ADEQUATE MAINTENANCE AS A PRECURSOR TO BUILDING LONGEVITY: A CASE STUDY OF OWO IN ONDO STATE, NIGERIA

ABSTRACT

Shelter as vital as it is to man necessitates the strong urge of man in providing shelter for himself and his family. The first issues to be noted and appreciated in Buildings are the aesthetic, functionality, building materials used and the possible structural stability of the building. Little was attached to the building durability and the expectance lifespan at the inception and in the time past. Hence, the current trends in human development have helped in the development of quality building materials and good workmanship. A well-structured questionnaire was randomly distributed to 200 residential building built over ten years at Owo in Ondo State to ascertain the factors responsible for non-durability of buildings as against the expectant lifespan. The study showed that despite various efforts in achieving effective housing for man, lack of adequate maintenance is shortening its longevity thereby leaving the building ineffective as high percentage of the abandoned and dilapidated buildings in the study area were primarily as a result of inadequate maintenance.

Keywords: Shelter, *Aesthetic, Building Functionality, Structural stability, Adequate maintenance, Dilapidated buildings*

INTRODUCTION

Shelter stands out as one of the most important among the basic needs of a man. This has led to the important place it occupies in government policies over the years in Nigeria (Solomon O.A et al., 2022., Makinde, O. 2014., and Marietta E. A. et al., 2021). Individual within the Country seems to derive completeness and fulfillment only after they have gotten a shelter of their own on their 'head'. Human-beings cherished the shelter affordability for their family without recourse to the level of their status. it is obvious that the nature, size and the technology, even the structure of a building are important to everyone who wants to have a shelter, but the degrees of the importance due to the places and situations vary to everyone as well. The continuity and ability to assume that the houses built are actually housing the people effectively is of great concern. Frank and Frank (2007) observed that building maintenance has been a house-hold phrase in Nigeria, particularly within the last two decades. They however agreed that this concept values and method to be applied in achieving the sustainable dwelling unit is not clearly understood by the people and their government. It is becoming apparent as Kakulu (1995) and Gambo M. J. et al., (2012) observed that there is a high level of societal ignorance or neglect of maintenance culture, the crux of the matter is the general ideal of common property which actually belongs to no more. This has generated to the level that now affects individuals in their homes. The life span of buildings depends on various factors that one of them and the most important is that building materials have a direct relationship with the lifespan of the building, many other factors such as the location of the building, weather, building maintenance conditions, etc. affect the lifespan of the building (Gambo M. J. et al., 2012). This consequently is dependent on the ratio, quality, and method of application. Quality evaluation is applied to building materials and products has been limited to differential assessment of individual properties. This to a great deal has impeded the determination of the overall level of quality and hampered the choice of all optimum materials from a variety of competent

alternatives (Oloruntoba and Ayodele 2012). As building advance in age, home owners should come to the realization that the inevitability of maintenance in order to manage, restore, redesign and give advice on the usage of old buildings. However, Akingbohungbe (2002) and Gambo M. J. et al., (2012) agreed that all facilities have useful and economic life expectancy that quickly suggest that the process of gradual and eventual collapse. He opined that this is a natural phenomenon that varies with the number of users and the intensity of use. It is according to Akingbohungbe (2002), a significant index for maintenance particularly in Nigeria situation where overcrowding enjoys growing incidence (Moghayedi. Et al., 2021 and Ishola et al., 2023). This paper identifies various lapses that are infringing on the longevity of building in Nigeria. It also identifies areas where individuals can arise in the challenge of maintaining their building without waiting for disaster to happen first. The main focus therefore is to preserve the building and its components in its initial state so as to effectively serve its purpose.

THE STUDY AREA

The study was carried out in Owo Local Government Area. It is one of the 18 local Government Areas of Ondo State of Nigeria. It is located within latitudes $06^0$51N and $07^0$22N and longitudes (x) $07^0$16'E and $07^0$46E. Owo, the headquarter of Owo Local Government Area is about 48kilometers East of Akure, the state capital and 400kilometers south west of Abuja, the Federal capital (Adesina J.G 2007).

RESEARCH METHODS

Source of Data: The studies involve the use of both primary and secondary data. The major sources of secondary data were textbooks, published academic journals, conference, seminar proceedings and papers.

Primary data was collected, collated and analyzed through the questionnaires randomly distributed to 200 residential building built over ten (10) years back within the study area to ascertain the major factors responsible for non-durability of building as against expectant lifespan. The building in the captured surveyed area for study was assessed to established the quality of the buildings, the building usage degree, the duration of its occupancy, its maintenance state, the level of the dilapidations and wearing, and the need for maintenance. Experts and students in building profession were engaged in distributing of the questionnaires for effective output.

FINDINGS

The analysis of the collected data from the questionnaires emerged three tables as shown below.

TABLE 1: General Defects.

It shows the state and condition of buildings in the study area in terms of its major components.

S/N	COMPONENTS	CONDITIONS	NUMBER AFFECTED	% AFFECTED
1.	Sub-structure	Foundation that has been exposed/in bad state	121	54.5%
		Foundation that has not been exposed/Foundation in good state	79	45.5%
		TOTAL	**200**	**100%**
2.	FLOORS	Crack floors, rough or sagging floors/floors in bad state	136	68%
		Floor in good state	64	32%
		TOTAL	**200**	**100%**
3.	Walls	Plastered/unplaster walls that has cracked and not in good state to provide safe habitation	142	72%
		Plastered/unplaster walls that has not cracked and in good state to provide safe habitation	58	29.%
		TOTAL	**200**	**100%**
4.	Roofing	Rusted, leakages, sagged roof and roof in bad state	127	63.5%
		Roofs in good state/ that provide safe habitation	73	36.5%
		TOTAL	**200**	**100%**
5.	Windows, Doors, and locks	Door/Window in bad state and require renovation	122	61%
		Door/Window in good state	78	39%
		TOTAL	**200**	**100%**
6.	Finishes i.e., painted building	Painted buildings that have faded and not in good condition	42	82.4%
		Painted buildings that is still in good state	9	17.6%
		TOTAL	**51**	**100%**

Source: - Author's Field work (2022)

TABLE 2. Habitable / Non habitable Analysis

Showing the comparative analysis of the abandoned / dilapidated building and building that can still provide safe habitation.

S/N	CONDITIONS	NUMBER AFFECTED	% AFFECTED
1.	Buildings that still provide safe habitation / in good condition	128	64%
2.	Abandoned & Dilapidated buildings	72	36%
	TOTAL	**200**	**100%**

Source: - Author's Field work (2022)

TABLE 3: Existing Building condition

It shows the analysis of the factors responsible for building abandonment / dilapidation.

S/N	FACTORS	NUMBER AFFECTED	% AFFECTED
1.	Abandonment /dilapidation due to lack of adequate maintenance	54	75%
2.	Abandonment / dilapidation due to structural failure	02	2.8%
3.	Abandonment and dilapidation due to poor material usage	05	6,94%
4.	Abandonment / dilapidation due to poor workmanship during the building construction process	07	9.7%
5.	Abandonment /dilapidation due to social factors	03	4.17%
6.	Abandonment / dilapidation due to natural disasters	01	1,39%
	TOTAL	**72**	**100%**

Source: - Author's Field work (2022)

RESULT ANALYSIS

In the result findings, reasonable number of buildings in the study area are dilapidated and some are abandoned. 72 number of the buildings were discovered to be abandoned as reflected in table2. While 75% of these numbers are dilapidated and abandoned buildings were basically as a result of lack of adequate maintenance on the part of the building owners as shown in Table 3. Table 1 show the general condition of the building in the area. It is apparent that poor workmanship, lack of supervision and

inadequate use of proper materials is the bane of the housing units. A high percentage (71%) was discovered not have been plastered with adequate ratio of cement and sand. Poor roofing materials such as unseasoned wood that easily result in sagging as building advance in age resulted into 63.5% failure of roof. Concrete flooring before walling is almost not a practice in the area as shown in Table 1. Findings also show that many factors such as poor building materials used for construction purposes, the poor workmanship in the construction site, social factors such as burning of buildings during political riots resulted in the demolitions of buildings. The Natural disasters such as rainstorm, is responsible for 1.39% of building abandonment and dilapidation in the area.

CONCLUSION

This study established that lack of maintenance stands out as a major factor responsible for most of the abandoned and dilapidated buildings in Nigerian ancient cities that comprise buildings of old ages. These are built with unpurified local materials and very low level of technology. Most of the houses and facilities in our cities were built over sixty (60) years ago with very low level of technology and without maintenance. Housing maintenance is relative to ensure longevity of the life span of a building as well as to promote healthful living condition. Adequate maintenance is the routine / proper periodic maintenance of all buildings (Omole 2000, Olujimi 2000) components starting from the point of building completion / delivery with outmost observations of every noticeable change in the building for necessary correction. Non-occupation of building does not stop maintenance as the building components will continue to demand for maintenance as soon as the construction is completed, though the degree of maintenance demanded may be minimal compared to a building with effective occupancy. The building components and materials quality, suitability and adaptability to the climate, application/ workmanship determine the quality and durability of expectant life span. There must be a specific plan for maintenance of building from inception though unplanned maintenance cannot be ruled out, Frank and Frank (Ibid) agreed that there must be a building maintenance manual which will guide the owner or developer on how and when parts / components and/or the whole of the property could be made to retain a continued good appearance and function properly to an acceptable standard. Fixing a loose component or part at the right time will retard the rate of degradation and devaluation of the building structure. Individuals as well as government should wake up to the reality of adequate maintenance. The idea of going to sleep after a building has been initially completed should be avoided. It is apparently cleared that the attention given or otherwise will determine the longevity of building.

RECOMMENDATION

The maintenance cultures of Nigerians are at its ebb (Kakulu Ibid) therefore, awareness to gear up the populace should be created. Maintenance department should be inaugurated in the ministry of Housing and Urban Development to sensitize the people. Government should not just be interested in tenement rate alone; they should ensure compliance to the general aesthetic look and structural stability of the building and the environment. Dilapidated buildings should be identified for rehabilitation or demolition to avoid imminent collapse and loss of life as being witness in many parts of the Country especially in Lagos and Port Harcourt. Government should embark on granting loans to building owners for building maintenance purpose as this will encourage maintenance services and improve maintenance culture of the society, while necessary maintenance equipment should be made available and affordable to building

owners and maintenance firms. Professionals in building industry should be encouraged to organize and run building maintenance firm for effective maintenance that will properly enhance the quality of the nation's-built environment through proper maintenance planning. Good quality building materials and components that require minimum maintenance should be specified for building construction purposes. Regular and periodic maintenance should be carried out on all building components so as to avoid deteriorating condition and retain the original quality of the building for effective housing and safe habitation.

REFERENCES

Adesina. J.G (2007) Soil Suitability Analysis using G. I. S for sustainable Agricultural Development in Owo Local Government in Journal of Environmental Planning and Development Vol. 1 No 1 p 63

Akingbohungbe, D.O. (2002) The practice and problems of building maintenance in Nigeria: The basic issues. Journal of environmental technology Vol. 1 (1)

Folorunso C.O. (2006) Maintenance Reduction Through the Utilization of Climate Compliant Wall Finishes. Journal of Land use and Development Studies. Vol. 2 (1)

Frank O. L. and Frank F.N. (2007) Building Maintenance Manual: The Designers Tool for Effective Building Maintenance and Post Occupancy Evaluation of Buildings: Journal of the Association of Architectural Educators in Nigeria. Vol. 6 (2)

Gambo M. J. et al., (2012). Assessment of maintenance cost for public buildings in Bauchi state, Nigeria. Journal of Engineering and Applied Science. Vol 04, Pp 69 – 76.

Ishola A et al., (2023). The Challenges in Providing Affordable Housing in Nigeria and the Adequate Sustainable Approaches for Addressing Them. Open Journal of Applied Sciences, 2023, 13, 431-448 https://www.scirp.org/journal/ojapps

Kakulu I.I. (1995) The Secret of Building Maintenance. The Estate Journal Vol. 1 (2).

Makinde, O. (2014). Housing delivery system, need and demand. Environment, Development and Sustainability,16(1), 49-69.lxxi. Marietta E. A., Haffner., & Hulse, K. (2021). A fresh look at contemporary perspectives on urban housingaffordability. International Journal of Urban Sciences, 25(1), 59-79,https://doi.org/10.1080/12265934.2019.1687320

Marietta E. A., Haffner., & Hulse, K. (2021). A fresh look at contemporary perspectives on urban housing affordability. International Journal of Urban Sciences, 25(1), 59-79,https://doi.org/10.1080/12265934.2019.1687320

Moghayedi, A., Awuzie, B., Omotayo, T., Le Jeune, K., Massyn, M., Ekpo, C. O., Braune, M. (2021). A critical success factor framework for implementing sustainable innovative and affordable housing:

A systematic review and bibliometric analysis. Buildings, 11(8), 317. MDPI AG. http://dx.doi.org/10.3390/buildings11080317

Oloruntoba K and Ayodele E O. (2012). Local building materials: a tool towards effective low-income housing in Nigeria. Middle-East Journal of Scientific Research. Pp. 492-497

Olujimi J.A.B. (2000) Anatomy of Rural Housing. A case study of Ibule – Soro in Ondo State. Journal of effective Housing in 21st century in Nigeria. P 139

Omole F.K. (2000) Urban Renewal Process Issues and Strategies Concept Books and Publication co. limited Lagos.

Solomon O.A et al., (2022). *Low-Income Earners Housing Affordability Issues in Nigeria: A Systematic Review of Sustainable Approaches*. International Journal Of Innovative Research & Development Doi No. : 10.24940/ijird/2022/v11/i2/FEB22016: https://www.researchgate.net/publication/360973227_Low-Income_Earners_Housing_Affordability_Issues_in_Nigeria_A_Systematic_Review_of_Sustainable_Approaches. Pp. 37 - 48