



Research article

An Appraisal of the Housing Elements and Neighbourhood Infrastructures Maintenance Practise in Ilorin Metropolis, Nigeria

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ABSTRACT

Housing is pivotal to the socio-economic development and the life of a nation. Rapid population growth and urbanisation are creating escalating demand for added living spaces; hence, there is the need to maintain the existing housing units in order to increase housing stock. This study therefore appraises the maintenance practise of housing facilities in Ilorin, metropolis, Nigeria with a view to improving the living standards of the houses. Mass housing schemes in Ilorin metropolis constituted the sample frame for the study and multistage sampling technique was adopted. Equal probability selection method was used to select 1,125 houses from the available five typologies, while questionnaire and observation formed the basic instruments for data collection and the questionnaire was administered to household heads of the selected houses to collect information on socioeconomic characteristics, house type as well as the condition of the facilities. Both descriptive and inferential statistical analyses were employed in the presentation of the findings; Likert scale was used to weigh the degree of condition of the housing facilities. The highest household income was \$37 – \$56 (28.1%) indicating the schemes were predominantly dominated by middle income workers, while the significant house type was flat type bungalow (80.6%). Burglary proof has the highest Mean Weighted Value of 4.17 indicating it has the highest maintenance level, while others were fairly maintained. The study suggests that effort must be strengthened to ensure that the housing facilities are regularly maintained and put in good condition in the housing schemes in order to ensure sustainability.

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Introduction

The United Nations (UN) Habitat Global Housing Strategy framework identifies housing maintenance as one of the thematic areas that require special attention and improvement if the house life will be sustained. Housing maintenance is the art and process of successfully and efficiently retaining the performance of houses and equipment at their highest levels, in the most possible economical way (Chew et al., 2018). Housing maintenance can contribute to reducing building cost through a continuous effort of cost reduction in maintenance operations and for housing to be sustainable according to Farzana, Mahmood, Biswas & Islam (2023). It means general repair in houses and it is different from renovation which is to resurrect a house from a state of disrepair. Noor, Wadhad and Hafid (2018) opined that house have a typical life-cycle from planning, design, implementation, operation and maintenance (O&M) phases. Throughout

this period, the house's performance is changed and quality is degraded such as structural members, components, elements and equipments and any building in the state of disrepair will not serve its intended purpose (Tayeh ., Hallaq and Sabha (2016). Maintenance involves every element of the house from foundation, walling, roofing, fixtures and fittings among others and involves both internal and external of the house. All elements of a house deteriorate at a greater or lesser rate depending on materials and methods of construction, duration of usage, environmental conditions and the use of the house.

Throughout the world, there is a universal shortage of decent and well-maintained dwelling units especially in the less developed countries. In Nigeria, rapid population growth and urbanization are creating escalating demands for added living spaces (Amuda and Adewoye, 2020) and there is a wide gap between housing needs and efforts to

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increase the number and quality of available units.

According to Enwin and Ikiriko (2023), there are several factors that cause the inadequacy of housing in the country among which is the high rate of unmaintained houses due to lack of maintenance culture. Nigeria population at the era of independence (1960) was 45,211,614 with a growth rate of 15.4%. In the year 2016, the population increased to 189,139,124 with an urban population of 49% (Awolola, 2014). The total land area of 910,802km² could not take care of the increase in population. The United Nations estimated that Nigeria's population in 2020 stands at 206.1 million, and predicted that it would reach 289 million by the year 2050. However, over 40% of Nigerians lived in urban areas, thus rapid growth in population creates demand pressure towards shelter (Eke et al, 2017). With the recession period Nigeria is experiencing, government is faced with the challenge of providing adequate housing for the masses especially for those in the urban areas. The Nigerian housing policy was basically aimed at providing affordable housing for Nigerians, but this has not been successful and there is the need to maintain the existing housing stock.

The purpose of maintenance is to ensure that the house performs the expected purpose all through its life cycle, and it does not only involve constructive issues; maintenance processes also impact directly legal, social, economic, cultural and environmental issues (Nour, 2003) It is a form of repair, and is different from renovation, remodeling, refurbishment or replacement. Sustainable housing maintenance as indicated by Wood (2005) is the maintenance management practice that considers both the sustainability of the building and the sustainability of the operations. Therefore, sustainable housing maintenance management is that which embraces all operational processes to enhance the physical, functional and economic value of the house harmoniously and will not infringe on the health, safety and comfort of any individual in the built environment.

Thus, the existing houses are ageing, and in many cases, there is the need to repair, so as to prolong the life span. In Nigeria, maintenance is often neglected in housing development. Research conducted by Cobbinah (2010) showed that over 80% of public residential buildings had maintenance problems and this is because, housing maintenance is not factored into housing production. According to Obeng-Odoom and Amedzro (2011), great emphasis is placed on the gap between housing demand and supply, but little attention is paid to the maintenance of existing housing stock, most especially housing facilities. Whereas, housing facilities are what make the house worth living. They are provided in the house for the comfort of the users in addition to the living spaces. Such facilities include toilet, bathroom, kitchen and laundry etc. Thus, this study examine the maintenance level of housing facilities and infrastructure in Ilorin, metropolis, Nigeria by considering the socio-economic characteristics and housing typology. This is with a view to improving the living standards of the houses. At the end, the paper makes suggestion towards improving the condition of the facilities in order to make the houses sustainable.

Methodology

Method of Collection of Data

Ilorin is the capital of Kwara state in the middle belt of Nigeria and the study was carried out in the metropolis. Ilorin is located on longitude 4° 27' 38.05" E, 4° 39' 15.11" E, and latitude 8° 23' 05.57"N, 8° 34' 09.39"N. It has a population of 908,490 as at 2011 making it the 13th largest city in Nigeria with a land area of 765 km sq. and density of 1,188/km square (Odujio, Oladimeji and Okanlawon, 2015). The metropolis has three local government areas which are Ilorin east, Ilorin west and Ilorin south (Figure1). Thus, all mass housing schemes in the metropolis constituted the sample frame for the study. The mass housing schemes or estates were provided by the Federal government of Nigeria, Kwara state government, organized private sector and public-private-partnership. The mass housing schemes were chosen premised on the fact that huge sum of money was expended on the estates to ensure their sustainability, thus, the true condition of the housing facilities will be exhibited.

The study adopted quantitative research design and both primary and secondary data were utilised. Primary data collection involved first – hand information on the problem from the field through the use of structured questionnaire in order to provide comprehensive explanation of the subject of investigation thereby increasing trust in the validity of the research findings and conclusion. However, direct observation of the selected mass housing schemes by the researchers was used to derive data on the physical characteristics of the houses.

Secondary data were obtained from archival sources and include the population of houses in the estates. The population of the houses of the Federal and state governments as well as Private- Public- Partnership (PPP) were collected from Kwara State Housing Corporation, while reconnaissance survey was undertaken to obtain that of the private sectors. Also, land use map of the Metropolis was obtained from the State Urban Planning and Physical Development office in Ilorin as well as images from GIS laboratory, Urban and Regional Planning Department LAUTECH, Ogbomoso. In addition, published and unpublished materials in books, journals, encyclopedias, magazines, research works, conference or seminar and working papers, were reviewed to serve as basis for the study.

Multistage sampling technique was adopted. The technique of multistage sampling involves the division of a population into groups and subgroups, while the selection of the sample of the population is based on their location characteristics and not necessarily on their social characteristics (Okoko, 2001). Hence, the first stage was the stratification of the metropolis into local government areas: these are Ilorin West, Ilorin South and Ilorin East. The second stage involved the identification of mass housing schemes in each local government area (Figure 2).

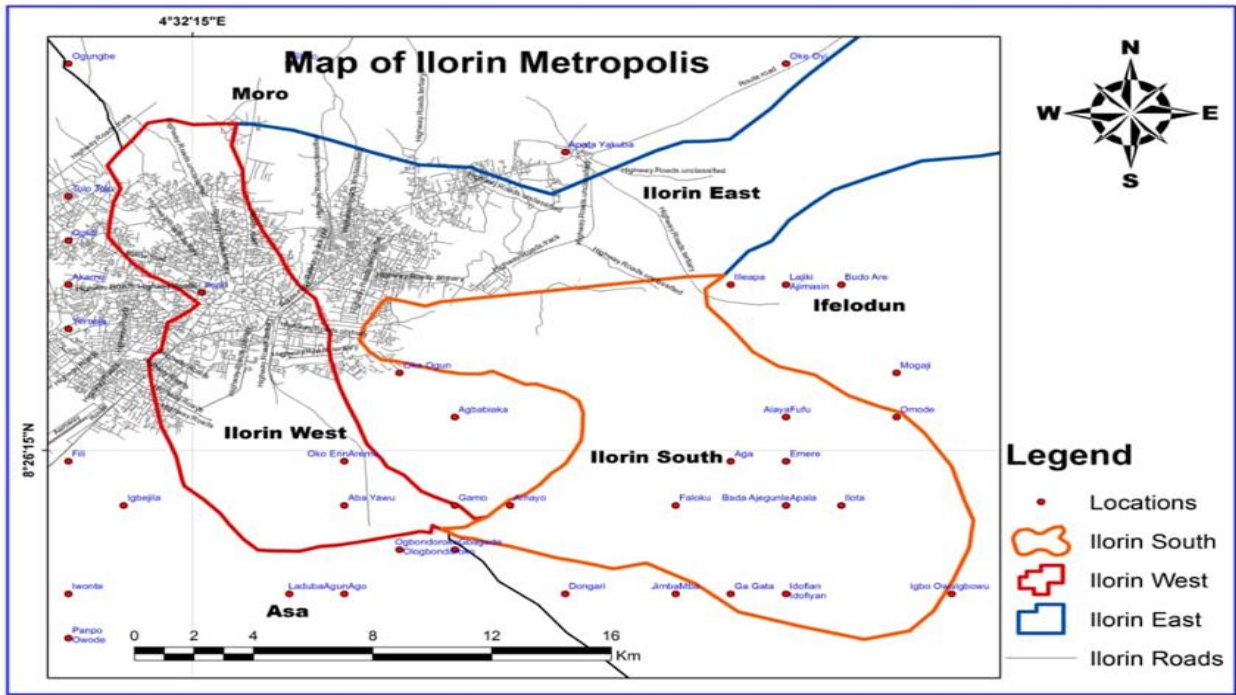


Figure 1. Map of Ilorin Metropolis
 Source: GIS Laboratory, Urban and Regional Planning Department, (LAUTECH 2021)

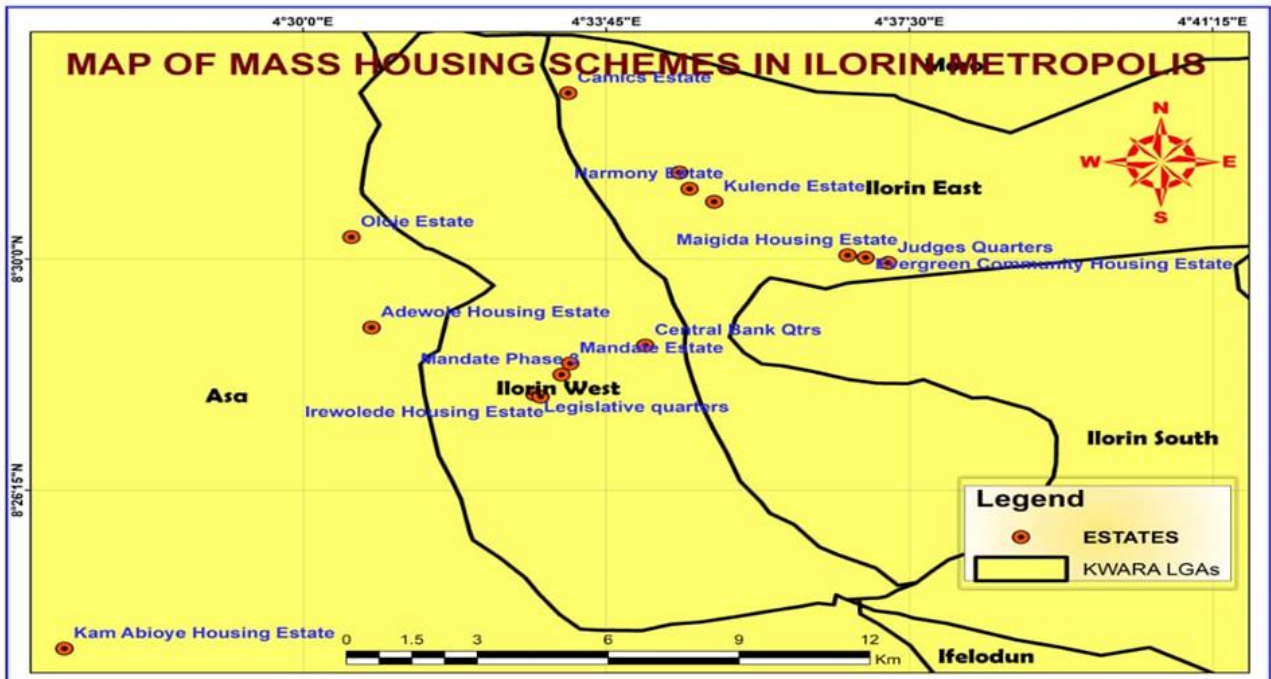


Figure 2. Mass Housing Schemes in Ilorin metropolis
 Source: GIS Laboratory, Urban and Regional Planning Department, (LAUTECH 2021)

In the third stage, information was collected on the details of the mass housing schemes from the PPP and the private sector because data on public housing in the city available with Kwara State Housing Corporation did not include the following which are crucial to the study: number of each type of housing budgeted in the estates; number of each type of unit already constructed in the estates as well as number of each type of unit already sold and occupied. Kwara State Housing Corporation has the required data for their estates and that of the Federal government, while reconnaissance survey was carried out to ascertain that of

PPP and Private sector. This is to ensure that samples taken for the study for the administration of questionnaire is within houses already constructed and sold/occupied since some of the estates are not yet fully completed for occupation. In the last stage, the sample size was selected. To have a good representation of each of the housing delivery strategy, twenty-seven per cent (27%) of the houses were randomly sampled from the sample frame leading to a total of 1,125 samples for consideration. Thus, the number of samples taken from each of the delivery types is as shown in Table 1 below

Table 1: Samples from each Housing Delivery Strategy

Developer/Owner	Total No of Units Sold	Total No of Samples (27%)
Federal Government	1,022	276
State Government	2,294	619
Public-Private Partnership	750	203
Organized Private	100	27
Total	4,166	1125

Source: Authors' field survey (2022)

A questionnaire containing structured questions was administered to household heads or the representatives of the selected houses and research assistants were engaged to assist in their administration. To ensure that the samples selected are representative of the population from which they are drawn, Equal Probability of Selection Method (EPSEM) was applied. The twenty-seven per cent sample from each of the housing delivery strategies was applied to the different house types in each estate or mass housing

scheme. A sample was then randomly taken by drawing papers scripted with the number of houses contained in hats for each house type and in each housing delivery strategy. Thereafter, others were systematically selected at an interval of one after the other. Thus, the breakdown of the samples from each house type was 271, 923, 454, 146 and 4 houses in the 1, 2, 3, 4, 5-bedroom types of houses respectively (Table 2).

Table 2: House Type sampled from each Housing delivery strategy

No of Bedroom	State Govt.		PPP		Private Developer		Federal Govt.		Total	
	100%	27%	100%	27%	100%	27%	100%	27%	100%	27%
1	182	49					375	101	557	150
2	941	254	472	127	74	20	580	157	2067	558
3	909	245	221	60	17	4	67	18	1214	327
4	257	69	55	15	8	2			320	86
5	5	2	2	1	1	1			8	4
Total	2294	619	750	203	100	27	1022	276	4166	1125

Source: Authors' Compilation (2022)

Method of data Analysis

Data collected for the study were analysed with descriptive and inferential statistical analyses. Descriptive statistics such as frequency counts and percentages were adopted, while Likert scale was used to weigh the degree of condition of the housing facilities since the condition of the housing facilities shows their level of maintenance. This is done by attaching values of weight to different degree of responses as shown: Very good (5), Good (4), Fair (3), Poor (2) and Very poor (1).

The SWV (Summation Weight Value) was obtained by summing up the product of the total numbers of responses to each variable and the weight attached to each rating i.e. (a x 5) + (b x 4) + (c x 3) + (d x 2) + (e x 1). The mean used in the course of computation was also obtained by summing up the SWV and dividing it with the total number of variables.

Results

Socioeconomic Characteristics of the Respondents

More than half (51.9%) of the respondents were males and 48.1% were females. However, 32.6% of the respondents were 51 years and above; followed by 41-50 years (28.5%), 31-40 years (20.4%), 21-30 years (16.5%) and below 20 years (2.0%). The bulk (78.4%) of the respondents were married; followed by the single respondents (14.3%), widow/widower (2.4%), divorced (1.4%) and separated (0.7%) (Table 3)

Those with no formal education accounted for 1.3%, primary education was 0.3%, while 7.6%, 9.9% and 81.0%

of respondents had modern/secondary education, NCE/OND and HND/1st degree/Postgraduate degree respectively. Almost three-tenths (27.7%) of the respondents were collecting above \$76 monthly, while the minimum salary of workers in the area was \$19-\$37.5 (3.2%). The largest household size was 4-6 persons (58.2%), followed closely by below 4 persons (24.1%) and 7-10 persons per house (12.4%) as shown in Table 3. A significant proportion (1.2%) of households had membership size of 11-13 persons and 14 persons and above (0.4%).

House Typology

More than four-fifths (80.6%) of the houses were flat type bungalow; followed by tenement bungalow (5.0%), flat type storey building (4.8%) and tenement storey building (3.8%). Duplex was 2.6%, while boys' quarter accounted for 0.7% (Table 4).

Maintenance Level of Housing Facilities

Security installation on window has the highest Mean Weighted Value (MWV) of 4.17; followed by Window (4.10), Door (4.09), Socket and fittings (4.03), Net (4.00), Electrical installation (3.96), Floor (3.82), Wall (3.78), Water pipes (3.69), Painting/tile (3.65), Ceiling (3.64), and Plumbing (3.06) (Table 5). The overall mean value of responses of maintenance level of housing facilities in the housing schemes of Ilorin metropolis as obtained from the respondents is 3.84.

Table 3: Socio-Economic Characteristics of Respondents

S/N	Variables	Percentage (%)
a.	<u>Gender</u>	
	i. Male	51.9
	ii. Female	48.1
b.	<u>Age (Years)</u>	
	i. <20	2.0
	ii. 21 – 30	16.5
	iii. 31 – 40	20.4
	iv. 41 – 50	28.5
	v. Above 51	32.6
c.	<u>Marital Status</u>	
	i. Married	78.4
	ii. Single	14.3
	iii. Widow/Widower	2.4
	iv. Divorced	1.4
	v. Separated	0.7
d.	<u>Educational Background</u>	
	i. No formal education	1.3
	ii. Primary education	0.3
	iii. Modern/secondary	7.6
	iv. NCE/OND	9.9
	v. HND/First degree/Postgraduate degree	81.0
e.	<u>Monthly Income</u>	
	i. > \$76	27.7
	ii. \$57 – \$74.5	11.0
	iii. \$38 – \$56.5	28.1
	iv. \$19 – \$37.5	3.2
	v. Missing values	30.0
f.	<u>Household size</u>	
	i. Below 4persons	24.1
	ii. 4 – 6 persons	58.2
	iii. 7 – 10 persons	12.4
	iv. 11 – 13 persons	1.2
	v. Above 14 persons	0.4

Source: Authors' field survey (2022)

Table 4: Type of Building

S/No	Building types in the Estates	Frequency (N)	Percentage (%)
1.	Tenement bungalow	52	5.0
2.	Tenement storey building	40	3.8
3.	Flat type bungalow	841	80.6
4.	Flat type storey building	50	4.8
5.	Duplex	27	2.6
6.	Boys' quarter	5	0.5
7.	Others	7	0.7
8.	Missing Values	21	2.0
	Total	1043	100.0

Source: Author's field survey (2022)

Table 5: Rating of Conditions of Housing Facilities

S/N	Element	Ranking					NR (f)	SWV	MWV	Rank
		5	4	3	2	1				
1	Wall	1365	1256	1137	114	0	1023	3872	3.78	8
2	Roof	1280	1236	852	334	0	1015	3702	3.65	10
3	Floor	1120	1764	909	68	0	1011	3861	3.82	7
4	Painting/Tile	1070	1568	720	320	4	1010	3682	3.65	10
5	Ceiling	945	1532	927	222	6	998	3632	3.64	11
6	Water Pipes	1015	1576	999	94	29	1006	3713	3.69	9
7	Electrical Installation	1440	2024	414	156	10	1020	4044	3.96	6
8	Plumbing	1055	1584	909	140	39	1019	3121	3.06	12
9	Door	1240	2508	345	28	2	1006	4123	4.09	3
10	Window	1200	2628	282	42	0	1012	4152	4.10	2
11	Net	1130	2516	333	94	4	1017	4077	4.00	5
12	Security installation on windows	1550	2156	402	34	4	1004	4182	4.17	1
13	Socket & Fittings	1635	1800	597	88	0	1020	4120	4.03	4

Mean of $\sum MWV/n = 3.84$

Source: Authors' field survey (2022)

Also, on the maintenance level of housing infrastructure, table 6 shows the maintenance level of infrastructure in the housing estates of Ilorin Metropolis. Likert scale was used to weigh the degree of maintenance level. This is done by attaching values of weight to different degree of responses as shown: Very satisfied (5) Satisfied (4) Fairly satisfied (3) Unsatisfied (2) Very unsatisfied at all (1). The SWV (Satisfaction Weight Value) was obtained by summing up the product of the total numbers of responses to each variable and the weight attached to each rating i.e. (a x 5) + (b x 4) + (c x 3) + (d x 2) + (e x 1). (a, b, c, d, e, represent total number of responses per variable).

NR (f) = Number of respondents (questionnaire) The mean used in the course of computation was also obtained by summing up the SWV and dividing it with the total number of variables. $SWV/NR(f) = \text{Maintenance Satisfactory Index}$ which represent MSI.

It is observed in table 6 that maintenance of Security/Police post has the highest Maintenance Satisfactory Index (MSI) of 4.650. This implies that Security/Police post is what resident satisfied with most in the housing estates of Ilorin Metropolis. The high level of satisfaction of residents with Security/Police post maintenance might not be unconnected with the issue of security which was earlier observed to be in good shape. Security/Police post is one of the infrastructures that can improve security. The Maintenance Satisfactory Index (MSI), as computed for residents' satisfaction with other housing infrastructure is outlined in decreasing order by open space which has mean weighted value of 4.383, Religion place (4.103); School (3.908); Day care centre (3.781); Community hall (3.608); Health centre (3.599), Shopping facilities (3.588); Electricity (3.549); and Parking facilities (3.510), indicating decreasing level of satisfaction with maintenance of infrastructure in the housing estates of Ilorin metropolis..

Meanwhile, the result of the findings on road, water, drainage and waste refuse maintenance with lowest MSI of 2.940. 2.948. 2. 965 and 3.254 respectively indicate that they were not well maintained this is also corroborated by the observation method as shown in plate 1 and plate 2 below.

Moreover, the overall mean value of responses of level of residents' satisfaction with maintenance of infrastructural facilities in the housing estates of Ilorin Metropolis as obtained from the respondents is 3.596. This shows that mean responses of the respondents were above average indicating that the level of residents' satisfaction with maintenance of housing infrastructure is fair. There is need for improvement the maintenance of housing infrastructural facilities in the housing estates of Ilorin Metropolis.

Institutional Management and maintenance of the housing facilities in Ilorin Metropolis

In this section of study, an appraisal of the institutional that involved in management and maintenance of housing facilities in the study area was carried out. Some of the issues analysed and discussed include the institution, agency or body saddled with the responsibility of managing the housing and undertaken the maintenance of infrastructures and other services such as cleanliness of streets, open spaces and disposal of refuse among others.

According to Table 7 below, 6.5%, 13.7% and 28.0% of respondents indicated that the groups that undertake the management and maintenance of housing facilities and infrastructures were Government, Estate Developers and Private sector respectively, while respondents who had Landlord association and other groups accounted for 45.5% and 6.3% respectively in the study area as shown in the table. It can be deduced that the highest proportion of respondents (45.5%) had Landlord association as the institutional management and also responsible for undertaken maintenance services of the housing facilities.



Plate 1: Road and drainage state of maintenance in Royal valley housing estate



Plate 2: Road and drainage state of maintenance in Royal valley housing estate

Table 6: Ratings of maintenance of Infrastructure in Ilorin Metropolis

S/N	Maintenance Rating of Neighbourhood Infrastructure	Ranking					NR (f)	SWV	MSI	Rank
		5	4	3	2	1				
1	Security/ Police Post maintenance	520	2020	765	150	93	972	4520	4.650	1
2	Open space maintenance	515	1216	756	282	26	826	3621	4.383	2
3	Religion Place maintenance	1350	2376	210	60	13	977	4009	4.103	3
4	School maintenance	920	2460	432	90	14	1002	3916	3.908	4
5	Day Care Centre maintenance	795	2264	519	120	10	978	3698	3.781	5
6	Community Hall maintenance	425	1892	477	176	25	830	2995	3.608	6
7	Health Centre / Clinic maintenance	470	1826	597	178	17	858	3088	3.599	7
8	Shopping Facilities maintenance	425	1552	795	68	27	799	2967	3.588	8
9	Electricity supply maintenance	1024	1480	753	368	10	1024	3635	3.549	9
10	Parking Facilities maintenance	515	1228	501	246	13	713	2503	3.510	10
11	ATM facilities maintenance	465	1036	423	182	27	611	2133	3.490	11
12	Recreation Centre maintenance	370	1144	345	194	31	603	2084	3.450	12
13	Fire service Station maintenance	420	1188	609	258	56	741	2531	3.415	13
14	Waste disposal maintenance	490	1440	852	478	30	1011	3290	3.254	14
15	Drainage maintenance	465	856	954	682	47	1013	3004	2.965	15
16	Water supply maintenance	790	1484	621	92	23	1021	3010	2.948	16
17	Road maintenance	355	976	870	716	44	1007	2961	2.940	17
Total									61.141	

Mean of $\sum MWV/n = 61.141/17 = 3.596$

Source: Author's Fieldwork, 2022

Table 7: Institutional Management and Maintenance of the Housing Facilities in Ilorin Metropolis

Institutions	Frequency	Percentage
Government	68	6.5%
Estate developers	143	13.7%
Private Sector/self help	292	28.0%
Landlord Association	474	45.5%
others	66	6.3%
Total	1043	100.0%

Source: Author's Fieldwork, 2022

Discussions

The socio-economic characteristics of respondents were assessed because they are germane to the study and go a long way in telling the background of the respondents. The socio-economic characteristics were observed to have profound influence on housing facilities maintenance in the area. There were more male respondents which should be expected as males are usually the head of the family in Yoruba land and Africa generally. The implication of the gender distribution is reflective of the socioeconomic and cultural characteristics of the Yoruba people where mostly, males are the stakeholders in housing maintenance. This therefore supports the submission of Odunjo (2014) that the bulk of a set of respondents in housing studies is male.

Majority of the respondents were adults and mature which made reliable information to be obtained from them regarding housing facilities maintenance in the area. They were also married and this confirms the submission of Barbara and Christine (1969), Odunjo and Okanlawon (2016), Statistics South Africa (2011), Odunjo (2014) as well as Odunjo, Okanlawon, Ayinla and Ayanda (2015) that the bulk of a set of population is married. The education of the people was largely high which is actually not unexpected taking into consideration the fact that the

residents of the city of Ilorin like any other cities are mostly elite. This is good as it enabled the respondents to position the existing situation of housing facilities maintenance in their respective schemes. However, the houses were mostly inhabited by the middle income workers, followed by high income workers and family size was small; Thus, there was the influence of family size on housing facilities maintenance.

Flat type bungalow was the dominant house type in the housing schemes and this supports the submission of Oladimeji, Abubakar-kamar, Odunjo and Adeoye (2024) that in Nigeria, people prefer flat type bungalow for privacy reason. Thus, the fact that most of the buildings in the study area are flat bungalow types supports the submission of Adeoye 2016 and Aribigbola 2011 that in Nigeria, people prefer flat type bungalow for privacy reason. High proportion of flat bungalow types was also an indication that large parcels of land are available for the estate developers at low- prices. This also corroborates the submission of Odunjo, Oladimeji and Okanlawon (2015) that land was not a major problem of housing in Ilorin metropolis.

Security installation on windows is what residents considered the housing facility that is in good condition in the housing schemes of Ilorin metropolis implying it has the highest level of maintenance this is in line with Sadique and Alam (2024) that security of life and property is very germane in provision of housing. Other housing facilities followed in decreasing order. The overall mean responses of the respondents were far more above average indicating that the maintenance level of the housing facilities were fairly good. This implies that housing facilities are fairly maintained in the metropolis.

Based on who is responsible for management and undertaken of the maintenance of neighbourhood infrastructure, the Landlord association is identified by the majority of residents as the one responsible and this is not surprising that there is inadequate maintenance in infrastructures such as road, drainage facilities and waste disposal.

Conclusion

This study has shown the maintenance level of the housing facilities in the housing schemes in Ilorin metropolis, Nigeria. It has discussed the socio – economic characteristics of residents as well as the dominant house types in the area. As exemplified in the study, security installation on window takes the lead in terms of maintenance level and is in good condition, while others follow in decreasing order. Generally, the mean responses

of the respondents were far more above average and it is concluded that the housing facilities in the schemes were in fair condition. Therefore, efforts must be strengthened to ensure that housing facilities are regularly maintained and put in good condition in the schemes of Ilorin metropolis.

Following the findings and discussion from the study, recommendations are proposed towards improving the living condition of the houses.

Mass housing scheme maintenance needs a balanced approach that looks beyond technological strategies. Massive awareness campaign needs to be mounted to make residents and the provider aware of how to take care of the houses and to achieve adequate and sustainable housing. It was observed that in the mass housing schemes sampled that maintenance problems have been influenced by lack or absence of a national mass housing maintenance policy just like we have national housing policy this help in preserving the existing mass housing schemes that serve as part of the solution to housing shortage

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Conflict of Interest

The authors confirm that there is no conflict of interest with the publication of this article.

References

- Adeoye D.O. (2016) Challenges of Urban Housing Quality: Insights and Experiences of Akure, Nigeria. *Procedia -Social and Behavioral Sciences volume 216*, 260 – 268 doi:10.1016/j.sbspro.2015.12.036
- Amuda A O, Adewoye MT (2020) Reinventing Mass Housing in Nigeria: A Theoretical Approach to Affordability, Quality and Availability. researchgate.
- Aribigbola, A. (2011) Housing Affordability as a Factor in the Creation of Sustainable Environment in Developing World: The Example of Akure, Nigeria. *Journal of Human Ecology*, 35, 121-131. <https://doi.org/10.1080/09709274.2011.11906397>
- Awolola JA (2014) Effects of Urbanization on Housing Characteristics in Ilorin Metropolis. Unpublished M.Tech. Thesis, Ladoke Akintola University of Technology, Ogbomoso, Nigeria. 29-32.
- Barbara HS, Christine HH (1969) Younger families in the rural fringe. *Journal of cooperative extension: spring*.
- Chew M, Conejos S, Azril F (2018) Design for maintainability of high-rise vertical green facades building research and information, 47(4), 453–467.
- Eke E. C., Musa S., Fashubaa T. O., Abass J. O. (2017) An Assessment of Maintenance Culture on Public Buildings in Nigeria (A Case Study of Osun State) *IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE)* e-ISSN: 2278-1684,p-ISSN: 2320-334X, Volume 14, Issue 5 Ver. III (Sep. - Oct. 2017), PP 53-57. www.iosrjournals.org
- Enwin, A. D., & Ikiriko, T. D. (2023). Understanding the Challenges of Affordable Housing Provision in Nigeria: An Analysis of Key Factors and Policy Implications. *European Journal of Theoretical and Applied Sciences*, 1(4), 420-436. <https://doi.org/10.59324/ejtas>. 2023.1(4).38
- Farzana, F., Mahmood, T. A., Biswas, M., & Islam, L. (2023). Assessment of Sustainable Housing Affordability: A Comparative Study between Two Planned Residential Areas of Khulna City. *Khulna University Studies*, 160–168. <https://doi.org/10.53808/KUS.2023.20.02.310-se>
- Cobbinah, P. J (2010) Maintenance of Buildings of Public Institutions in Ghana: Case Study of Selected Institutions in the Ashanti Region of Ghana. Doctoral Dissertation, Department of Planning, Kwame Nkrumah University of Science and Technology, Kumasi.
- Noor S O, Wadhah AH, Hafid, IN (2018). Development of Building Maintenance Management using Building Information Modeling. *International Journal of Civil Engineering* and Available online at <http://iaeme.com/Home/issue/IJCIET?Volume=9&Issue=11> ISSN Print: 0976-6308 and ISSN Online: 0976-6316
- Nour, AA (2003) Maintenance of Buildings: Guidelines for the Elaboration of a Maintenance System for Commercial and Residential Buildings. Specialization Monograph. Polytechnic School of the University of São Paulo, São Paulo.
- Obeng-Odoom, F, Amedzro L (2011) Inadequate housing in Ghana. *Urbanizziv*. 22 (1), 127-137.
- Odujoro, O.O. (2014). Housing Finance Strategies and Design Characteristics in the Urban Fringe of Ibadan, Nigeria.

- Unpublished Ph.D Thesis in the Department of Urban and Regional Planning. Ladoke Akintola University of Technology, Ogbomosho, Nigeria.
- Odunjo O.O. and Okanlawon S. A. (2016). Socio-Economic Correlates of Housing Finance Strategies in Ibandan, Southwest, Nigeria, *Procedia - Social and Behavioral Sciences*, Volume 216, Pages 295-305, ISSN 1877- 0428, <https://doi.org/10.1016/j.sbspro.2015.12.041>.
- Odunjo O.O., Okanlawon S. A, Ayinla A. K, and Ayanda O.O.L (2015). Socio–Economic Correlates of House Typology in Ibandan, South West, Nigeria. *Ibandan Planning Journal*, Department of Urban and Regional Planning, University of Ibandan, Ibandan. 105 – 124.
- Odunjo, O.O., Oladimeji, S.B. and Okanlawon, S.A. (2015). Public Acceptability of Burnt Brick for Mass Housing Projects in Ilorin, Nigeria. *Journal of Civil and Environmental Research*. USA. Vol. 7, No 3 Pp. 140-147.
- Okoko E. (2001) Quantitative techniques in urban analysis. kraft books limited, ibadan. 21.
- Olatubara C. O and Fatoye E. O (2006) Residential Satisfaction in Public Housing Estates in Kwara State, Nigeria. *Journal of The Nigerian Institute of Town Planners XIX*, (1), 103- 114.
- Sadique, M. F., & Alam, K. M. (2024). Enhancing Security Measures in Student Housing Through Advanced Access Control Systems. *Khulna University Studies*, 238–254. <https://doi.org/10.53808/KUS.2024.21.01.1106-se>
- Tayeh B.A., Hallaq K. A., and Sabha F. A (2016). Effects of Faulty Design Phase on School Buildings Maintenance in Gaza Strip. *American Journal of Civil Engineering and Architecture*. ; 4(6):199-210. doi:10.12691/ajcea-4-6-2.
- Statistics South Africa (2011). Gender Statistics in South Africa. .5.
- Wood B (2005). Towards Innovative Maintenance. *Structural Survey*. 23 (4), 291-297.