

# An Investigation of Building Maintenance Culture in Selected Residential Neighbourhoods in Ilesa, Osun State, Nigeria

Hezekiah Adedayo Ayoola

Department of Architecture, Federal University of Technology, Akure, Nigeria

## Abstract

The rapid pace of urbanization experienced in most Nigerian cities has contributed immensely to the quantitative and qualitative problem of housing. Most residential units either public or private are characterized by a poor state of maintenance and a major part needing various degrees of repairs. Two specific residential neighbourhoods in Ilesa were selected for the study, 455 questionnaires were successfully administered and analysed with descriptive analysis. The study was able to establish that maintenance culture was lacking among the residents, (20.2%) of the respondents adopts preventive building maintenance while the others performed corrective maintenance after the building has reached a state of failure. The maintenance of building was done majorly by homeowners (73.2%) and the tenants (20.7%), although the frequency of maintenance is poor. The study recommends that government should review its housing maintenance policy to ensure effective housing maintenance.

**Keywords:** Residential building, maintenance, culture, infrastructure

## 1.0 INTRODUCTION:

Most Nigerian cities have witnessed rapid urbanization without an increase in housing and infrastructural development. The economies of most developing nations have been bedeviled by unplanned urbanization, which often leads to problems in housing, which are manifested in two major ways: qualitative and quantitative. The quality of housing does not meet standards expected of good or standard housing, in terms of number of persons per unit, and inadequate accompanying infrastructure such as roads, drainages, water supply, refuse and sewage disposal. Most private and public residential buildings are under maintained with a substantial stock in danger of deteriorating beyond the point of economic repairs.

Infrastructural development is the basis and bedrock of any development effort in the world today. It is important to stress that, it is not enough for facilities of development to be put in place; it is more than enough for those facilities to be adequately and properly maintained so that the purpose for which they are meant would be accomplished (Adedokun, 2011). It is also clear that the total supply of building is inelastic in the long-run and the only way to sustain the stock of housing at a particular period is through management and maintenance of the existing housing stock (Adenuga, Olufowobi and Raheem, 2010).

Historically, in both public and private sectors, maintenance was seen by many as an avoidable task, which was perceived as adding little to the quality of the working environment, and expending scarce resources that could be better placed (Higher Education Backlog Maintenance Review, 1998). To this extent, facilities that were meant to benefit the masses are just rotting away, being wasted without being put in good use owing that, people are not interested in making facilities sustainable. The result therefore, is that public facilities do not last long due to lack of maintenance. This shows that without a strong maintenance culture, infrastructural development will amount to nothing (Adedokun, 2011).

From the forgoing, it is well enunciated why the adoption of a maintenance culture or way of life should not be made with much lingering fuss; it should indeed be accepted with open arms. The Royal Institute of Chartered Surveyors (RICS) working committee defined maintenance as “work undertaken in order to keep, restore or improve every facility, to an acceptable standard and sustain the utility and value of the facility”. This is proactive maintenance. Fifty years ago, the challenge was to get people to identify and care about historic buildings, twenty five years ago, the challenge was to avert redevelopment. Today, the challenge is to stop the unnecessary loss of historic buildings through neglect (Institute of Historic Building Conservation, 2000).

This study will go a long way to review some related works on Maintenance Culture, and also to investigate the extent to which maintenance culture influenced maintenance of public buildings. Issues of maintenance culture have been relegated to the background for so long a time in Nigeria. There has been total abandonment on this very important aspect of development, by both individuals and government. This neglect, has therefore rendered existing structures in a very poor and deplorable conditions of structural and decorative disrepair, then by implication, it generally results to an eyesore of the broad scenery. Since, this aspect of development (housing) is very significant in any setting, there is therefore the urgent need to establish and evaluate, if the adoption of maintenance culture can actually have any significant effect(s) on our physical development.

## 2. Literature Review

The concept of maintenance

A cursory look into several works on maintenance in multi-faceted fields or dimensions reveals several intellectual

expositions of the word “Maintenance” both in a subjective and most importantly objective view point. Ajibola (2009) defined maintenance as “the work that is done regularly to keep a machine, building or a piece of equipment in good condition”. He expatiated further that maintenance is a combination of actions earned out to retain an item in or to restore the item to an acceptable condition”. Adeleye (2009) sees maintenance as involving keeping equipment and mechanized infrastructure in operational conditions for continual use. The word maintenance to Eli et al (2006) means preserving and keeping in good order as near as possible in their original state. By implication, maintenance means keeping in good order and shape, all projects of development that are of benefit to the people (Adedokun, 2011). Maintenance as defined by Federal Ministry of Works and Housing (FMW&H) in the central bank of Nigeria document, 2003) is a means of correcting deficiencies that have developed as a result of age and use. The RICS/ISVA working committee defined maintenance as “Work undertaken in order to keep, restore or improve every facility, to an acceptable standard and to sustain the utility and value of the facility”. This they tagged as “Proactive Maintenance”.

The word maintenance is a noun derived from the verb “to maintain” that mean process of keeping something in good condition (Telang and Telang, 2010). The process of maintenance is involved task or activities to restore the equipments in its normal operating condition, at minimum cost throughout their life cycle. According to British Standard 3811:1984, maintenance is defined as a combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or to restore it to a state in which it can perform the required function. A combination of any action consisted of technical, administrative and managerial that cooperates with each other in maintenance work. While ‘to retain’ and ‘to restore’ this item is a process of work carried out in anticipation of failure (retain) and work carried out after failure (restore) (Wordsworth, 2001; Chang 2010). Meanwhile, the required function or acceptable condition is referred to the acceptability of the person who is paying the work to the person receiving benefit or to some outside body with responsibility for enforcing minimum standards (Wordsworth, 2001). In other words, maintenance is defined as an action carry out by a group of person to protect, preserve and maintain the systems, equipment and structures to ensure the asset is capability to function effectively.

### **Housing Maintenance**

On this aspect of the review; the concept of housing and maintenance already dealt upon will be synthesized, in other to give a clear and synchronized understanding on what the concept of housing maintenance is all about. Maintenance by The RICS/ISVA working committee is defined as “Work undertaken in order to keep, restore or improve every facility, to an acceptable standard and to sustain the utility and value of the facility”. This they tagged as “Proactive Maintenance”. Therefore, Housing Maintenance is the work undertaken in order to keep, restore or improve the standard and to sustain the utility and value of a housing system. Harrison (1990), states that building maintenance is important in preserving and enhancing standards of appearance and hygiene, preventing deterioration of fabric and ensuring efficient operation of buildings. Building Maintenance aims at ensuring a systematic approach in the overall asset management while serving three major roles which include functional, aesthetic and financial roles (Miles and Syagga, 1987). The functional role help retains the property within reasonable standards of the user, while the aesthetic focus on its appearance in relation to surrounding environment and the financial role ensures that value of assets is enhanced.

Gahlot, (2006) notes that the process of deterioration of buildings is complex and may set in due to a combination of factors such as human aspects, chemical factors, faulty designs, inappropriate cleaning, and misuse of building and faulty system of maintenance among others. This then calls for early planning, maintenance consideration from the design stage, selection of most appropriate materials and fabric and a regular maintenance programme to maximize the economic life of buildings. This strategy will further enhance that housing maintenance is cost effective. Eilenberge (1990) in his own opinion pointed out that with increase in size of buildings and need for longer economic life, there’s need that buildings be maintained in an optimum condition.

The primary initiators of maintenance, according to Waithanji (1995), should be owners and or occupiers or users of the building facility, other parties such as inspectors, insurance companies, employees, or members of the public may also influence how maintenance is undertaken. She however further suggested that maintenance of buildings should be planned for and catered for in any tenancy agreements, while clearly outlining the party responsible for the maintenance, the areas as well as the scope of maintenance. Oladapo (2006) also establishes that tenants have a very high stake in the maintenance of their houses, and in determining the value and level of satisfaction they receive. She further contributed that the primary initiators of maintenance action are the building owner and/or tenants, and together with other actors influence the amount of maintenance work undertaken.

Syagga and Aligula (1993) therefore recommended that an appropriate maintenance policy with an appropriate legal backup; establishment of information systems to collect and store information; creation of efficient finance mechanisms for building maintenance of both public and private home owners thru cross-subsidies between high and low income housing; supervision of contractors to maintain and improve standards of workmanship; education of tenants on their roles in maintenance of built assets; education of citizens on the

environmental conscious of their living environment and inculcation of concept of duty of care in handling built assets.

#### CLASSIFICATION OF MAINTENANCE:

According to Wong, 1998, maintenance is categorized or classified as thus;

- **Routine Inspection and Overhauling:** This entails the day-to-day maintenance of a facility in a bid to evolve preventive maintenance practice.
- **Repair:** Has to do with the rectification of a system due to wear and tear by alleviating deterioration of the facilities and restoring their performance.
- **Replacement:** adding refurbishment elements in order to heighten the property value.

Again, the British standard (BS3811), classified maintenance in this manner,

- **Planned Maintenance:** Maintenance organized and carried out with fore thought, control and the use of records to a predetermined plan. The plan should be comprehensive and systematic encompassing both short and medium term considerations. The program should be based on sound knowledge of the building with regards to: The life of the building, the standard to be achieved, the financial implications and the responsibility for maintenance.
- **Unplanned Maintenance:** Maintenance carried out to no predetermined plan. It refers to work necessitated by unforeseen breakdowns or damages, for example repairing of a ripped off roof after a torrent rainfall.
- **Preventive Maintenance:** Maintenance carried out at predetermined intervals or corresponding to prescribed criteria and intends to reduce the probability of failure in a building.
- **Corrective Maintenance:** Maintenance carried out after a failure has occurred and is intended to restore the facility to a state in which it can best perform its required functions.
- **Emergency Maintenance:** This is maintenance which is necessary to be affected immediately to avoid serious consequences.
- **Conditioned- based Maintenance:** The preventive maintenance initiated as a result of knowledge of the condition of an item from routine or continuous monitoring.
- **Scheduled maintenance:** The preventive maintenance carried out to a predetermined interval of time, number of operations, seasons, e.t.c.
- **Running Maintenance:** This is maintenance which can be carried out whilst an item is being used such as the day-to-day cleaning of the building.
- **Shutdown Maintenance:** This refers to maintenance which can only be carried out after the building is evacuated or out of service.
- **Deferred Maintenance:** These are maintenance works which have been identified as necessary but put off due to lack of funds.

### Methodology

#### 3. Methodology

The study employed the survey method. Data was collected from primary source using structured questionnaires which had closed ended. The questionnaire consists of two parts. Part A deals with the socio-economic characteristics of the respondents while Part B deals with the respondents' perception of building maintenance. The purposive sampling method was adopted to select two residential neighbourhoods for this study. The selected neighbourhoods are Imo quarters and Isokun- Ibalala area of Ilesa, Osun-State. This neighbourhood was selected to have a fair representation of both new and old buildings. To select the respondents, the systematic sampling technique was used. On the main street in each street, the first house was randomly chosen, with subsequent units at an interval of every other building. The total number of estimated houses selected from both wards was four hundred and ninety two (492) houses; one household head each was interviewed. A total of four hundred and fifty five (455) questionnaires were returned and subjected to various statistical analyses.

#### 4. Result and Discussions

##### Socio-economic characteristics of the respondents

Out of the 455 respondents interviewed (Table 1), more than half (62.2%) were males while the other (37.8%) were females. Also, each active age bracket was well represented. Majority of the respondents (45.3%) belong to the very active age bracket of 20-40 and age 40-50 (30.3%), this group accounted for the adult and most economically active group. Majority of the respondents are graduates and fully employed. The income situation of most of the respondents is however encouraging as about half of the household heads earned above ₦ 100,000 per month (far above the national minimum wage of ₦18,000 per month approved by the federal government of Nigeria for the least paid civil servant), The neighbourhoods are dominated by rentals (45.5%) and home owners

(46.2%).

### **Initiator of Building Maintenance**

The result of findings (Table 2) revealed that, 73.2% of the houses are maintained by their owners while (20.7%) of the houses have their maintenance done by the tenant. Only a few of the buildings (3.3%) are jointly maintained by the owners and the tenant. The result confirms the opinion of Oladapo (2006) that maintenance of buildings is a duty of both the owners and the rentals.

### **Frequency of maintenance of the buildings**

The result of findings (Table 3) on frequency of maintenance work carried out on buildings reveals that majority of the respondents (50.5%) rarely carry out any maintenance work on their buildings while a very low percentage (2.6%) of the respondents carry out maintenance work on their buildings often. The result therefore confirms that respondents do not consider routine maintenance as a means of keeping their buildings in good condition. This has resulted in deterioration of surrounding buildings and services due to lack of maintenance and unattended wear and tear caused by negligence. The results obtained showed that the houses lacked frequent maintenance operations.

### **Willingness to carry out maintenance work on the buildings**

Results of findings (Table 4) indicates that majority of the respondents (64.3%) are very willing to embark on the maintenance of their buildings while (9%) of the respondents are not willing to maintain their buildings. Further analysis showed that (72%) of the respondents will not maintain their buildings due to lack of funds.

### **Types of maintenance performed on buildings**

The result of findings (Table 5) reveals that majority of the respondent's preferred corrective maintenance (36%) and unplanned maintenance (28.4%) to routine or planned maintenance. Only a few percentage of the respondents (14.9%) adopted planned maintenance and preventive maintenance (20.7%). The result further indicates that the respondents lacked maintenance culture and will not consider maintaining their buildings until it gets to a state of disrepairs or when failure has occurred.

### **Physical condition of the house**

The result of finding on the structural condition of buildings (Table 6) in the residential neighbourhoods indicated that majority of the buildings are in poor state, as only (13.0%) of the buildings are in a physically sound state while (4%) of the buildings are old and dilapidated. A greater percentage of the houses require major or minor repairs to put them into a sound condition. In accessing the condition of the buildings due consideration was given to the physical state of the roofs, walls floors, foundation and other building elements. The result however, indicated that majority of the buildings (53%) requires minor repairs to bring them to a physically sound state while (30.1%) of the buildings needs major repairs.

### **Schedule of repairs on the buildings.**

The result of schedule of building components needing immediate repairs in each of the residential housing units investigated shows (44.1%) of the buildings needs immediate repairs on the non-structural components of the buildings (doors, windows, ceiling, wardrobes etc.) while (32.1%) of the houses needs repair on the mechanical and electrical components. Structural defects that need immediate repairs were found in (23.3%) of the houses in the neighbourhoods. The result indicates that virtually all the residential buildings needs one form of repairs to be performed on them to restore them to a sound state.

### **Respondent satisfaction with the residential units**

The results obtained (Table 8) shows that a majority of 53.6% indicated that houses in their neighbourhood were not frequently maintained and are not in good order. However, 26.3% of the respondents indicated that the houses in their neighbourhood are fairly maintained and remain in good order. The least, (19.9%) of the total respondents strongly indicated that the houses were maintained and in good order. Based on these views, one can conclude that houses are not frequently maintained and are not always in good order. The culture of maintenance is missing in the neighbourhoods.

### **Summary and conclusion**

This study investigates building maintenance culture in selected residential neighbourhoods in Ilesa, Nigeria with a view to improving neighbourhood physical characteristics. Result of findings shows that building maintenance are done by both home owners and rentals in the selected neighbourhood, (73.2%) of the houses are maintained by their owners while (20.7%) of the houses have their maintenance done by the tenant. About (50.5%) of the buildings rarely have any maintenance worked carried on them while (2.6%) of the respondents often have repair

work performed on their buildings. Unplanned maintenance and corrective maintenance are the preferred method of maintenance adopted in the neighbourhoods with (20.2%) of the respondents embrace preventive building maintenance. The majority of residents in the neighbourhood (53.6%) agreed that their buildings are not usually maintained and therefore in bad state. A high percentage of the buildings (53%) requires minor repairs while (30.1%) of the houses requires major repairs. However, majority of the respondents (64.3%) are aware of the needs to regularly maintain their buildings.

The study therefore concludes that maintenance culture is very poor among the residents in the selected residential neighbourhood in Ilesa and this is evident on the poor state of the buildings. The study confirmed that buildings are not maintained until they show signs of failure; In order to increase the life span of buildings, there is the need for regular building maintenance. The findings confirmed Eilenberge, (1990) whose findings shows that delay and negligence in attending to building maintenance further contributes to the deterioration of buildings.

This study thus deduced from the above findings and concluded that the housing maintenance function was not accorded the priority and seriousness it deserved. The Government should come up with standards and enforce that all buildings are well maintained not only to improve the urban aesthetics but also to improve the well being of the users. Preventive maintenance of buildings should be encouraged to avoid building failure.

### References

- Adedokun, M.O. (2011). Education for maintenance culture in Nigeria: Implications for community development. *International Journal of Sociology and Anthropology* 3(8), pp.290-294
- Adeleye S.I. (2009) "Maintenance Practice in Nigeria, Policy, Budgeting and Legislative Issues". A paper presented at "Sensitization Campaign on Maintenance Culture. Organized by National Orientation Agency, Oyo State Directorate, Ibadan
- Adenuga, O. A., Olufowobi, M. B., and Raheem, A. A. (2010). Effective Maintenance Policy as a Tool for Sustaining Housing Stock in Downturn Economy. *Journal of Building Performance*, 1(1), 93-109.
- Ajibola, J.K. (2009). Maintenance Culture in Nigeria: Problems and Challenges. A paper presented at "Sensitization Campaign on Maintenance Culture. Organized by National Orientation Agency, Oyo State Directorate, Ibadan
- British Standards Institutions, BS 3811: 1984. Glossary of Maintenance Management Terms in Terotechnology.
- Oladapo. A. A. (2006). A study of tenant maintenance awareness, responsibility and satisfaction in institutional housing in Nigeria. *International journal of strategic property management*.
- Eilenberg, I.M, (1990). *Diagnosis of Building defects- discovery in time saves dollars. Building maintenance and modernization worldwide*, Volume 2
- Gahlot, P. S. (2006). *Building repair and maintenance management*, 1st edition, New Delhi: CBS Publishers.
- Harrison, J. D. (1990). *Maintenance as an aspect of Architecture design. Building Maintenance and modernization worldwide*. Volume II, Singapore: National University of Singapore.
- Lee, R. (1987). *Building maintenance management*, 3rd edition, Great Britain: William Collins sons
- Syagga, P. M and Aligula, E. M. (1993). *Maintenance of Urban Residential Property in Kenya*. Nairobi: University of Nairobi.
- Wordsworth, P. (2001), Lee's Building Maintenance Management, 4<sup>th</sup> ed., Blackwell, Oxford.

**Table 1: Socio-economic characteristics of the respondents**

Variable	Characteristics	Frequency	%	Total
<b>Gender</b>	Male	283	62.2	455
	Female	172	37.8	
<b>Age</b>	20 – 40	206	45.3	455
	41 – 50	138	30.3	
	51 – 60	65	14.3	
	61 – 70	34	7.5	
	Above 70	12	2.6	
<b>Education</b>	No formal education	3	.7	455
	Primary	5	1.1	
	WASC / NECO / O Level	29	6.4	
	OND / NCE / A' LEVEL	37	8.1	
	HND / BSc	234	51.4	
	Masters	126	27.7	
<b>Income</b>	Doctorate	21	4.6	455
	Below N50,000	101	22.2	
	N50, 000 - N99, 999	128	28.1	
	N100, 000 - N149,999	63	13.8	
	N150,000 - N199,999	41	9.0	
	N200,000 - N249,999	50	11.0	
<b>Tenure status</b>	N250,000 and above	72	15.8	455
	Rentals	207	45.5	
	Owner occupied	210	46.2	
	Inherited	3	.7	
	Family house	24	5.3	
	Employer's Quarters	11	2.4	455

**Table 2: Participant of building maintenance**

Agent of Maintenance	Frequency	Percent
<b>The Tenant</b>	94	20.7
<b>Landlord</b>	333	73.2
<b>Landlord and tenant</b>	15	3.3
<b>Estate Agent</b>	13	2.9
<b>Total</b>	455	100.0

**Table 3: Frequency of building maintenance**

	Frequency	Percent
<b>Often</b>	12	2.6
<b>Sometimes</b>	29	6.4
<b>Never</b>	63	13.8
<b>Rarely</b>	230	50.5
<b>Don't know</b>	121	26.6
<b>Total</b>	455	100.0

**Table 4: Willingness to maintain buildings**

	Frequency	Percent
<b>Very unwilling</b>	12	2.6
<b>Not willing</b>	29	6.4
<b>Fairly Willing</b>	63	13.8
<b>Willing</b>	230	50.5
<b>Very willing</b>	121	26.6
<b>Total</b>	455	100.0

**Table 5: Types of maintenance**

Types	Frequency	Percent
Preventive maintenance	94	20.7
Unplanned maintenance	129	28.4
Planned maintenance	68	14.9
Corrective maintenance	164	36.0
<b>Total</b>	<b>455</b>	<b>100.0</b>

**Table 6: Physical condition of the house.**

House condition	Frequency	Percent
Dilapidated	18	4.0
Need major repairs	137	30.1
Need minor repairs	241	53.0
Physically sound	59	13.0
<b>Total</b>	<b>455</b>	<b>100.0</b>

**Table 7: Schedule of repairs**

Building components	Frequency	Percent
Non- Structural defects (doors, windows, ceiling)	199	44.1
Mechanical& Electrical defects (Plumbing, electrical installations)	145	32.1
Structural defects (walls, roof, floor, foundation)	106	23.3
NO RESPONSE	5	1.0
<b>Total</b>	<b>455</b>	<b>100.0</b>

**Table 8: The houses in my neighbourhood are well maintained and in good order**

	Frequency	Percent
<b>STRONGLY DISAGREE</b>	103	19.2
<b>DISAGREE</b>	183	34.4
<b>NEUTRAL</b>	140	26.3
<b>AGREE</b>	106	19.9
<b>Total</b>	<b>532</b>	<b>100.0</b>