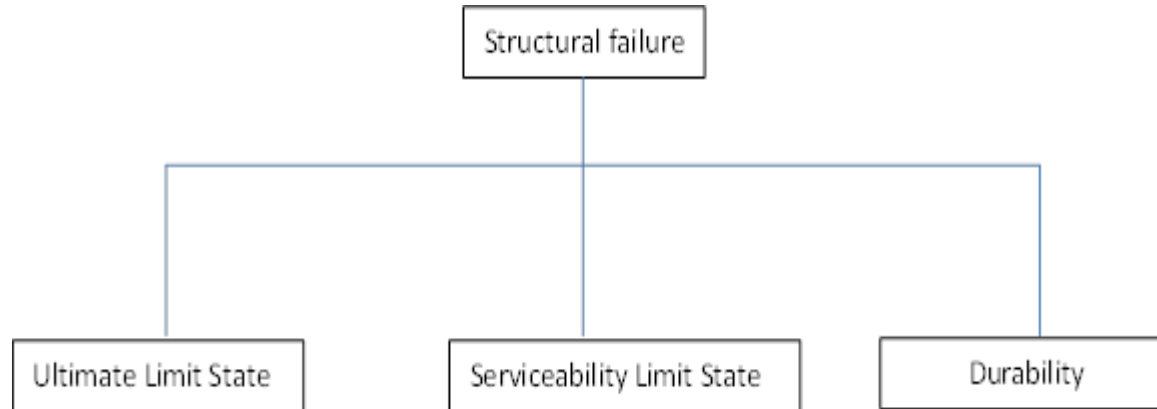
***Figure 1: Strategy for Achieving Structural Stability***

# INTRODUCTION CONT.



Structural failure occurs when a building component can no longer perform its original function effectively

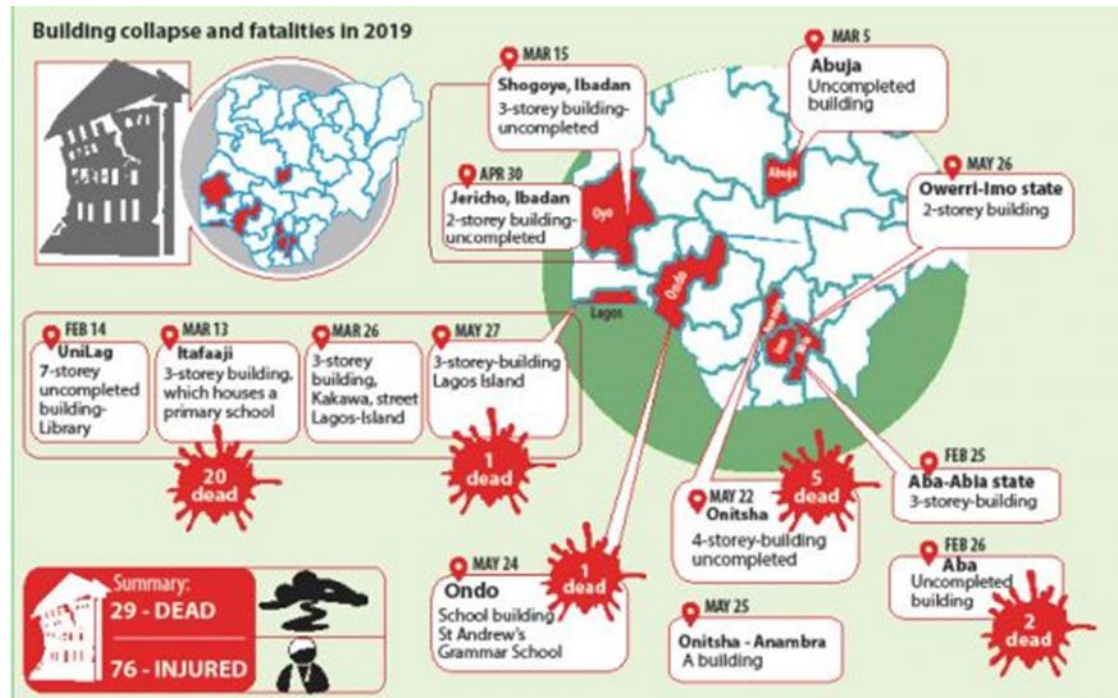
# Introduction Cont.



Structural failure is a common phenomenon all over the world.

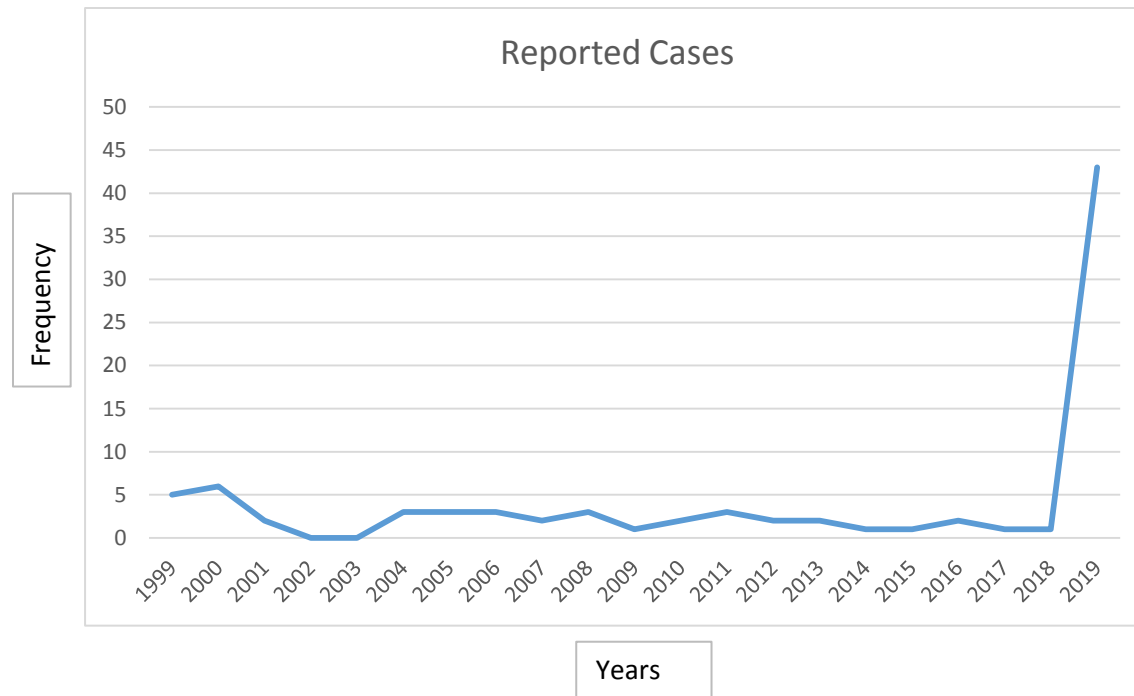
The incidence of building collapse in Nigeria has been on the increase

# INTRODUCTION CONT.



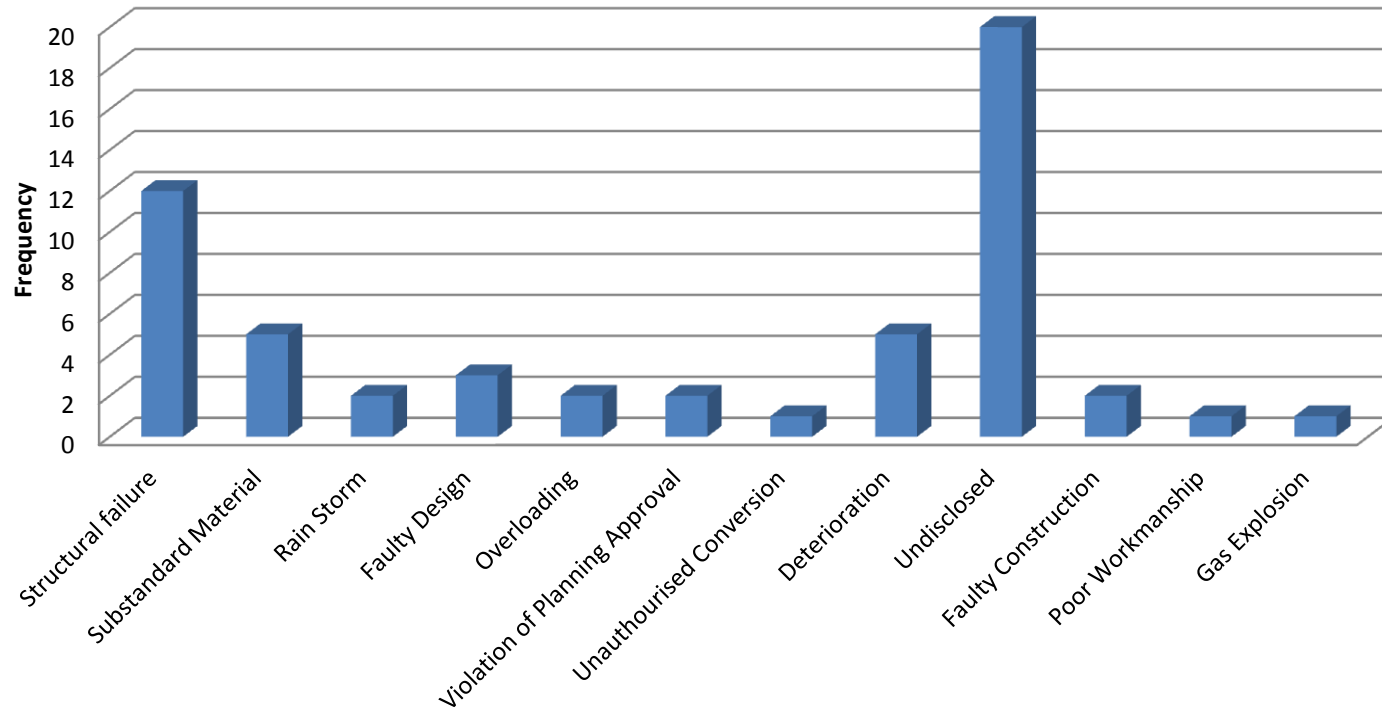
***Plate I: Reported cases of Building Collapse from February to May 2019***

# REPORTED CASES OF BUILDING COLLAPSE IN NIGERIA



***Figure 2: Reported cases of Building Collapse from 1999 - 2019***

# Causes of Building Collapse



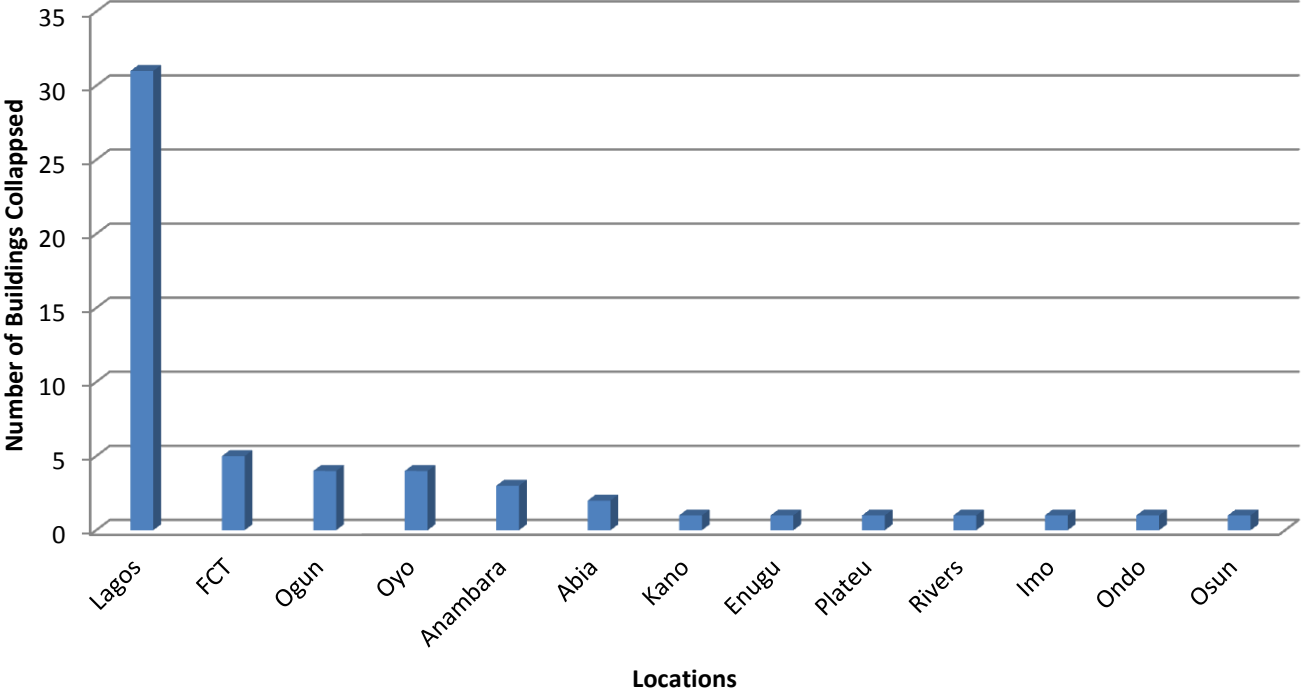
**Figure 3: Causes of Building Collapse in Nigeria**



# Causes of Building Collapse

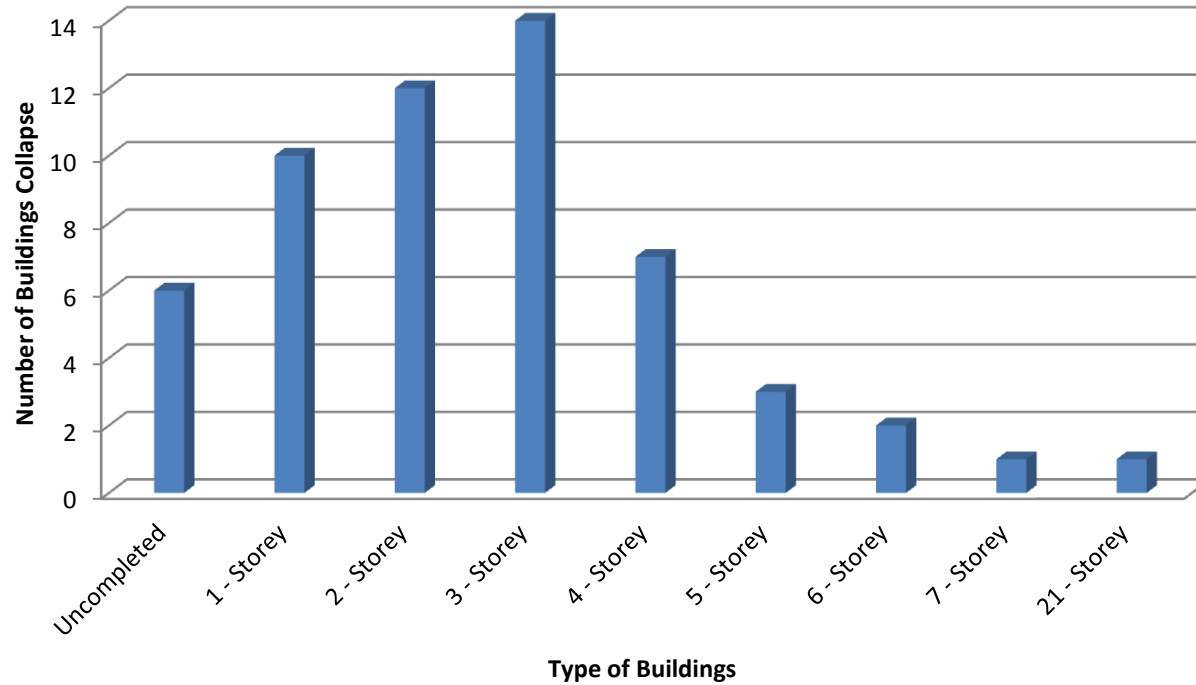
- Additional factors that may lead to building collapse
  - construction without approved building drawings
  - Approval of technically deficient drawings
  - Illegal alteration of existing buildings
  - Lack of engaging professionals

# Locations where Building Collapse took Place in Nigeria



**Figure 4: Locations of Building Collapse**

# Types of Buildings Involved



***Figure 5: Type Buildings That Collapsed***

# Prevention of Building Collapse

- Geotechnical investigation
- Involvement of professionals
- Building plan approval
- Use of quality construction materials
- Frequent maintenance

# Conclusions

- The major causes of building collapse in Nigeria in the last twenty years are structural failure (21.4%), Substandard material (8.9%), faulty design (5.3%) and Violation of planning approval (5.3%)
- 53% of the building collapse took place in Lagos while 47% took place across other states of the federation.
- 651 people died while 349 sustained injuries from 56 reported cases of building collapse in the last twenty years

# Recommendations

- There should be proper scrutiny of every structural design to ascertain their compliance with approved standards with regards to safety issues.
- Construction professionals should ensure that they acquire adequate training and knowledge.
- Professional bodies in Nigeria should strive to ensure that design codes of practice and standards for construction materials is based on the environmental and climatic condition.

## Recommendations Cont.

- The SON (Standard Organization of Nigeria) should ensure that only certified building materials are allowed in the market to ensure quality in construction.
- All building design of more than 1 storey must be accompanied by soil investigation results duly signed by a registered geotechnical engineer as a precondition for approval.

THANK YOU  
FOR  
LISTENING