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Factors Influencing Maintenance of Public Residential Properties: A Case Study of Waziri Umaru Federal Polytechnic Birnin Kebbi, Nigeria

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Abstract

Building maintenance is an important program for ensuring the long-term viability of infrastructure construction. It is significant in building operations, among other things. This study aims at identifying the factors affecting public residential properties maintenance in Waziri Umaru Federal Polytechnic Birnin Kebbi The research objectives include examining the types and existing condition of residential property in the study area. identifying the strategies adopted in the maintenance of residential property in the study area. assessing the factors affecting residential property maintenance in the study area. Both primary and secondary sources of data were employed as methods of data collection. A closed-ended questionnaire was administered to the Director of Physical Planning and Chairman of the Housing Committee of the institution and the household of the staff quarters, where 63 questionnaires out of 68 were retrieved. Statistical tools such as frequency distribution and percentages, means rating known as the quantitative method, were used as methods of data analysis. Systematic and stratified random sampling were used as methods of sampling. Maintenance of the properties requires attention at the highest level. This attention is of basic significance, and the objective must be to keep the property and its elements to an acceptable standard for the purpose of making them functional and reliable. Poor attitude of the occupant and management towards maintenance contributes to serious defects seen in the life span of the properties. Therefore, steps need to be taken or made by the management of Waziri Umaru Federal Polytechnic to see that regular maintenance is taking place, which will be done either by the occupants or management through introducing manuals and regulations as guidelines on how it will be executed.

Keywords: Residential property, Building maintenance, Public housing, Maintenance culture

1.0 INTRODUCTION

Housing is commonly recognized as one of the most necessities of human life and is a key economic asset in any country. Adequate housing is the bedrock upon which stable communities and social inclusion are built (Bala and Busatani, 2012; Ibrahim et al., 2024). Housing is critical to human survival, ranking among the top three human requirements. Its provision has always been critical to man. As an environmental unit, housing has a significant impact on the community's health, efficiency, social behaviour, satisfaction, and overall well-being (Ajetomobi & Olanrewaju, 2015).

In Nigeria and other developing countries, the challenge of maintenance has multiple dimensions: technological, institutional, and pedagogical (UNCHS, 1996; Ogunmakinde et al., 2013). As a result, the United Nations Industrial Development Organization (UNIDO) maintenance and repair campaign in developing nations must be carried out at multiple levels. UNIDO's direct activity takes the shape of technical support to countries in the field of repair and maintenance through the United Nations Development Programme. It also serves as a focal point for national and international action by stimulating, informing, and coordinating initiatives.

According to Ogieto (1987), as cited by Ajetomobi and Olanrewaju (2015), the central problem of housing maintenance is the disparity between the price and quantity of materials to be used for housing maintenance on the one hand, and the number of households and the money available to them to pay these prices on the other. In Nigeria, there is a significant disparity between income, housing costs, and house maintenance (Okupe and Windapo, 2000). This has almost completely removed low-income individuals from housing maintenance. In any building development, the overall cost of a unit of housing includes the cost of providing land, infrastructure such as roads, and basic services such as water and electricity. The majority of the house's overall cost is made up of the cost of labour and building supplies. The procedure by which the builder and architect decide how much space to allocate is known as the building design process. Additionally, it has been shown that traditional African settlements have an advanced form of home type and community

structure, which is largely influenced by the interaction of cultural elements like the community's kinship or genealogy pattern, climate, economy, or natural resources. Wahab (2007) further noted that Nigeria's tropical environment influences not only daily routines, settlement layouts, and architectural styles, but also the kinds of materials that can be utilized to construct such structures.

According Ojara (2013) and Iyamu et al. (2018), inadequate government policies and rising building maintenance costs may be to blame for the deterioration of public buildings. According to Bakri and Mydin (2014), shoddy construction and faulty materials are to blame for the deterioration of infrastructure. A lot of public buildings require poor maintenance. The floors, ceilings, doors, and windows of these kinds of buildings often show signs of neglect and lack of upkeep. Since their construction, a few public institution office and residential buildings have not undergone significant maintenance. As a result, many of these facilities are in a condition of disrepair and some have been completely abandoned. Therefore, the lifespan of such buildings is periodically shortened by the tenants' and authorities' neglect of these facilities (Talib et al., 2014).

A maintenance plan or program ensures the quality of services rendered in public institutions, protecting public assets and, as a result, cutting down on wasteful spending (Carlino, 2012). Over the years, maintenance management in both the public and private sectors has changed quickly. This is caused by a number of things, including the development of advanced technology, globalization, and economic shifts (Horner El-Haram and Munns 1997, Zawawi et al., 2011). The lack of funding and labour resources, the bureaucratization of personnel and material acquisition procedures, and the bidding procedures that prioritize lowest price above quality all have a direct impact on maintenance activities in Waziri Umaru Federal Polytechnic. Many factors being individually or collectively responsible for housing or building deterioration, including design and proper workmanship, materials specifications, detailing of working drawings, construction supervision, cash flow analysis, environmental factors, user's activities, shifting values and modernization, accidents, and solar radiation that caused many buildings be deteriorated in the institution. Other factors may include aging, wear and tear, historic building preservation, building value, alteration and modification, insufficient housing stock, poor original construction quality, harsh climatic effects, mixed and changing patterns of building use, declining building material quality, and social factors. As a result, there is a need to investigate the many features influencing public residential building maintenance in the institutions as there is no any study conducted to hear the view of the management and occupants of the staff quarters before which caused some of the houses to be deteriorated or to be out of used so as to serve as the bases of the management to tackle the feature occurrence of the one that still managed by the staff and to come up with the new ways of maintenance to increase the life spam of the houses.

■2.0 LITERATURE REVIEW

2.1 Maintenance and Building Maintenance

According to Puķīte and Geipele (2017), maintenance is the series of actions taken to care for a structure, ensure that it performs as intended, and ensure that its life cycle is completed as efficiently as possible. "Maintenance" is described as "the combination of all technical and administrative actions, including supervision actions, intended to retain an item in, or restore it to a state in which it can perform a required function (British Standard Institution BS 3811, 1993). It is common knowledge that maintaining buildings primarily aims to keep them in their original structural, functional, and aesthetic states (Adejimi, 2005).

Odediran et al. (2012) further defined maintenance as the culmination of all actions taken to keep something in or return it to a satisfactory condition. Improved building use results from maintenance, which also ensures the highest safety requirements. However, Puďđte and Geipele (2017) note that building maintenance is expensive from both a financial and environmental standpoint. HMSO defined maintenance in their proposal as "Work undertaken in order to keep, restore or improve every facility, its services and surrounds to a currently acceptable standard and to sustain the utility and value of the facilities" is how the committee on building maintenance

Maintenance is defined as the activity or a set of actions related to commencement, organization, and implementation carried out to maintain an item in or restore it to an acceptable quality (BS 3811 1974; Ogunmakinde, et al. 2013). However, the age of the building affects how difficult it is to maintain, and this is determined by both the original building's condition and the rate at which it is maintained (Adenuga, (1999), Ogunmakinde, et al., 2013). The main goal of maintenance is to keep buildings in their original structural, functional, and aesthetic conditions. This is to guarantee that they stay in this condition and hold onto their investment value for an extended amount of time. In general, users, designers, and contractors paid little attention to building maintenance. Users frequently disregard the instructions in the building's maintenance handbook, if one is available, and do not always utilize the assets and services in excellent shape. The majority of property owners occasionally try to minimize their maintenance costs in order to avoid the long-term effects of their actions. Before incorporating a material into a design, designers sometimes overlook its serviceability and longevity (Adejimi, 2005). However, new projects are preferred by contractors and builders over maintenance work.

Building maintenance is an important program for ensuring the long-term viability of infrastructure construction. It is significant in building operations, among other things (Zulkarnain et al., 2011). According to Baba and Buba (2013), maintenance is the sum of all technical and associated operations intended to preserve or restore an item to a state in which it can perform its required function, as defined by British Standards Institution BS 3811(1984). Work performed in anticipation of failure is known as preventative maintenance, whereas work performed to restore after failure is known as corrective maintenance. The basic goal of building maintenance is to retain buildings in their initial functional, structural, and aesthetic states (Adejimi, 2005). This is to ensure that the facility remains in this condition and retains its investment worth for a lengthy period of time. Buildings must generally provide a safe and suitable environment for the conduct of various human activities. According to Odediran et al. (2012), the ability of a structure to provide the necessary environment for a specific activity is a measure of its functioning. As a building's components deteriorate, it becomes vital to take precautions to ensure that the desired attributes of that facility, which provide safety and convenience, are preserved.

2.2 Maintenance Types

Siyanbola et al. (2013) quote BS3811, which separates maintenance into scheduled and unplanned categories.

a) Planned Maintenance: This refers to maintenance tasks that are scheduled, planned, and carried out according to a predefined plan or timetable using records, supervision, and forethought. Furthermore, it falls within the category of
   i. Preventive maintenance aims to reduce the likelihood of failure and performance degradation of an item by doing maintenance at predefined intervals or as specified by prescribed specifications.
   ii. Corrective Maintenance: This is done after a failure has occurred and aims to fix or return the item to a state where it can once more perform its intended function.
   iii. Predictable maintenance refers to the routine, recurring tasks that may be required to preserve a product's performance qualities as well as those essential to replace or repair it once its useful life has been reached.
   iv. Schedule Maintenance: Another kind of preventative maintenance, this one happens on a prearranged schedule for mileage, number of operations, and other factors.

b) Unplanned Maintenance: This refers to maintenance that happens without a set schedule. It is referred to as semi-emergency maintenance. And it can be as follows.
   i. Unpredictable Maintenance: This refers to the repairs necessary for unanticipated malfunctions or damage brought on by outside sources.
   ii. Preventive Maintenance: This refers to the effort necessary to fix malfunctions brought on by poor material selection, poor design, or improper installation.
   iii. Emergency Maintenance: This is the effort done to keep major issues from occurring. Another name for it is "day-to-day maintenance." Type of Upkeep

2.3 The Characteristics of Building Maintenance and Reason for Maintenance

As stated by Siyanbola et al. (2013), the British Standard Institution (1993) BS3811 states that, depending on the state of maintenance, the nature of building maintenance includes a wide range of tasks. It falls into four categories, which are as follows:

a) Servicing that is mainly a cleaning procedure: Cleaning frequency varies and is frequently referred to as day-to-day upkeep, for example, floors are swept daily, windows are washed monthly, and painting is done every 3-5 years. More complex servicing schedules are required as more sophisticated equipment is added.
b) Rectification Work: Usually occurs quite early in the life of the building due to design flaws, inherent flaws in material use, or defective construction. These flaws frequently have an impact on the component's performance. Rectification represents a point at which maintenance costs can be reduced since it is avoided. All that remains is to confirm that components and materials are appropriate for their intended use and are properly installed.
c) Replacement: Materials deteriorate due to service conditions; therefore replacement is necessary. The need for replacements is sometimes driven more by deteriorating look than by actual material or element degradation. Using higher-quality components and materials can frequently lessen the frequency of replacement.
d) Renovation or modernization: This refers to the small- and large-scale additions, modifications, and improvement of already-existing structures. It also covers any work intended to increase a facility's capacity or provide it the ability to carry out additional tasks.

The basic goal of building maintenance is to keep the structure as close to its original state as possible so that it can continue to fulfil its intended function. According to Siyanbola et al. (2013), who referenced Al-Zabaidi (1997), some of the primary goals of building maintenance include to keep a building in its original condition for as long as is practical in order to ensure that it fulfils the intended function. Sustaining a structurally sound quality level that satisfies contemporary demand and taste. To command a higher rental price if and when these structures are put to commercial use. To help minimize the cost of manufacture. To minimize both downtime and maintenance expenses. To preserve and uphold artistic value. To enhance these buildings' overall state. And it should be emphasized that while it is almost impossible to create buildings that require no maintenance, it is still possible to reduce the amount of work that must be done by improving design, construction, and specification techniques as well as providing the designer with feedback on maintenance data.

2.4 Public Building maintenance in Nigeria

Governments worldwide prioritize providing adequate, affordable, high-quality housing that meets citizens' social, economic, and political needs. This is a key component of sustainable development and a measure of people's well-being (Ibem and Amole, 2010). According to Leong (2009), housing has a significant impact on health. In actuality, it affects every facet of human endeavor. Olatubora and Fatoye (2006) state that public residential estates are known to be deficient in basic infrastructure services and facilities, as well as the maintenance that is intended to improve the liveability of such estates. In many cities around the world, residential building maintenance is a major factor that requires immediate attention and cure; this issue appears to be particularly acute in developing nations, including Nigeria, where it is given relatively little attention. Maintaining a habitable housing stock in Nigeria is still a significant challenge (Olagunju, 2012).

To address this intractable housing problem and ensure sustainable housing in Nigeria, all three tiers of government have been investing heavily in the construction of new housing estates and the maintenance of existing ones since 1928, when the Lagos Executive Development Board (now, Lagos State Development and Property Corporation) was established under the 1928 Town Planning Ordinance Law, Cap 95 of the Federation of Nigeria (Aluko et al., 2024).

In light of this, the National Housing Policy of 1991 assigned different levels of government and their housing corporations the following duties: assisting in the design and construction of new housing units for low-income groups; improving the conditions of existing housing units; lowering the cost of producing housing units; promoting the use and manufacture of local building materials; and providing a physically sound plan that includes the infrastructure and amenities necessary to support a habitable environment. These plans will be updated periodically. However, governments are progressively turning their focus from building new homes to maintaining existing ones due to declining financial allocation to the housing sector and resources becoming increasingly scarce in the face of population growth (Leong, 2009).

Government spending on housing in the third world is restricted and squandered on pricey initiatives intended to appeal to voters rather than being used to address actual housing needs, according to Olu-Sule (1990) and Akeju (2007). The majority of current public housing schemes, including Nigeria, are in a terrible state as a result of this circumstance. The primary goal of property maintenance is to maintain the property's investment, aesthetic, safety, and durability values in order to keep it in good condition for habitation, to the satisfaction of its owners and users, and to uphold the property's reputation in the community (Brennan, 2000). According to Odediran et al. (2012), a plan of action that is successfully carried out to maintain the property in top condition and allow for the continued receipt of the highest returns is required to extend the economic life of real estate. This suggests that in order to bring existing public residential estates back into suitable living conditions or, at the very least, to extend the life of the buildings and other auxiliary services through routine maintenance activities, it is necessary to examine their maintenance. This is crucial because as a structure ages, the level of upkeep increases, particularly in light of climate change and its consequences for the building's components, materials, and physical attributes.

According to Lee and Wordsworth (2001), building maintenance management is a very complicated and detailed field of work that involves the interplay of technical, financial, legal, and social factors that influence how buildings are used. The scale and significance of building maintenance work are usually underestimated in compared to higher profile and more apparent new construction since maintenance is a diffuse activity that occurs gradually over time, in numerous locations, and by various groups. The main causes of the current issues with building façades include poor construction detail design, poor material selection, insufficient application, and non-existent upkeep.

■3.0 METHODOLOGY

3.1 Methodology, Sampling Method and method of Data Analysis

The population for this study comprises household head of staff quarters (both the academic and non-academic staff residing in the quarters), Director physical planning department and chairman housing committee of Waziri Umaru Federal Polytechnic Birnin Kebbi. The staff quarters comprise 5 different areas known as Area A, Area B, Area C, and Area E, where 3 areas (Area A, B, and D) contain houses and boy's quarters, only 2 (Area C and D) has only main houses without having boy's quarters. And the houses and boy's quarters are used to allocate to staffs. The household population of staff quarters of Waziri Umaru Federal Polytechnic Birnin Kebbi both the Academic and non-academic staff according to physical planning department and housing allocation committee of the institution are; Area A are 33, Area B are 48, Area C are 12, Area D are 28, and Are E are 4 which make their total 125, the sample frame is 127. The sample size of this study was determined using the Krejcie and Morgan table (1970).

The used the following formular in constructing their table; $S= x^2 NP(1 - P) + d^2 (N – 1) + x^2 P(1 – P)$, S = required sample size, X^2 = the table value of chi-squire for 1 degree of freedom at the desired confidence level, N = the population size, P = the population proportion (assumed to be 50 since this would provide the maximum sample size) and d = the degree of accuracy expressed as a proportion (.05). 68 out of 127 population was choose as sample size. Both primary and secondary source of data was employed as method of data collection. For Primary source, closed ended questionnaire was administered to Director Physical Planning and Chairman Housing Committee of the institution, and household head of the staff quarters where 63 questionnaires out of 68 were retrieved. To achieved study objectives, the questionnaire featured questions that were targeted to achieve the study's objectives and were divided into sections. The questionnaire was separated into two pieces, as described above. The first section includes an introduction and questions about the respondents' backgrounds, while the second section addresses the research objectives. Systematic random sampling was used in administrating questionnaires to the Director Physical planning and chairman housing committee, and stratified random sampling was used for the household head where each area was classified into strata based on the housing arrangement and 5 houses was selected to represent others in their group.

Descriptive statistics were used to assess the data first. Basic statistical information about the used data is displayed in the statistics. The mean, median, mode, range, variance, and Likert scale are among them. The research answers three research question.

a. What are the types and existing condition of residential property in the study area?
b. What are the strategies adopted in the maintenance of residential property in the study area?
c. What are the factors affecting residential property maintenance in the study area

■4.0 RESULTS AND DISCUSSION

As explained in methodology, 2 (two) questionnaires were administered to Estate Surveyors and Valuers in the study area, 11 (eleven) questionnaires to Estate Agents and 364 to property owners/property developers. All the two (2) questionnaires administered to Estate Surveyors and Valuer were retrieved representing 100%, however, 9 out of 11 questionnaires administered to Estate agent were retrieved which represent 82%. Also, out of 364 questionnaires administered to property owners/developers, a total of 310 (three hundred and ten)

which represent 85% ware retrieved and found useful (see table 1). It shows that the respondents were ready to provide the needful and useful information on the effect of micro economic factors on property value.

4.1 Analysis

Table 1 Type of residential properties in the study areas

Location	Types of Residential Properties
Area A	Detached, Semi Detached
Area B	Detached & Semi-detached
Area C	Semi Detached
Area D	Semi Detached
Area E	Detached & Semi-detached

(Source: Author's own work, 2023)

Table one above shows the types of residential properties within the study areas. The table reveals the type of residential properties in Area A, Area B and Area E which are detached dwellings, and semi-detached dwellings, while Area C and Area D are semidetached dwelling.

From the above table, it can be deduced that there are different types of residential properties in the study area which could be used in analysing the factors affecting public residential properties maintenance.

Table 2 Mean and respondents percentage on the existing condition of the property.\

S/N	Variables	VG	G	A	P	VP	N	Mean	Decision
1	Building Design	20 (31.7%)	21 (33.3%)	2 (3.2%)	13 (20.6%)	7 (11.1%)	63 (100%)	3.54	Accepted
2	Constructional Material	9 (14.3%)	14 (22.20%)	6 (9.5%)	19 (30.30%)	15 (23.8%)	63 (100%)	2.73	Rejected
3	Structural Strength	24 (38.1%)	16 (25.4%)	9 (14.3%)	8 (12.7%)	6 (9.5%)	63 (100%)	3.70	Accepted
4	Doors and Windows	2 (3.2%)	26 (41.3%)	13 (20.6%)	20 (31.7%)	2 (2.2%)	63 (100%)	3.10	Rejected
5	Roofing and Ceiling Components	3 (4.8%)	11 (17.5%)	11 (17.5%)	29 (46%)	9 (14.3%)	63 (100%)	2.52	Rejected
6	Toilet Facilities	14 (22.2%)	27 (42.9%)	10 (15.9%)	7 (11.1%)	5 (7.9%)	63 (100%)	3.60	Accepted
7	Floor Finishes	5 (7.9%)	32 (50.8%)	6 (9.5%)	12 (19%)	8 (12.7%)	63 (100%)	3.22	Accepted
8	Sanitary Appliances	3 (4.8%)	15 (23.8%)	10 (15.9%)	24 (38.1%)	11 (17.5%)	63 (100%)	2.60	Rejected
9	Internal Wall Condition,	25 (39.7%)	23 (36.5%)	3 (4.8%)	8 (12.7%)	4 (6.3%)	63 (100%)	3.90	Accepted
10	External Wall Condition	3 (4.5%)	17 (27%)	9 (14.3%)	31 (49.2%)	3 (4.8%)	63 (100%)	2.78	Rejected

Note: VG=Very Good. G=Good. A=Average. P=Poor. VP=Very Poor. Weighted Average = 31.69/10= 3.17

(Source: Author's own work, 2023)

Table two above shows the analysis of the existing condition of the residential properties. Based on the table, item 1 shows that the respondents were asked whether since in the initially stage of the building if the properties are in building Design, 20 respondents representing 31.7% are with the opinion that the buildings are in very good design, 21 respondents representing 33.3% are in good design, 2 respondents representing 3.2% the buildings are within average design, 13 respondents representing 20.6% the buildings are with poor design, 7 respondents representing 11.1% the buildings are in very poor design, whereas the mean score is 3.54. From the above mean score and the responses percentages, it shows that most of the buildings in the study area are well designed. Item 2 in the table shows 9 respondents representing 14.3% are in the opinion that Constructional Material are in very good condition, 14 respondents representing 22.20% are in good condition, 6 respondents representing 9.5% are in average condition, 19 respondents representing 30.30% are in poor condition, 15 respondents representing 23.8% are in very poor condition, whereas the mean score is 2.73. From the above mean score and the responses percentages, it shows that most of the buildings in the study area, their constructional materials are defecting due to the life cycles of the buildings. Item 3 in the table shows that 24 respondents representing 38.1 are in the opinion that the structural strength of the properties are in very good condition, 16 respondents representing 25.4% are in good condition, 9 respondents representing 14.3% are in average condition, 8 respondents representing 12.7% are in poor condition, 6 respondents representing 9.5% are in very poor condition, whereas the mean score is 3.70. From the above mean score and the responses percentages, it shows that most of the buildings in the study area are in within its structural strength due to the types and qualitative materials used in constructing the residential properties. From the

table above, item 4 shows that 2 respondents representing 3.2% are in the opinion that the doors and windows of the properties are in very good condition, 26 respondents representing 41.3% are in good condition, 13 respondents representing 20.6% are in average condition, 20 respondents representing 31.7% are in poor condition, 2 respondents representing 2.2% are in very poor condition, whereas the mean score is 3.10. From the above mean score and the responses percentages, it shows that most of the buildings in the study area their doors and windows are within the average condition. Item 5 in the table shows that 3 respondents representing 4.8% are in the opinion that the roofing and ceiling components are in very good condition, 11 respondents representing 17.5% are in good condition, 11 respondents representing 17.5% are in average condition, 29 respondents representing 46% are in poor condition, 9 respondents representing 4.3% are in very poor condition, whereas the mean score is 2.52. From the above mean score and the responses percentages, it shows that most of the buildings roofs and ceilings component in the study area are in poor condition, most the roofing component are defected and due to leakages and thermal the ceiling was also defected. Item 6 in the table shows that 14 respondents representing 22.2% are in the opinion that the toilet facilities in the study area are in very good condition, 27 respondents representing 42.9% are in good condition, 10 respondents representing 15.9% are in average condition, 7 respondents representing 11.1% are in poor condition, 5 respondents representing 7.9% are in very poor condition, whereas the mean score is 3.60. From the above mean score and the responses percentages, it shows that most of the toilet facilities are in good condition.

From the table above item 7 shows that 5 respondents representing 7.9% are in the opinion that the floor finishes are in very good condition, 32 respondents representing 50.8% are in good condition, 6 respondents representing 9.5% are in average condition, 12 respondents representing 19% are in poor condition, 8 respondents representing 12.7% are in very poor condition, whereas the mean score is 3.22. From the above mean score and the responses percentages, it shows that most of the floor finishes are in very good condition. Item 8 in the table shows that 3 respondents representing 4.8% are in the opinion that the sanitary appliances in the study area are in very good condition, 15 respondents representing 23.8% are in good condition, 10 respondents representing 15.9% are in average condition, 24 respondents representing 38.1% are in poor condition, 11 respondents representing 17.5% are in very poor condition, whereas the mean score is 2.60. From the above mean score and the responses percentages, it shows that most of the sanitary appliances in the study area are in poor condition, they are either defected or they are affected by total obsolescence. Item 9 in the table shows that 25 respondents representing 39.7% are with the opinion that the internal wall condition of the properties are in a very good condition, 23 respondents representing 36.5% are in good condition, 3 respondents representing 4.8% are in average condition, 8 respondents representing 12.7% are in poor condition, 4 respondents representing 6.3% are in poor condition, whereas the score mean is 3.90. From the above mean score and the responses percentages, it shows that most of the internal wall of the properties are in very good sound condition. Item 10 in the table shows that 3 respondents representing 4.5% are with the opinion that the external wall condition are in a very good condition, 17 respondents representing 27% are in good condition, 9 respondents representing 14.3% are in average condition, 31 respondents representing 49.2% are in poor condition, 3 respondents representing 4.8% are in very poor condition, whereas the mean score is 2.78. From the above mean score and the responses percentages, it shows that most of the external wall are in poor condition, most of these external walls are cracked. See the below pictures

Figure 1 Bad portion of floor

Figure 2 Paint discoloration

Figure 3 Bad portion of roof & finishes

Figure 4 Bad portion of finishes

Figure 5 Bad condition of one of the buildings

Figure 6 Crack on the building

Table 3 Strategies adopted on properties maintenance in the study area

Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	Self-Maintenance	44	69.8	69.8	69.8
	Direct Labour	17	27.0	27.0	96.8
	Contract	2	3.2	3.2	100.0
	Total	63	100.0	100.0	

(Source: Author's own work, 2023)

Table three above shows the strategies adopted in the maintenance of the property in the study area, the respondents were asked on the types of strategies used by the management of Waziri Umaru Federal Polytechnic Birnin Kebbi in maintenance the staff quarters. 44 of the respondents which represented 69.8% are with the opinion that self-maintenance is the strategies adopted by the management, where properties occupiers used to manage the resident by their selves. 17 respondents represented 27% are with the opinion that management are using direct labour as a maintenance strategy, while 2 respondents represented 3.2% are with the opinion that the contract used to be awarded by the management in maintenance of the staff quarters.

Table 4 Mean and respondents percentage of the factors affecting property maintenance.

SN	Factors	SAG	AG	UDD	DA	SDA	Numb	Mean	Decision
1	Lack of Fund	29 (46%)	18 (28.6%)	9 (14.3%)	3 (4.8%)	4 (6.3%)	63 (100%)	2.79	Rejected
2	Lack of Preventive Maintenance	14 (22.2%)	21 (33.3%)	5 (7.9%)	14 (22.2%)	9 (14.3%)	63 (100%)	3.27	Accepted
3	Non-Application of Building Maintenance	11 (17.5%)	12 (19%)	5 (7.9%)	21 (33.3%)	14 (22.2%)	63 (100%)	2.16	Rejected

	Policy								
4	Use of Substandard Materials	6 (9.5%)	23 (36.5%)	5 (7.9%)	20 (31.7%)	9 (14.3%)	63 (100%)	2.95	Rejected
5	Occupiers Attitude on Maintenance	9 14.3%)	34 (54%)	3 (4.8%)	11 (17.5%)	6 (9.5%)	63 (100%)	3.46	Accepted
6	Lack of Proper Communication between Users and Management	12 (19%)	10 (15.9%)	4 (6.3%)	26 (41.3%)	11 (17.5%)	63 (100%)	2.78	Rejected
7	Management Attitude on Maintenance	13 (20.6%)	26 (41.3%)	5 (7.9%)	15 (23.8%)	4 (6.3%)	63 (100%)	3.46	Accepted

NOTE: SAG=Strongly Agreed, AG=Agreed, UDD=Undecided, DA=Disagreed, SDA=Strongly Disagreed. Weighted Average= 20.87/7= 2.98

(Source: Author's own work, 2023)

Table four above shows the analysis of the factors affecting residential properties maintenance in the study area. Based on the table, table item 1 shows that the respondents were asked whether lack of funds are among the factors affecting property maintenance in the study area, 29 respondents representing 46% are strongly agreed that lack of funds on the management side play a vital role in affecting maintenance of their properties, 18 respondents representing 28.6% also agreed that lack of fund are among the factors affecting property maintenance, 9 respondents representing 14.3% are undecided whether the lack of fund affecting property maintenance or not, 3 respondents representing 4.8% disagreed that lack of fund affecting maintenance of the property, while 4 respondents representing 6.3% are strongly disagreed that lack of funds has any effect on property maintenance in the study area. Item 2 in the table shows that the respondents were asked whether lack of preventive maintenance are among the factors affecting property maintenance in the study area, preventive maintenance is used to reduce the likelihood of failure and property performance degradation by doing maintenance at predefined intervals or as specified by prescribed specifications. 14 respondents representing 22.2% are strongly agreed that lack of preventive maintenance by the management plays a vital role in affecting maintenance of the properties, 21 respondents representing 33.3% also agreed that lack of preventive maintenance are among the factors affecting property maintenance in the study area, 5 respondents representing 7.9% are undecided whether the lack of preventive maintenance affecting property maintenance in the study area or not, 14 respondents representing 22.2% disagreed that lack of preventive maintenance affecting maintenance of the property, while 9 respondents representing 14.3% are strongly disagreed that lack of preventive maintenance has any effect on property maintenance in the study area.

Item 3 in the table shows that the respondents were asked whether Non-Application of Building Maintenance Policy are among the factors affecting property maintenance in the study area, 11 respondents representing 17.5% are strongly agreed that Non-Application of Building Maintenance Policy by the management play a vital role in affecting maintenance of the properties, 12 respondents representing 19% also agreed that Non-Application of Building Maintenance Policy are among the factors affecting property maintenance, 5 respondents representing 7.9% are undecided whether the Non-Application of Building Maintenance Policy affecting property maintenance in the study area or not, 21 respondents representing 33.3% disagreed that Non-Application of Building Maintenance Policy affecting maintenance of the property, while 14 respondents representing 22.2% are strongly disagreed that Non-Application of Building Maintenance Policy has any effect on property maintenance in the study area. Item 4 in the table shows that the respondents were asked whether Use of Substandard Materials are among the factors affecting property maintenance in the study area, 6 respondents representing 9.5% are strongly agreed that Use of Substandard Materials by the management during properties constructions plays a vital role in affecting maintenance of their properties, 23 respondents representing 36.5% also agreed that Use of Substandard Materials are among the factors affecting property maintenance, 5 respondents representing 7.9% are undecided whether the Use of Substandard Materials affecting property maintenance or not, 20 respondents representing 31.7% disagreed that Use of Substandard Materials affecting maintenance of the property, while 9 respondents representing 14.3% are strongly disagreed that Use of Substandard Materials has any effect on property maintenance in the study area. Item 5 in the table shows that the respondents were asked whether Occupiers Attitude on Maintenance are among the factors affecting property maintenance in the study area, 9 respondents representing 14.3% are strongly agreed that Occupiers Attitude on Maintenance, staffs negligence on proper cares of the properties, most occupiers are with the attitude that the properties are public properties, they cannot handle them with cares, these attitudes play a vital role in affecting maintenance of their properties, 34 respondents representing 54% also agreed that Occupiers Attitude on Maintenance are among the factors affecting property maintenance, 3 respondents representing 4.8% are undecided whether the Occupiers Attitude on Maintenance affecting property maintenance or not, 11 respondents representing 17.5% disagreed that Occupiers Attitude on Maintenance affecting maintenance of the property, while 6 respondents representing 9.5% are strongly disagreed that Use of Substandard Materials has any effect on property maintenance in the study area.

Item 6 in the table shows that the respondents were asked whether Lack of Proper Communication between Users and Management are among the factors affecting property maintenance in the study area, communication gap between the management and the occupants affect property maintenance, most of the staff are not reporting to the management on issue relating to properties and the physical planning department are not inspecting properties regularly to see conditions of the properties, while some occupant are seeing no any measure taking by the management despite that they make a report for repairs by the management, 12 respondents representing 19% are strongly agreed that Lack of Proper Communication between Users and Management plays a vital role in affecting maintenance of their properties, 10 respondents representing 15.9% also agreed that Lack of Proper Communication between Users and Management are among the factors affecting property maintenance, 4 respondents representing 6.3% are undecided whether the Lack of Proper Communication between

Users and Management affecting property maintenance or not, 26 respondents representing 41.3% disagreed that Lack of Proper Communication between Users and Management affecting maintenance of the property, while 11 respondents representing 17.5% are strongly disagreed that Lack of Proper Communication between Users and Management has any effect on property maintenance in the study area. Item 7 in the table shows that the respondents were asked whether Management Attitude on Maintenance are among the factors affecting property maintenance in the study area, Management attitudes towards not taking a necessary action on time or not carrying out maintenance at all even if the occupants report the maintenance needed on the properties due to their own reasons known to them. 13 respondents representing 20.6% are strongly agreed that Management Attitude on Maintenance plays a vital role in affecting maintenance in the study area, 26 respondents representing 41.3% also agreed that Management Attitude on Maintenance are among the factors affecting property maintenance, 5 respondents representing 7.9% are undecided whether the Management Attitude on Maintenance affecting property maintenance or not, 15 respondents representing 23.8% disagreed that Management Attitude on Maintenance affecting maintenance of the property, while 4 respondents representing 6.3% are strongly disagreed that Management Attitude on Maintenance has any effect on property maintenance in the study area.

■6.0 CONCLUSION

This study found out that the type of residential property in the institution in area A, B and E is detached dwellings, and semi-detached dwellings, while Area C and Area D are semidetached dwelling. It is also found out that the major types of strategies used by the management of Waziri Umaru Federal Polytechnic Birnin Kebbi in maintenance the staff quarters is self-maintenance. where 44 of the respondents which represented 69.8% are with the opinion that self-maintenance is the strategies adopted by the management, where properties occupiers used to manage the resident by their selves. It is also found out that Lack of Fund, Lack of Preventive Maintenance, Non-Application of Building Maintenance Policy, Use of Substandard Materials, Occupiers Attitude on Maintenance, Lack of Proper Communication between Users and Management, and Management Attitude on Maintenance are among the factors affecting property maintenance.

Conclusively, maintenance of the properties requires attention at the highest level. This attention is of basic significance of which the objectives must be to keep the property and its elements to acceptable standard for the purpose of making them functional and reliable. Poor attitude of the occupant and management towards maintenance contribute to serious defects seen in the life span of the properties. Therefore, steps need to be taking or made by the Management of Waziri Umaru Federal Polytechnic to see that regularly maintenance are taking place which will be done either by the occupants or management through introducing manual and regulations as guideline on how it will be executed. It also Provide an input that can be used in the near future for enhancement of services by the institution in terms of the maintenance services they offer. To make the residents happier than they were previously, there is still opportunity for enhancing in the maintenance of the properties. Effective formal and informal communications between the inhabitants and the institution's administration are just one of the many steps that may be taken to guarantee that the residents are informed about the execution of the maintenance services. In particular, maintenance should concentrate on making sure the pipes, electrical system, and sanitary facilities are in good shape. To help inhabitants identify and report the aforementioned categories of building failure, appropriate communication and response procedures should be created. Among the strategies to guarantee efficient communication is to strengthen the bond between building management and residents.

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Conflict of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

References

Adejimi, A. (2005). Poor Building Maintenance are Architects Free from Blames? A Paper Presented at the ENHR International Conference on Housing: New Challenges and Innovations in Tomorrow's Cities. Iceland 2005.

Ajetomobi, O. O., and Olanrewaju, S. B. O. (2015). Evaluation of the factors affecting housing maintenance and its probable solutions. *International Journal of Latest Research in Engineering and Technology (IJLRET) ISSN: 2454-5031(Online) www.ijlret.com‖ Volume 1 Issue 4‖September 2015 ‖ PP 59-64.*

Akeju, A.A. (2007). Challenges to Providing Affordable Housing in Nigeria. A Paper Presented at the 2nd Emerging Urban Africa International Conference on Housing Finance in Nigeria. Abuja. October 17-19, 2007.

Aluko, O. O., Awe, F. C., and Bankole I. E. (2024). Evaluation of Government Participation in Maintenance of Public Residential Housing in Different Climatic Zones in Nigeria. *International Journal of Architecture and Planning.* Volume 4, Issue 1, March 2024, doi: 10.51483/IJARP.4.1.2024.6-12

Baba S. W., and Buba A. V. (2013). Evaluation of Factors Affecting Residential Building Maintenance in Nigeria: Users' Perspective. Civil and Environmental Research. The *International Institute for Science, Technology and Education (IISTE)*. www.iiste.org ISSN 2224-5790 (Paper) ISSN 2225-0514 (Online) Vol.3, No.8, 2013 19 BS 3811 (1993), Glossary of Terms in Terotechnology. 1993.

Bakri, N. N. O., & Mydin, M. A. O. (2014). General building defects: causes, symptoms and remedial work. *European Journal of Technology and Design*, *3*(1), 4-17.

Bala, K and Bustani, S.A. (2012): A review of housing delivery efforts in Nigeria. http://www.gla.ac.uk/media/media_129767_en.pdf. Retrieved Wednesday 22 August,2012 09:11 Administrator.

Brennan, B. (2000). Repairs and Maintenance of Dwellings, An-Taonad Tithlochta Press. British Standard (BS 3811) (1993).
British Standard (BS 3811) (1993). Glossary of Terms Used in Terotechnology, British Standards Institution, London.
British Standard Institution (BS 3811) (1984). Glossary of Maintenance Management Terms in Technology, London
Carlino, A.E. (2012), "Improvement of maintenance processes in public buildings", master's thesis, Federal University of São Carlos, São Paulo
Glossary of Terms Used in Terotechnology, British Standards Institution, London. British Standard Institution (BS 3811) (1984). Glossary of Maintenance Management Terms in Technology, London.
Ibem, E.O. and Amole, O.O. (2010). The Evaluation of Public Housing Programmes in Nigeria: A Theoretical and Conceptual Approach. The Built and Environmental Review, (3).
Ibrahim, I., Dzurlkainnain D., Usman B.S., Hamza U.Y., Adebayo O.O., Rilwanu B., Shakirat A.R., and Shittu W.O. (2024). Effect of Micro Economic Factors on Residential Property Value in Birnin Kebbi, Kebbi State, Nigeria. *International Journal of Real Estate Studies (INTREST), Vol. 18 (1).* 2024.
Iyamu, I. F., Imasuen, K. and Osakue, E. F. (2018). "Analysis of Maintenance Culture in Public Primary and Secondary Schools in Edo State,"Int. J. Vocat. Tech. Educ. Res., vol. 4, no. 2, pp. 23–30, 2018
Lee, R. and Wordsworth, P. (2001). Building Maintenance Management, 4th Edition, Blackwell Science, Cambridge MA, 340.
Leong, K.C. (2009). Sustainable Housing and Community Development – Opposite Sides of the Same Coin. EAROPH 42nd Regional Seminar, Parliament House, Ulaanbaatar, Mongolia.
Odediran, S.J., Opatunji, O.Y. and Eghnure, F. O. (2012). Maintenance of Buildings: Users' Practices in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences* 3(3):261-265
Ogunmakinde, O. E., Akinola, A. A. and Siyanbola, A. B. (2013). Analysis of the Factors Affecting Building Maintenance in Government Residential Estates in Akure, Ondo State, Nigeria. *Journal of Environmental Sciences and Resources Management Volume 5, Number 2, 2013* ISSN: 2277-0097
Ojara, E. S. (2013). "The Challenges of Housing Maintenance in Nigeria," The Federal Polytechnic, Ado Ekiti, Nigeria, 2013.
Okupe, L. and Windapo, C. (2000): The role of private sector in housing delivery in Nigeria. A seminar paper on effective approach to housing delivery in Nigeria, Organized by Nigerian Institute of Building, Ibadan.
Olagunju, R.E. (2012). Predictive Modelling for Sustainable Residential Building Maintenance in Developing Countries: A Nigerian Case. Interdisciplinary Journal of Contemporary Research in Business, 4(6), 1237-1283.
Olatubora, C.O. and Fatoye, E.O. (2006). Residential Satisfaction in Public Housing Estates in Lagos State, Nigeria. Journal of the Nigerian Institute of Town Planners, 1(19), 103-114.
Olu-Sule, R.A. (1990). Recent Slum Clearance in Lagos (Nigeria): Victims or Beneficiaries? Geo Journal, 22(1), 81-91.
Puķīte I., and Geipele, I. (2017). "Different Approaches to Building Management and Maintenance Meaning Explanation," Procedia Eng., vol. 172, pp. 905–912, 2017.
Talib, R. Ahmad, A. G., Zakaria, N., and Sulieman, M. Z. (2014). "Assessment of Factors Affecting Building Maintenance and Defects of Public Buildings in Penang, Malaysia," Sci. Acad. Publ., vol. 4, no. 2, pp. 48–53, 2014.
Wahab, B (2007): Element of rural housing, Housing Development and Management, Malijoe softprint, Ibadan, pp. 434-435