

EXPLORING THE FACTORS AFFECTING HOUSING MAINTENANCE MANAGEMENT IN THE LUGBE FEDERAL HOUSING ESTATE, ABUJA

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ABSTRACT

Housing estate maintenance is crucial for sustaining safe, functional, and comfortable urban environments. However, the effectiveness of housing maintenance is often hindered by factors that undermine sustainability goals. This study explores the factors affecting housing estate maintenance in the Lugbe Federal Housing Estate, Abuja. The study adopted a quantitative research design approach using a structured questionnaire. A total of 133 valid questionnaires were retrieved and analyzed using frequency distribution and mean score ranking. The results of the study identified inadequacy of maintenance work (Mean = 3.79), persistent breakdown of facilities (Mean = 3.77), building design (Mean = 3.77) and irregular inspection of building facilities (Mean = 3.74) as the most critical factors affecting housing estate maintenance management. The study concluded that housing maintenance management in Lugbe Housing Estate is significantly constrained by inadequate maintenance work, frequent breakdown of facilities, and irregular inspections. Therefore, the study recommends that estate managers enforce a quality management policy to ensure the sustainable maintenance management of housing estate facilities.

KEYWORDS: Estate Management, Housing Maintenance, Lugbe Federal Housing Estate, Public Housing, Sustainable Housing

INTRODUCTION

Housing estate maintenance represents a major aspect of sustainable urban development, aimed at preserving safe, efficient, and comfortable residential spaces. According to Grum and Kobal (2020), the effectiveness of maintenance efforts directly influences not only the physical state of buildings and infrastructure but also the social cohesion, economic stability, and mental well-being of occupants. Similarly, Dzul kifli, Sarbini, Ibrahim, Abidin, Yahaya, and Azizan (2021) noted that although

maintenance has often been approached through technical and administrative lenses, emerging challenges highlight the necessity of incorporating wider contextual and human-centered factors to improve outcomes. Furthermore, according to Altaie (2023), building housing maintenance management refers to the ongoing upkeep and management of residential properties, including repairs, upgrades, and preventative maintenance. Therefore, it is a critical aspect of ensuring the safety and livability of housing for residents.

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According to Corallo, Lazoi, Malagnino, Mangia, Mangialardi and Sarcinella (2022), one of the main challenges in housing maintenance management is the increasing cost of repairs and maintenance. Likewise, Saperi, Wan Ismail, and Mohd (2024) asserted that the lack of funding for maintenance and repairs stands as a major challenge for housing estate maintenance. Pelzeter (2022) asserted that many housing authorities and property owners struggle to secure adequate funding for maintenance, leading to deferred maintenance and poor living conditions for residents. Correspondingly, the National Low Income Housing Coalition (NLIHC, 2020) highlights a critical housing gap in the United States, revealing a shortage of approximately 7 million affordable and available rental units for extremely low-income households; thus, this shortage of affordable housing makes it difficult for housing authorities to allocate sufficient funds for maintenance and repairs. Consequently, Modu, Sapri, and Muin (2024) asserted that housing maintenance is a recurring concern in Nigeria due to the rapid growth of dilapidating housing facilities in the country. This poor maintenance attitude has accumulated consequences leading to harmful effects on the users of the housing facilities. As noted by Moore (2019), most housing in Nigeria, both public and private, undergo these maintenance challenges. Considering the role of housing facilities, the need for effective housing estate maintenance management is critical for sustainable socio-cultural and economic development (Kumar, 2024).

Although sustainable housing provision is crucial for urban development, there has been little to no research on the condition of Federal Housing Estates and the factors influencing their maintenance management in Lugbe, an area experiencing rapid housing development in Nigeria. Therefore, this study seeks to evaluate the condition of building and infrastructural facilities within the housing estate, examine the housing

maintenance management schedule, and explore the factors influencing maintenance management in the Lugbe Federal Housing Estate, in order to provide insight into the infrastructure development of the estate and propose strategies for improving the condition of housing facilities.

LITERATURE REVIEW

The Concept of Housing Estate

Maintenance Management

Housing estates serve as a vital element in urban development, delivering organized, affordable and long-term housing solutions to diverse populations (Okoye, Umeora, Ifeji & Onwuzuligbo, 2018). According to Okoye (2024) effective management of these estates is essential for sustaining the built environment as it helps in ensuring that the building occupants safe and comfortable within the estate environ. As highlighted by Pelzeter (2022), estate maintenance management from the physical perspective, fosters structural integrity sustainability, serviceability of amenities and environmental quality, influences resident satisfaction and promotes long-term viability of the housing scheme.

According to Modu *et al.*, (2024) the Federal Housing Authority has intensified efforts toward providing housing facilities in Nigeria. Though the housing supply still does not meet the housing demand of the people, a significant impact is noticeable. Pukite and Geipele (2017) asserted that appropriate maintenance management principles are necessary to make these housing estates functional and comfortable for human activities. Yahaya (2019) argued that Federal Housing Authority (FHA) has concentrated its energies mainly on the provision of a large number of housing units without giving adequate attention to their management implications. This is evidenced by the poor physical outlook of Federal Housing Estates across the country. In this regard, Marutlulle (2021) argued that these houses are, in most cases, characterized by declining housing and

infrastructural qualities, thereby threatening human health and safety while also hampering the functionality of housing units.

Factors Affecting Housing Estate Maintenance in Nigeria

Housing maintenance management is often affected by several factors which comprise its sustainability goals over the period of usage. The factors affecting housing maintenance in Nigeria center on understanding the reasons behind the poor state of housing maintenance in the country and identifying the factors that contribute to this issue (Okon & Amobi, 2024). According to Sule, Esidene, and Adadu (2024) the Nigerian government has not prioritized the provision of maintenance services for public housing, leading to the deterioration of these properties. Therefore, this reveals a lack of clear regulations and standards for the maintenance of housing facilities, making it difficult for homeowners to know their responsibilities and rights (Sule *et al.*, 2024). Furthermore, several studies have identified critical factors affecting housing maintenance in Nigeria. As highlighted by Ayobami and Ekwueme (2024), one of the major factors that affects housing maintenance is the lack of government support and inadequate policies for housing maintenance. According to Akinwande, Hui and Dekker (2024) and Akinola *et al.* (2024), high maintenance costs, driven by expensive materials and labor, hinder timely repairs, especially among low-income homeowners are considered as factors affecting housing maintenance management. Similarly, poor construction practices and the use of substandard materials, particularly in low-income housing, contribute to frequent repairs were identified by Ajayi *et al.* (2023). Akinola *et al.*, (2024) asserted that a general lack of awareness and education on proper maintenance practices also results in neglect and costly future repairs. In addition, a study by Adeleke *et al.* (2023) have revealed that

inappropriate building design, poor workmanship, ageing facilities, and inadequate construction supervision significantly affect the physical condition of high-rise residential buildings. Owolabi, Apanisile and Omiata (2019) affirmed that design failures, wrong material specifications, insufficient construction detailing, and cash flow constraints are major contributors to inadequate housing maintenance management.

Notably, empirical studies (Owolabi *et al.*, 2019; Adeleke *et al.*, 2023; Ayobami & Ekwueme, 2024; Akinwande *et al.*, 2024; Akinola *et al.*, 2024) have revealed that housing maintenance management in Nigeria is influenced by a synergy of technical, managerial and financial factors. These factors as synthesized from previous studies include inadequate maintenance work, frequent breakdown of building facilities, poor building design, irregular building inspections, low-quality building materials, building occupants' attitude to use of housing facilities, Lack of training of maintenance staff, building complexity, delays in attending to maintenance works and failure in reporting of maintenance related problems by occupants. Hence these factors were assessed in this study.

METHODOLOGY

Research Design

The study adopted both descriptive and exploratory research approaches to explore the housing estate maintenance management and factors affecting housing estate maintenance management in Lugbe Federal Housing Estate, Abuja. A descriptive strategy was adopted to understand the current conditions of the housing units and facilities, while the exploratory aspect focused on identifying the underlying factors affecting maintenance practices through residents' perceptions. The case study is Lugbe Federal Housing Estate Federal Capital Abuja.

Study population and Sampling

The housing maintenance and management in Lugbe Housing Estate under study comprises two-hundred and fifty (250) residential units. Instead of adopting a sampling procedure, total enumeration survey of the residential units was undertaken due to the relatively small size of the total population.

Data Collection and Analysis

Data was collected through structured questionnaires administered to occupants available across the 250 residential units. These captured socio-demographic characteristics, housing conditions, state of facilities, and factors influencing maintenance challenges. A 5-point Likert scale was used to measure residents'

perceptions, ensuring clarity and ease of response. A total of 133 valid responses were received and used for analysis. Descriptive statistics such as percentages and narrative summaries were used to provide insight into the level of housing estate maintenance and factors affecting housing estate maintenance management.

RESULT AND DISCUSSION

Respondent Demography

Table 1 presents the analysis of the respondents' demography based on gender, marital status, educational qualification, age, occupation, household size, type of apartment, and years of residence in the Federal Housing Estate in Lugbe.

Table 1: Respondents' demography

Category	Frequency (n)	Percentage (%)
Gender of Household Head		
Male	86	64.66
Female	47	35.34
Total	133	100
Marital Status		
Married	121	90.98
Single	12	9.02
Total	133	100
Educational Qualification		
Below HND/B.Sc./B.A	7	5.26
HND/B.Sc./B.A	65	48.88
Above HND/B.Sc./B.A	61	45.86
Total	133	100
Age head of households		
18-30 years	10	7.52
31-45 years	60	45.11
46-60 years	55	41.35
Above 60 years	8	6.02
Total	133	100
Occupation		
Civil/Public Servant	60	45.11
Private Sector Employee	40	30.08
Self-employed/Business	28	21.05
Others	5	3.76
Total	133	100
Household Size		
1 person	5	3.76
2-4 persons	45	33.83
5-8 persons	65	48.87
Above 8 persons	18	13.53
Total	133	100
Type of Apartment Occupied		
3-bedroom flat	110	82.71
1-bedroom flat	23	17.29
Total	133	100
Years of Residence		
Less than 5 years	6	4.51
6-10 years	9	6.77
10-15 years	33	24.81
Above 15 years	85	63.91
Total	133	100

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Table 1 presents the results of the demography of respondents with respect to gender, marital status, educational qualification, age, occupation, household size, types of apartments and years of residence in the Lugbe Federal Housing estate. The findings revealed that household heads in estate were said to be predominantly male and married, reflecting a family-oriented residential community. Similarly, majority of the respondents were found to have possess tertiary education with qualification above Higher National Diploma (HND) and bachelor degree and found to have aligned with the economically active age range of 31-60 years, with a large proportion employed in the civil/ public and private sectors.

Moreover, household sizes are generally large, and the majority of respondents reside

in 3-bedroom flats, placing significant usage pressure on building facilities. Additionally, many residents have lived in the estate for more than 15 years, implying familiarity with its infrastructure performance during a long occupancy period. These characteristics suggest a stable and knowledgeable resident population with high expectations for effective maintenance services, while also highlighting the need for proactive and sustainable maintenance management due to intensive facility use.

Building Facility and Infrastructural Conditions in Lugbe Federal Housing Estate

Table 2 presents the analysis of the field survey carried out on the building facilities and infrastructural conditions in the Lugbe Federal Housing Estate.

Table 2: Building facility and infrastructural conditions

Component	Condition	Frequency	Percentage	Remark based on resident's feedbacks
Doors	Very Good	57	43%	Majority are secure and undamaged.
	Good	39	29%	Functional with minor wear.
	Fair	20	15%	Some alignment or lock issues.
	Bad	17	13%	Many need repairs or replacement.
	Very Bad	0	0%	None reported.
Windows	Very Good	77	58%	Excellent condition and well-installed.
	Good	30	21%	Mostly intact; minor defects.
	Fair	18	14%	Some panes or frames slightly damaged.
	Bad	8	6%	A few with cracked panes or stuck frames.
	Very Bad	0	0%	No major window failure observed.
Ceilings	Good	71	53%	Structurally sound overall.
	Leaking	39	29%	Signs of water ingress from roof/plumbing.
	Sagging	12	9%	Weak structural support in some units.
	Part Missing	11	8%	Some ceiling boards absent.
Roofs	Good	88	66%	No visible structural damage.
	Leaking	29	22%	Affected by poor drainage or cracked materials.
	Rusty	11	8%	Mostly in older buildings.
	Part Blown Off	5	4%	Minor wind damage observed.
Walls	Good	56	42%	Recently painted or well maintained.
	Damp	37	28%	Moisture damage from plumbing or ground seepage.
	Needs Painting	31	23%	Aesthetic degradation due to weathering.
Floors	Cracking	9	8%	Minor structural or settlement cracks.
	Good	128	96%	Clean, stable, and intact.
	Moist	5	4%	Damp patches, likely due to plumbing leakage.
	Cracking	0	0%	No major floor cracks reported.

Toilets	Very Good	45	34%	Clean and well-fitted fixtures.
	Good	53	40%	Functioning but may require minor upgrades.
	Fair	32	24%	Some plumbing or fitting issues.
	Bad	3	2%	Some non-functional units.
	Very Bad	0	0%	No reports of unusable toilets.
Bathrooms	Very Good	47	35%	Fixtures and tiles in excellent condition.
	Good	63	47%	Operational with minor signs of wear.
	Fair	22	17%	Leaky faucets and old fittings noted.
	Bad	1	1%	Isolated case with poor drainage.
Kitchens	Very Good	41	31%	Neatly maintained with adequate fittings.
	Good	61	46%	Fully functional kitchens.
	Fair	31	23%	Cabinets, sinks or countertops need attention.
	Bad	0	0%	No kitchen reported as unusable.
Access Roads	Tarred	87	65%	Smooth and well-connected internal roads.
	Untarred	46	35%	Affects accessibility, especially in rainy season.
Drainage	Good	133	100%	All visible channels operational and unblocked.
Street Lights	Blocked	0	0%	No obstructions reported.
	Not Available	0	0%	Full estate coverage noted.
	Functional	76	57%	Adequate lighting in many areas.
	Not	48	36%	Frequent outages reported.
Cleanliness	Functional	9	7%	Few areas still lack lighting infrastructure.
	Not Available	69	52%	Regular sweeping and waste disposal observed.
	Very Clean	39	29%	Well-kept but less frequent cleaning.
	Clean	25	19%	Overgrown grass and litter in isolated spots.
	Fair	0	0%	No cases of poor sanitation.
Pedestrian Walkways	Dirty	0	0%	None recorded.
	Very Dirty	0	0%	None recorded.
	Good	79	59%	Easily accessible and paved.
	Bushy	54	41%	Vegetation encroaching in several areas.
Landscaping	Not Available	0	0%	Walkways exist throughout estate.
	Very Good	58	44%	Aesthetic and well-maintained environments.
	Good	47	35%	Trees and shrubs trimmed regularly.
	Fair	28	21%	Some neglect in trimming or replanting.
	Bad	0	0%	No visible poor landscaping.
	Very Bad	0	0%	None encountered.

Table 2 presents the assessment of the physical condition of Lugbe Housing Estate. The result revealed that most elements of the residential environment are in satisfactory condition, with slightly few areas that need improvement. With respect to major building structural components within the housing estate, 43% and 29% of residents rated the doors as very good and good respectively. However, 13% reported doors in poor condition, indicating wear and a need for maintenance. For windows, 58% rated them as very good, with only 6% considering them substandard. 53% of the residents rated the condition of the ceilings as good, but 29% of the

respondents rated the condition of the ceiling as bad, reporting defects like leakage and sagging with ceiling members.

Moreso, the condition of the roofs was rated good by 66% of residents, 22% reported maintenance-related problems such as leakage and corrosion, suggesting the need for maintenance. Likewise, walls were largely rated as good by 42% of the respondents, but moisture intrusion and a need for repainting and repairs were noted by some residents. The condition of the floors within the estate was found to be in good condition, with 96% of respondents indicating that no minor maintenance was required.

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With respect to the service facilities, toilets were rated good by 40% of respondents and very good by 34% of the respondents, with only 2% of the respondents reporting poor conditions with the toilet facilities. Likewise, the bathrooms were functional, with 47% of the respondents rating them as good and 35% of respondents rating them as very good. Kitchens were considered good by 46% of the respondents and very good by 31%, without any poor ratings. However, 23% of the respondents rated the overall condition of services as fair, indicating a need for upgrades. Regarding infrastructure, access roads were tarred according to 65% of the respondents, but 35% of the respondents indicated they were untarred, showing uneven road maintenance. The drainage system was rated good by all respondents, while street lighting showed issues, with 57% of the respondents indicating lights were functional, but 36% of respondents reported non-operation, and 7% of the respondents noted no lighting at all, raising safety concerns. Environmental hygiene was found to be

satisfactory, with 52% of the respondents rating the estate as very clean, and 29% of the respondents as clean. Likewise, the pedestrian walkways received good ratings from 59% of the respondents, but 41% of the respondents reported excessive vegetation, highlighting maintenance gaps. Landscaping was highly rated, with 44% of the respondents rating it very good.

While the condition of the housing estate has demonstrated structural integrity and facilities are reported by the majority of the respondents to be in good condition, maintenance-related issues such as ceiling deterioration, roof leakage, poor lighting, and maintenance of walkways need attention.

Housing Maintenance Management Schedule

Figure 1 and Figure 2 present the analysis of the housing maintenance management schedule and the level of housing estate maintenance, respectively.

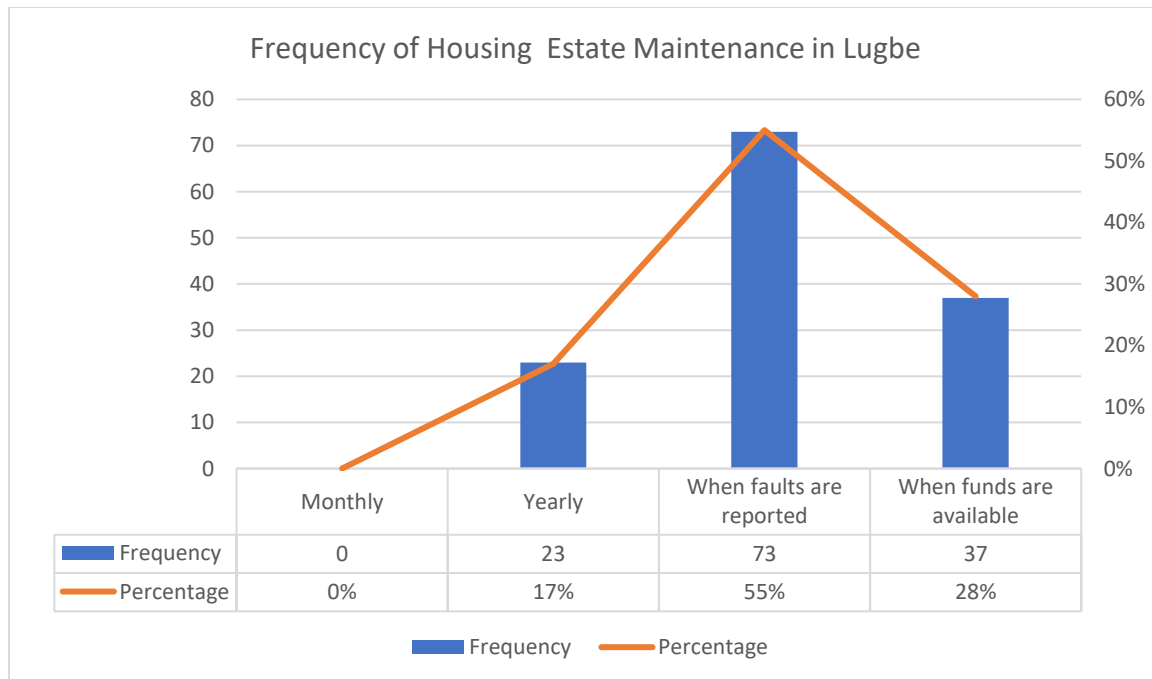


Figure 1: Frequency of maintenance

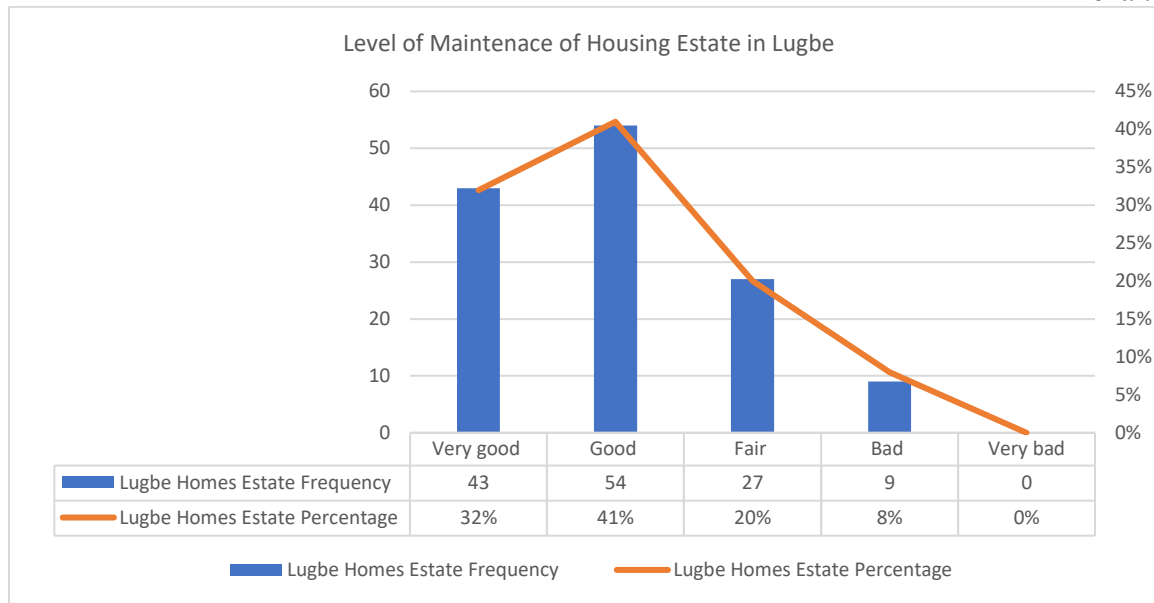


Figure 2: Level of housing estate maintenance

Figure 1 shows that 32% of the respondents in Lugbe Federal Housing Estate were satisfied with the level of maintenance of neighborhood facilities, describing it as very good. Additionally, 41% of the respondents rated the level of maintenance as good, while 20% of the respondents rated it as fair. This indicates an acceptable level of maintenance practices within the study area. However, 8% of the respondents were dissatisfied, describing the level of maintenance as poor. Likewise, Figure 2 reveals that only 17% of the respondents acknowledged that the Lugbe Federal Housing Estate had scheduled maintenance programs, with repairs and maintenance works typically conducted on an

annual basis in these cases. In contrast, 55% of respondents reported that repairs and maintenance were carried out only when faults occurred. Interview responses further indicated that maintenance activities were largely unplanned, prompting managing agents to implement ad-hoc measures as urgent corrective actions. Similarly, 28% of the respondents reported that maintenance activities only occur when there are available funds.

Factors affecting the housing Maintenance Management in the Lugbe Housing Estate
Table 3 presents the analysis of the factors affecting housing maintenance management in the Federal Housing Estate in Lugbe.

Table 3: Factors affecting the housing maintenance management

S/N	Items	SA	A	U	SD	D	Σf	Σfx	$\bar{x}$	Rank
1	Inadequacy of maintenance work	64	21	15	21	12	133	504	3.79	1 st
2	Persistent breakdown of facilities	49	43	8	28	5	133	502	3.77	2 nd
3	Building design	60	32	5	21	15	133	501	3.77	3 rd
4	Irregularity of building inspection	55	28	16	28	6	133	498	3.74	4 th
5	Quality of building materials used	44	47	5	26	11	133	490	3.68	5 th
6	Occupants' attitude to use of the house	61	19	12	24	17	133	482	3.62	6 th
7	Inadequate training of maintenance staff	40	45	7	34	7	133	480	3.61	7 th
8	Complexity of building	49	40	3	24	17	133	479	3.60	8 th
9	Delay in maintenance work	44	36	11	30	12	133	473	3.56	9 th
10	Failure in reporting problems	45	40	16	20	12	133	440	3.31	10 th

Table 3 presents the analysis of factors affecting housing estate maintenance management in the Lugbe Housing Estate, based on the computed mean score values, which revealed the relative significance of each factor as perceived and rated by respondents. The ranked mean scores provide a clear reflection of the most significant factors affecting estate housing maintenance management within the study area. The result from the analysis revealed the inadequacy of maintenance work as the most significant factor, with the highest mean score of 3.79 and ranked first. In addition, persistent breakdown of facilities had a mean score of 3.77 and was ranked second. Similarly, building design had a mean score of 3.77 and was ranked third. Furthermore, the irregularity of building inspection had a mean score of 3.74 and was ranked fourth. Also, the quality of building materials used, with a mean score of 3.68, was ranked fifth. In addition, occupants' attitude toward the use of the house had a mean score of 3.62 and was ranked sixth. Likewise, inadequate training of maintenance staff had a mean score of 3.61

and was ranked seventh. Moreover, the complexity of the building itself, with a mean score of 3.60, is another notable factor ranked eighth. Meanwhile, delay in maintenance work, with a mean score of 3.56, is ranked ninth. Finally, failure in reporting problems, with a mean score of 3.31, is ranked tenth as the lowest factor. Based on the inferences from the findings, the quality and sufficiency of maintenance services are critically lacking, as inadequate maintenance work is revealed to be the most critical factor affecting housing maintenance management. This is important because it suggests that existing maintenance activities may be poorly executed, insufficient in frequency, or lacking responsiveness, thereby accelerating the deterioration of housing infrastructure. In respect to the persistent breakdown of the housing facilities, the frequent failure of major building service elements, including plumbing, electrical, and mechanical installations, could be associated with these factors, as these can affect estate housing maintenance management. This assessment highlights the need for more durable systems

and better preventive maintenance practices. In view of the building design factor, it is pertinent to emphasize that architectural and structural elements may hinder easy access for repairs or may not have been designed with long-term maintenance in mind. The findings on irregular building maintenance show that the absence of consistent monitoring allows issues to go unnoticed until they become serious. Likewise, the quality of building materials is an identified factor that revealed that substandard or inappropriate materials contribute to quicker degradation of structures, thereby affecting maintenance management in the housing estate. Notably, this is vital when considering long-term housing maintenance efficiency. In view of occupants' attitude as a factor, it implies that estate residents' behaviors, such as misuse or lack of proper care, can exacerbate wear and tear, underscoring the need for occupant awareness and engagement in proper housing use. Inadequate training of maintenance staff as an identified factor implies that maintenance teams may lack the technical competence or updated skills required to effectively handle emerging maintenance needs, especially in more complex housing systems. With respect to the complexity of the building as a factor, the findings imply that complex designs, integrated systems, or non-standard features can complicate diagnostics and repairs, requiring more specialized intervention than is currently available. The findings on the delay in maintenance work suggest that while timing and responsiveness remain relevant, they are not perceived as urgent as other systemic and technical factors affecting estate housing maintenance management. Likewise, failure in reporting problems, considered the least ranked factor, indicates that although communication gaps exist, they are considered less significant compared with inadequate maintenance work, persistent breakdown of facilities, and irregular building inspection.

Consequently, the findings highlight a combination of systemic inadequacies, technical challenges, and user-related factors that influence the maintenance performance of housing in Lugbe Estate. As a result, strengthening maintenance operations through better planning, staff training, design considerations, and material standards will be critical. Moreover, improving regular inspections and promoting responsible use among occupants can support the development of a more sustainable and efficiently maintained residential environment.

DISCUSSION OF FINDINGS

The study explores the factors affecting housing maintenance management in the Lugbe housing estate. To further support the findings on the assessment of the physical condition of the housing estate facilities, it was revealed that material quality, inadequacy of maintenance work, failure in reporting maintenance related problems, and building design significantly shape the physical conditions of the housing estate. The study found that the use of substandard materials is responsible for the ceiling defects, roof corrosion, and wall moisture that often result in the deterioration of building facilities, as reported in this study. This material inconsistency is often attributed to the involvement of multiple contractors and poor-quality control, a pattern also reported by Emusa *et al.* (2023) and Faremi *et al.* (2020), who identified material cost and contractor malpractice as key drivers of building facilities deterioration. The high mean score of 3.68 in Table 2 for "quality of building materials" further confirms its critical role.

Moreover, failure in reporting maintenance problems associated with the housing facilities and delays in carrying out maintenance work, as reflected in the lowest ranked factor with the mean score of 3.31, could have been the reason for minor defects

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escalating into major defects observed in some building components, such as roof leakage (reported by 22% of respondents) and vegetation overgrowth along walkways (reported by 41% of respondents). This is supported by Adeleke, Odachi and Ogunbiyi (2023), as their findings also revealed that delayed interventions worsen maintenance outcomes. Similarly, the inadequacy of maintenance work, which is ranked as the most significant factor (mean = 3.79), corresponds with assessed physical conditions where critical building elements like ceilings, roofing, and lighting showed a level of deterioration in the housing estate. This inadequacy often stems from unclear responsibility and poorly trained personnel, as supported by a study by Okoye (2024). Additionally, the reported ceiling failures and inconsistent lighting (only 57% functionality) suggest limited technical capacity and a lack of preventive approaches. In contrast, building complexity had a low mean score of 3.60, which is consistent with the estate's relatively simple building types, three 21 storey blocks and one annex with 1-bedroom flats. This is supported by Abubakar (2021), who stated that simple layouts reduce maintenance costs and enable easier access for repairs. While elements like floors (96% good) and windows (58% very good) demonstrate strong performance, the deterioration in roofing, ceilings, and lighting reflects a combined impact of material degradation, inadequate planning, and delayed maintenance actions. These findings underline the need for improved quality control, structured reporting, competent technical teams, and regular inspections to prevent further decline. This is supported by the findings in a study by Wuyokwe and Yakubu (2022), which showed that early investment in quality materials and processes leads to better lifecycle performance and lower long-term costs.

CONCLUSION AND RECOMMENDATION

Conclusion

The study concluded that housing maintenance management in Lugbe Housing Estate is significantly constrained by inadequate maintenance work, frequent breakdown of facilities, and irregular inspections. These are reflected in the causes of building defects such as ceiling leakage, roof corrosion, sagging ceilings, and moisture intrusion in walls, which collectively indicate a decline in the physical condition of the housing estate facilities. These issues point to weak maintenance planning, insufficient technical capacity, and poor implementation of preventive measures. Consequently, the findings from the study infer that effective maintenance management requires improved planning, regular inspections, skilled personnel, quality materials, and greater occupant responsibility to ensure sustainable housing conditions.

Recommendation

The study recommends the following;

- i. Estate management authorities institutionalize rigorous quality assurance and quality control (QA/QC) protocols during both initial construction and subsequent maintenance work to mitigate building defects during building usage.
- ii. There should be a structured and technology-enabled maintenance reporting and feedback system should be deployed in the estate to ensure timely detection, documentation, and resolution of maintenance related issues.
- iii. Regular building inspections and occupant sensitization on responsible facility usage should be prioritized to support long term housing sustainability.

REFERENCES

- Abubakar, A. (2021). *A framework for sustainable provision of low-income housing in Abuja, Nigeria* (Doctoral dissertation, University of Sheffield).
- Adeleke, F. G., Odachi, O. M., & Ogunbiyi, J. O. (2023). Factors of condition and the challenges of maintenance of high-rise residential buildings: A Nigerian case study. Paper presented at the 12th Annual Malmö Real Estate Research Conference, Malmö, Sweden.
- Akinola, A. O., Ibem, E. O., Opoko, A. P., Oluwatayo, A. A., Aduwo, E. B., & Ugah, U. K. (2024). Satisfaction with maintenance of the public sector employee housing schemes in Lagos State, Nigeria. *IOP Conference Series: Earth and Environmental Science*, 1342(1), 012029. <https://doi.org/10.1088/1755-1315/1342/1/012029>
- Ajayi, T. O., Adeaga, O. W., & Adewale, P. O. A. (2023). Review of factors influencing public housing maintenance in Nigeria. *FEDPOLAD Journal of Engineering and Environmental Studies (FEDPOLADJEES)*, 3(1).
- Akinwande, T., Hui, E. C., & Dekker, K. (2024). Effective affordable housing strategies for the urban poor in Nigeria. *World Development*, 173, 106438. <https://doi.org/10.1016/j.worlddev.2023.106438>
- Altaie, M. R. (2023). Factors affecting building maintenance practices. *Journal of Engineering*, 29(12), 153–172.
- Ayobami, G. M., & Ekwueme, C. M. (2024). National housing fund scheme and economic growth in Nigeria. *Journal of Global Accounting*, 10(2), 123–140.
- Corallo, A., Lazoi, M., Malagnino, A., Mangia, M., Mangialardi, G., & Sarcinella, M. L. (2022). Management of the maintenance process in social housing: A case study. *Knowledge and Process Management*, 29(4), 445–457. <https://doi.org/10.1002/kpm.1741>
- Dzulkipli, N. A., Sarbini, N. N., Ibrahim, I. S., Abidin, N. I., Yahaya, F. M., & Azizan, N. Z. N. (2021). Review on maintenance issues toward building maintenance management best practices. *Journal of Building Engineering*, 44, 102985. <https://doi.org/10.1016/j.jobbe.2021.102985>
- Emusa, H., Idakwoji, W. A., Gandu, Y. J., Lucas, D. A., & Christian, C. (2023). Assessment of the influence of managerial service quality on occupants' satisfaction in housing estates in Abuja, Nigeria. *World Journal of Advanced Research and Reviews*, 19(3), 1438–1452. <https://doi.org/10.30574/wjarr.2023.19.3.1966>
- Faremi, O. J., Ajayi, O., & Faremi, O. E. (2020). Factors influencing the use of substandard materials in the construction of residential buildings. *CSID Journal of Infrastructure Development*, 3(1), 40. <https://doi.org/10.32783/csidiid.v3i1.88>
- Grum, B., & Kobal Grum, D. (2020). Concepts of social sustainability based on social infrastructure and quality of life. *Facilities*, 38(11/12), 783–800. <https://doi.org/10.1108/F-04-2020-0042>
- Kumar, A. (2024). Does facility-maintenance service quality drive tenants' willingness to pay higher rent? Evidence from Indian residential real estate infrastructure. *Facilities*, 42(9/10), 789–810.

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<https://doi.org/10.1108/F-03-2023-0038>

- Marutlulle, N. K. (2021). A critical analysis of housing inadequacy in South Africa and its ramifications. *Africa's Public Service Delivery and Performance Review*, 9(1), 372. <https://doi.org/10.4102/apsdpr.v9i1.372>
- Modu, M. A., Sapri, M., & Muin, Z. A. (2024). Facilities management service requirements for social housing in the semi-arid climate of Nigeria. *International Journal of Procurement Management*, 21(3), 283–301. <https://doi.org/10.1504/IJPM.2024.142026>
- Moore, E. A. (2019). Addressing housing deficit in Nigeria: Issues, challenges and prospects. *Economic and Financial Review*, 57(4), 15.
- National Low Income Housing Coalition (NLIHC). (2020). *The gap: A shortage of affordable homes*. National Low Income Housing Coalition. <https://nlihc.org/gap>
- Okon, E. A., & Amobi, D. S. C. (2024). The National Housing Fund (NHF) scheme and housing needs of civil servants in Anambra State (2012–2021). *Review of Public Administration and Management Journal (ROPAMJ)*, 21(1), 148–165.
- Okoye, B. S. (2024). Appraisal of maintenance conditions of residential buildings in Housing Development Corporation Estates in Enugu Metropolis, Nigeria. *COOU African Journal of Environmental Research*, 5(1), 159–172.
- Okoye, B. S. A., Umeora, C. O., Ifebi, O. C. & Onwuzuligbo, C. (2018). Effects of sewage disposal systems on the environment in public housing estates in Enugu metropolis. *African Journal of Environmental Research*, 1(1). <https://www.researchgate.net/publication/339770711>
- Oladimeji, B. S., Odunjo, O. O., Ayinla, A. K., & Amao, F. L. (2024). An appraisal of the housing elements and neighbourhood infrastructures maintenance practice in Ilorin Metropolis, Nigeria. *Khulna University Studies*, 103–112. <https://doi.org/10.53808/KUS.2024.21.02.1238-se>
- Owolabi, O. S. B., Apanisile, A. S., & Omiata, T. R. (2024). Factors affecting residential and public buildings maintenance in Nigeria. *Journal of Architecture and Civil Engineering*, 9(2), 7–11. <https://www.questjournals.org> (if DOI or direct URL to article page is available, it should replace this homepage link)
- Pelzeter, A. (2022). *Sustainability in building and operating real estate* (Chapter 12). In *Shaping a sustainable future* (pp. 225–240). Nomos Verlagsgesellschaft. <https://doi.org/10.5771/9783748933090-225>
- Puķite, I., & Geipele, I. (2017). Different approaches to building management and maintenance meaning explanation. *Procedia Engineering*, 172, 905–912.
- Saperi, M. A., Wan Ismail, W. Z., & Mohd, M. (2024). Improving facilities maintenance management practices for government quarters apartment in Putrajaya. *Built Environment Journal*, 21, 181–194.
- Sule, K., Esidene, E. C., & Adadu, Y. A. (2024). Implementation of public-private partnership in housing programme and affordable housing in the Federal Capital Territory, Nigeria. *Kashere Journal of Politics and International Relations*, 2(1), 27–37.
- Wuyokwe, G. N., & Yakubu, S. (2022). Exploring the factors affecting

- property development and housing affordability in Abuja. *Rajasthali Journal*, 1(4), 121–135.
- Yahaya, Y. (2019). The land use act and the Nigerian housing sector. *Economic and Financial Review*, 57(4), 10.