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An Assessment of the Effectiveness of Maintenance Strategy in Housing Estates in Gusau, Zamfara State, Nigeria

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Abstract
This paper examines the effectiveness of the adopted maintenance strategy in Igala and General Abdulsalam Housing Estates in Gusau, Zamfara state of Nigeria. The study reviewed existing works on Maintenance and utilized a structured questionnaire, which was administered on the residents of the two (2) housing estates, built by the state government and given out on owner occupier basis. Data analysis shows that out of the three (3) strategies mapped out for consideration in the estates, 61.5% of the respondents went with corrective maintenance strategy. The results further revealed that 38.4% of the respondents maintained their buildings whenever fault is detected. And also about 59.6% of the respondents used more that N53, 000 on maintenance of their buildings on yearly basis; hence the level of maintenance was high with 38.5% when compared with the percentages of the other variables. This paper concluded that the corrective maintenance strategy was effective but requires more augmentation.
Keywords: Assessment, Effectiveness, Maintenance Strategy, Housing Estates.

1. Introduction:

The Purpose of any building is to provide shelter for the performance of human activities. From the time of the cave dwellers to the present, one of the first needs of man has been a shelter from the elements (Encyclopedia Americana International Edition). Every Society is faced with this problem of producing human habitation, more or less in sufficient quantity, and obtaining the kind and quality desired, at prices that individuals and families can afford. Beginning from the 19th Century, governments have become increasingly aware of the importance of housing to the general well- being. In the 20th Century, as the pressure of population increases in urban and industrial areas, governments have played larger roles in attacking these problems. A rapid increase in population results in a housing shortage and in a rise in price of housing. Increasing prices place a heavy burden on the lower income groups, who are forced to live under crowded conditions in inferior dwellings, which are poorly maintained, with no sanitary facilities, light, air, quiet and privacy. When such conditions are pervasive in cities, they constitute slums and blighted areas, affecting the community as a whole. Here are concentrated the poor, the unemployed, the destitute, and the racial and religious minorities. Such areas are characterized by high death, and sickness rates, high incidence of Juvenile delinquency and crime, high city service costs, and low tax collections. The economy of the area is blighted. Population congestion may also create traffic congestion, affecting communications within the city. The segregation of disadvantaged groups into an inferior physical environment fosters an attitude of separateness from the rest of the community. The housing problem is the complex of all these economic, physical, social and community problems. The problem of housing exists in countries throughout the world. In many countries a keen awareness of its gravity and dimensions has arisen, and some determination to attack its many aspects has become manifest, hence the construction of Housing Estates by the different governments, both at Federal and State level of which Zamfara State, Nigeria is not left out. As a result of the trend in the construction of these Housing Estates, more maintenance work is required, to cope with the construction trend. Due to the growth of housing estates with lack of building standards, more maintenance, rehabilitation, and renovation work have become necessary to ensure the serviceability and safety of these constructed estate houses. Generally, maintenance of these estate buildings received little attention from the users, designers and contractors. The users do not always make use of the property and the services in good condition, often users do not obey the information contained in the maintenance manual of the building in places where it is available. Most property owners sometimes endeavour to keep maintenance expenditure to the least, eliminating the consequence of the long term effect of such action. On the part of the designers they may forget the durability of the materials and its serviceability before including them in their designs (Adejimi, 2005). While the builders or contractors prefer new projects rather than maintenance jobs. The attitude of city landlords is totally negative towards maintenance. The city dwellers see the city as no man's land and therefore remain totally indifferent to the unappealing scenes of our dear environment. It is against this backdrop that this study attempts to assess the effectiveness of the maintenance strategy adopted in maintaining the existing housing estates in Zamfara State more especially in General Abdulsalam and Igala Housing estates respectively and possibly profer a better maintenance and more inclusive strategy option.

2. Statement of Research Problem:

The main purpose of maintenance of property is essentially to retain its values for investment, aesthetic, safety, durability, with a view to ensuring that the property is continually in good condition for habitation and to the satisfaction of the owner(s)/users and communal prestige (Brennan, 2000). However, despite the various strategies been adopted by the beneficiaries of the Estates in Gusau since they were built in 1997 onwards, there had been some elements of neglect and poor maintenance culture which has manifested in various degrees in the estates. In order to ensure an effective good maintenance practice option for the estates in general, knowledge of effectiveness of the strategies adopted in the past is very pertinent, hence, this study.

3. Literature Review

3.1 The Concept of Building Maintenance:

Building maintenance is an important aspect of construction project management. It is so important that, reduction in resources applied to building maintenance will have a visible effect on the economy. Maintenance assists retaining economic life of buildings. Moreover, it is an activity that requires high level of productivity at the private and national levels. At the private level, proper maintenance leads to lower depreciation costs (due to longer economic life) and consequently leads to higher profitability. While at the national level, proper maintenance leads to lower expenditures on replacement. Thus allowing more expenditure on expansion into new productive investment. The Committee on Building Maintenance in Britain defined maintenance as: "the work undertaken in order to keep, restore or improve every facility, i.e. every part of a building, its services and surrounds to a currently acceptable standard and to sustain the utility and value of building. In addition, maintenance is defined in the British standards (BS3811:1974) as: "A combination of any action carried out to retain an item in, or restore it to an acceptable condition". A more functional definition is that maintenance is synonymous with controlling the condition of a building so that its pattern lies within specified regions (Fagbenle, 1998). Moreover building maintenance cost can be defined as the cost of any actions carried out to retain an item in, or restore it to an acceptable condition but excluding any improvements other than those necessitated by inability to replace obsolete materials or components.(Stephen, 2002, Kwang, 2005). The maintenance management sector in Nigeria's Public section has suffered from lack of funds for a period of time while the requirements for good practice in maintenance of building stock have been established over a considerable period, the achievements of good practice is by no means universal. Maintenance of the built environment impacts on the whole nation. The conditions of surrounding in which we live and learn, is a reflection of the nations well-being. Maintainability of building has been identified as one of the key areas in which the construction industry must achieve significant improvement.

3.2 Building Maintenance Policy:

Building maintenance policy is a written document, and provides a management framework for the maintenance personnel to determine appropriate maintenance strategy and standard. Building maintenance policy and strategy is one of the main aspects in management of building maintenance operation processes (Lee, 2008, Lee and Scott, 2008).The three essential elements for formulating the maintenance policy are the *choice of maintenance strategy*, *defining maintenance standard* and *allocation of maintenance resources*. Maintenance activities could not be planned and implemented successfully, without the understanding of these elements. Maintenance strategy in general includes Corrective, Preventive or Condition based maintenance. However there are different views on choosing appropriate maintenance strategy. Among various maintenance strategies, the effectiveness of planned preventive maintenance (PPM) is more challenged by the top management (Spedding, 1987; Horner et al, 1997; Wood, 1999, 2003a; Loosemore and Hsin, 2001). Moreover maintenance standard is difficult to agree with top management (Then, 1996; Zavadskas et al, 1998; Wood, 2003a). Acceptable maintenance standards depends very much on available maintenance resources with consideration of common factors such as characteristics related to building, tenant, technical, administration and political factors (El- Haram and Horner, 2002). Maintenance personnel at operational level argue that maintenance budget is always below the needs (Pitt, 1997; Shen and Lo, 1999; Lam, 2000; Lo et al, 2000; Tse, 2002). On the contrary, top management at the strategic level criticizes the inefficiency of the maintenance organization. It is becoming more difficult to get more resources (Pitt, 1997; Shen and Lo, 1999; Lam, 2000; Lo et al, 2000; Tse, 2002). Technology becomes a tool for assisting maintenance personnel to improve building maintenance operation efficiency. It is recommended using intelligent equipment and automatic maintenance scheduler to enhance quality and efficiency (Tse, 2002).

3.3 Types of Maintenance

There are two types of maintenance operations namely planned and unplanned.

A. Planned Maintenance: This is the maintenance work that is organized and executed with fore-taught, control and the use of records to a predetermined plan or schedule. Planned maintenance can be sub – divided

into preventive and corrective maintenance

i. **Preventive Maintenance:** In this, maintenance is carried out at predetermined intervals, otherwise corresponding to prescribed stipulation and intended to lower the probability of failure as well as the performance degradation of an item.

ii. **Corrective Maintenance:** This is the simplest type of maintenance. It is often adopted where the element of the building is used until it breaks down. It is necessitated by deterioration of the materials and components of building(s) and its environment.

B. **Unplanned Maintenance:** This is the maintenance that takes place at no predetermined plan. It is referred to as semi – emergency maintenance. Unplanned maintenance can be sub – divided into Emergency maintenance, Unpredictable maintenance, and Avoidable maintenance.

i **Emergency Maintenance:** This is the work that is carried out in order to avoid serious problems. It is otherwise referred to as day – to – day maintenance.

ii. **Unpredictable Maintenance:** This is the work resulting from unforeseen breakdowns or damage due to external causes.

iii. **Avoidable Maintenance:** This is the work required to rectify failures caused by incorrect design, incorrect installation or the use of faulty materials.

Planned Preventive Maintenance also comprises of Inspection and Minor repairs arising from maintenance thus:

- Removal of danger to persons and structures
- Keep building weather proof.
- Operational efficiency of the occupants, security and hygiene.
- Appearance of the building, comfort of occupants or service prestige.

(Bldr. Siraj K. Bokinni, 2006)

3.4 Causes of Maintenance

Maintenance work is brought about by a whole lot of factors which can easily be traced to the occurrence of defects in buildings. Understanding these defects would mean understanding the causes of maintenance. These defects could be as a result of the following factors:

A. Design Consultants/Deficiencies

This stems from the work of architects or engineers. These design professionals design a building or design a specific system that does not function as it was intended to function.

- Implementation incompetency
- Frequent changes
- Gross dereliction of duty
- Not adhering to design specification
- Under design
- Inadequate assessment of exposure

B. Construction/Workmanship

This is evident with water damage through some part of the actual building structure, which results from:

- Not constructed according to design
- Use of inexperienced workmen
- Insufficient cover to reinforcement
- Chlorides /sulphates in the mix
- Neglect of regulation/standards
- Unattainable workmanship
- Poor quality control of mix
- Unanticipated movement
- Reinforced corrosion
- Structural components
- Climate

C. Natural Agent / Geotechnical Problems (Sub-Surface)

This issue occurs when housing development are built in area where water once stood, or is hilly, both resulting in an unstable foundation upon which to build a house. This also holds true if the builder does not keep in mind this type of potential soil issue when deciding on structural design.

- Temperature / extremes
- Severe exposure
- Chemical attack (pollution)
- Wear and tear due to aging
- Biological agent

- ❖ Fire damage
- ❖ Vibration
- ❖ Exposure to constant hazards

D. Users

- ❖ Applied forces
- ❖ Inadequate appreciation of condition
- ❖ Users activities i.e. Human, plant, equipment
- ❖ Wear out due to aging & fatigue
- ❖ Mechanical damage
- ❖ Impact and mishandling
- ❖ Operating in an unspecified ways
- ❖ Use beyond intended purposes

E. Specification: Not clear enough to state the standard of performance

F. Materials Deficiencies: Using inferior building material can cause a variety of defect issues e.g. windows built with poor materials that leak even after being installed perfectly.

- ❖ Faulty and processing of materials
- ❖ Non- conformity with intended use/life expectancy

G. Reports

- ❖ Failure to report (Bldr. Siraj K. Bokinni, 2006)

3.5 Factors That Facilitate Maintenance Work

a. There must be good safe access to parts of the building especially the building services.
b. Dismantling, not breaking in, reassembly, not rebuilding, must be easy to fit the new parts.
c. Spare parts for essential repairs and replacement items must be readily available.
d. Lifting and strong points should be provided, to allow dismantling, reassembling and possible removal. (Bldr. Siraj K. Bokinni, 2006)

4. Maintenance Strategy

Maintenance strategy is adopted in order to extend the life cycle of buildings and its fittings services. The basic maintenance strategies include Preventive, Corrective and Condition Based Maintenance. According to Chan et al (2001), the time based, performance based, breakdown based, renovation – based and integration-based are also developed from the three basic maintenance strategies. Planned Preventive Maintenance (PPM) has been described as the most effective maintenance strategy against the frequency of breakdown (Seeley, 1976; Wood, 2003b). However, Planned Preventive Maintenance (PPM) is considered an ineffective solution because it makes too early and unnecessary replacement (Spedding, 1987). The argument of this maintenance strategy is becoming the focus of economic downturn, resulting in cutting operation cost to organizations. Moreover, the study about the effectiveness of PPM with empirical data to support its efficiency is limited (Horner et al, 1997; Wood, 2003a). The choice of an appropriate maintenance method strategically depends on sound and informative investigation and initial appraisal. According to Musa (2002), the choice of maintenance strategy is influenced by one or more of the following factors:

1. The physical conditions of the building and its elements.
2. Environmental conditions.
3. Government policy.
4. Tenants (users) and client's requirements.
5. Age, character and prospective life of the building.
6. Financial requirements and available fund.

Also according to Kwong (2005) no matter the strategic choice adopted, the maintenance work should;

1. Maximize the physical life of the building
2. Secure the wellbeing of its users/occupants.
3. Promote and enhance the investment value of the building.
4. achieve value for money for all expenditure
5. Meet statutory obligations in relation to the maintenance of the building.
6. Facilitate and encourage tenant participation in the maintenance operation and
7. Cause minimum inconvenience to the occupants/users.

In view of these Ezenwa (1999) inferred that an optimum maintenance strategy will not only engender quality improvement and satisfy the needs of the occupants/users but also carried out promptly at most cost-efficient price with minimum inconveniences to the users/occupants. However, for the purpose of this research, the authors would still adopt the three (3) basic maintenance strategies which are Corrective, Preventive and condition based maintenance strategy.

5. Research Methodology

Data for this study was collected through primary and secondary methods of data collection. The primary data was obtained through the administration of a well structured questionnaire, site survey and oral interviews of the residents of the selected estates. The secondary data comprised information which was derived from textbooks, journals, information from the internet and papers presented, which were relevant to the study.

5.1 Case Study:

There are so many residential estates in Gusau, the Zamfara state capital, some of which are General Abdulsalam Housing Estate popularly called Gidan Dari Housing Estate, The Igala Housing Estate, Damba Housing Estate, Maraeri Housing Estate, Rigiyar Gabas Housing Estate, Ungwangwaza Housing Estate, Gada Biyu Housing Estate (Gidan Dawa), e.t.c. Most of these estates were built or were started by the state government, but have been given out on owner occupier basis. For the purpose of this study, two of the estates namely General Abdulsalam Housing Estate and the Igala Housing Estate shall be studied to access the effectiveness of maintenance strategy adopted in the Estates.

5.2 General Abdulsalam Housing Estate:

This General Abdulsalam Housing Estate, popularly called Gidan Dari Housing Estate was built in 1997, by the first Military Administrator of the state by name Jibril Bala Yakubu. The Estate is located along Gusau - Sokoto Bye-pass Road, Gusau Zamfara state. It comprises 100 units of 4, 3 and 1 bedroom flats respectively. The Estate was fenced right round and it has a well defined entrance.

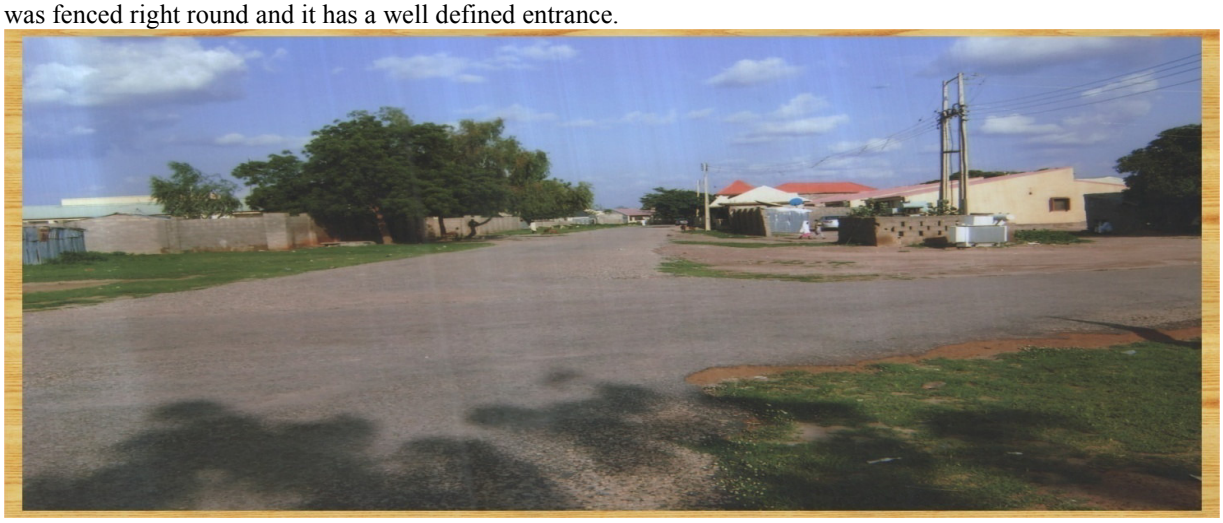


Plate 1: Picture showing the entrance into General Abdusalam Housing Estate, Gusau Zamfara State
Source: Authors' field survey, 2015.

Plate 2: Picture showing part of one of the buildings in General Abdulsalam Housing Estate in direct focus.
Source: Authors' field survey, 2015.

5.3 Igala Housing Estate:

This is one of the most popular housing estates in Gusau, Zamfara state. It was built by the first Civilian Governor- Alhaji Ahmed Sani Yeriman Bakura in 2001. It is located opposite General Abdulsalam Housing Estate along Gusau-Sokoto Bye-pass Road, Gusau Zamfara state. It comprises 200 units of 3 bedrooms flat. It does not have any defined point of entry into or exit out of the estate.

Plate 3: Picture showing a street view of some buildings at Igala Housing Estate.
Source: Authors' field survey, 2015.

Plate 4: Picture showing part of a building in Igala Housing Estate
Source: Authors' field survey, 2015.

Plate 5: Picture showing part of another building in Igala Housing Estate
Source: Authors' field survey, 2015.

Plate 6: Picture showing part of a poorly maintained building in Igala Housing Estate
Source: Authors' field survey, 2015.

Plate 7: Picture showing part of a poorly maintained building in Igala Housing Estate
Source: Authors' field survey, 2015.

Plate 8: Picture showing part of a poorly maintained building in Abdusalam Housing Estate.
Source: Authors' field survey, 2015.

Plate 9: Picture showing some buildings in Abdusalam Housing Estate
Source: Authors' field survey, 2015..

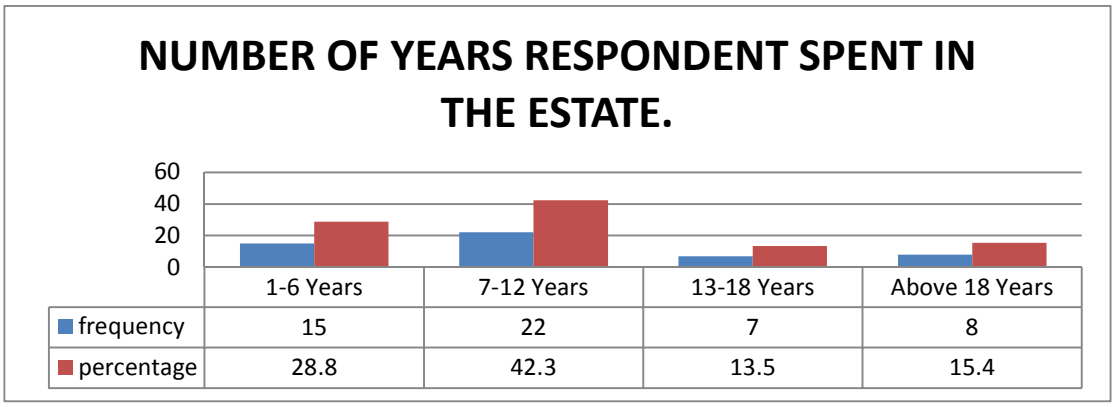
6. Research Questions:

1. Which of the strategies was actually adopted in the maintenance of the Housing Estates?
2. How effective have these strategies been?

7. Data Analysis

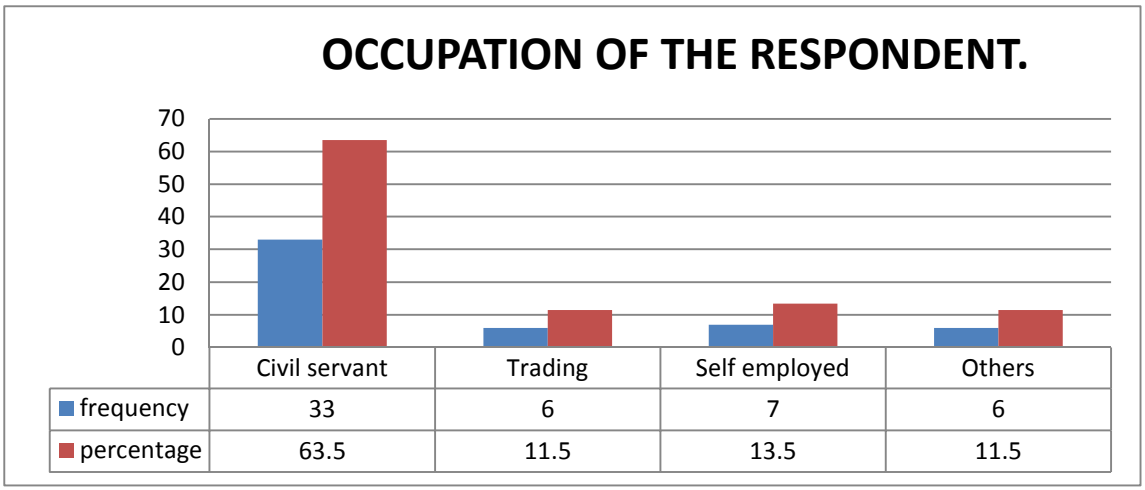
This section of this paper presents the result and analysis of the data obtained from the questionnaires distributed. Thirty (30) questionnaires were distributed in each of the estates, using random sampling, whereby 30 residents were randomly picked and given questionnaires. However out of these 30, 25 persons were able to submit their questionnaires in General Abdulsalam Housing Estate, whereas 27 persons also submitted theirs in Igala Housing Estate. Hence a total of 52 questionnaires were collected altogether and was used for this study.

Bar Chart 1. NUMBER OF YEARS RESPONDENT SPENT IN THE ESTATE.



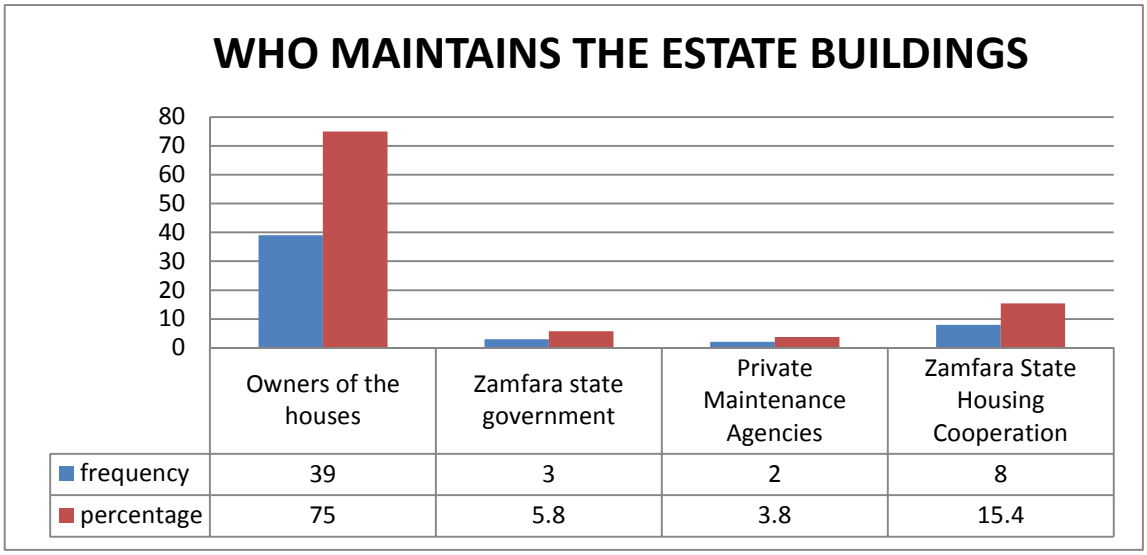
Source: Authors' field survey, 2015.

Bar Chart 2. OCCUPATION OF THE RESPONDENT.



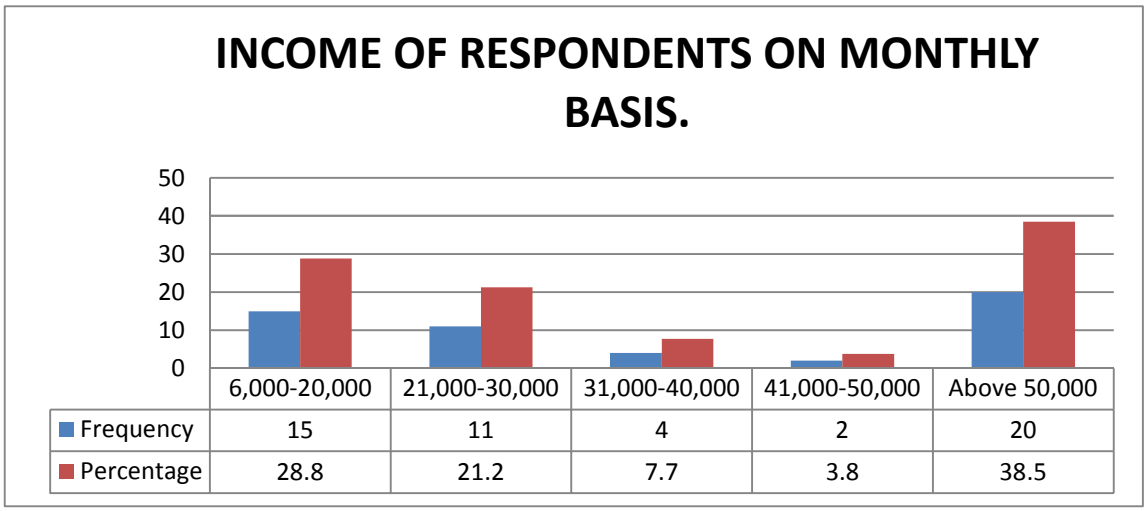
Source: Authors' field survey, 2015.

Bar Chart 3. WHO MAINTAINS THE ESTATE BUILDINGS



Source: Authors' field survey, 2015.

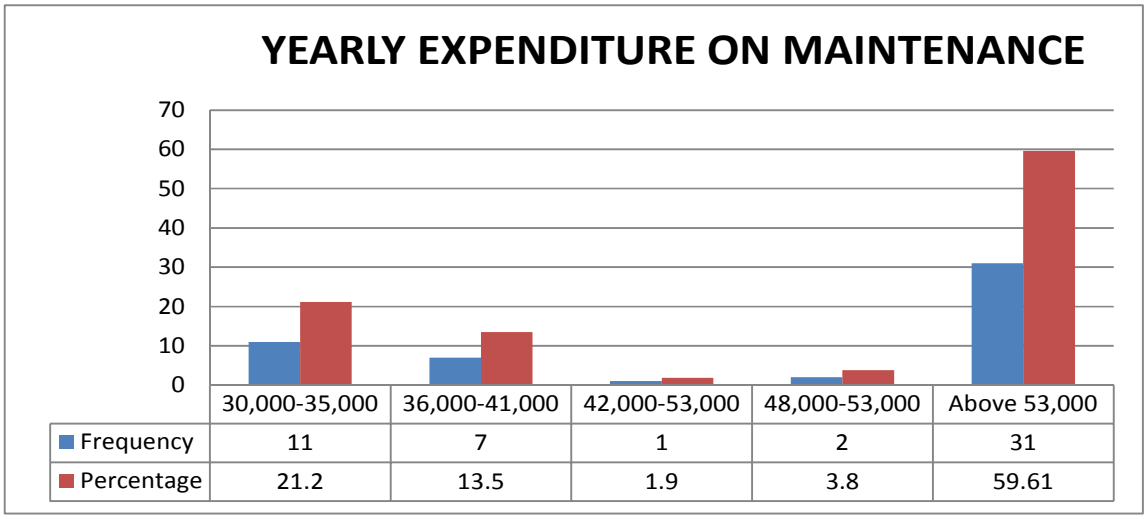
Bar Chart 4. INCOME OF RESPONDENTS ON MONTHLY BASIS.



	6,000-20,000	21,000-30,000	31,000-40,000	41,000-50,000	Above 50,000
Frequency	15	11	4	2	20
Percentage	28.8	21.2	7.7	3.8	38.5

Source: Authors' field survey, 2015.

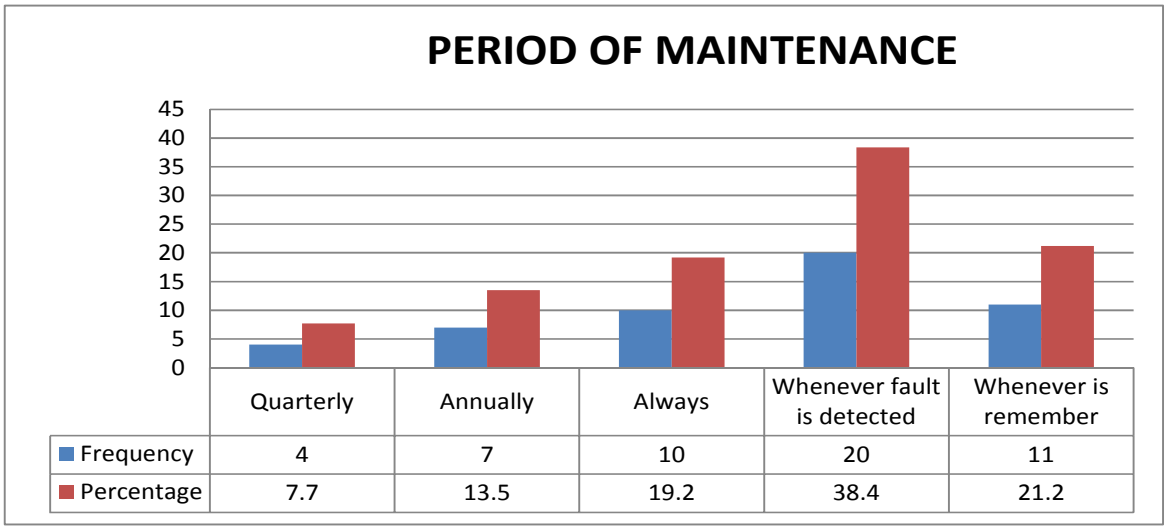
Bar Chart 5. YEARLY EXPENDITURE ON MAINTENANCE.



	30,000-35,000	36,000-41,000	42,000-53,000	48,000-53,000	Above 53,000
Frequency	11	7	1	2	31
Percentage	21.2	13.5	1.9	3.8	59.61

Source: Authors' field survey, 2015.

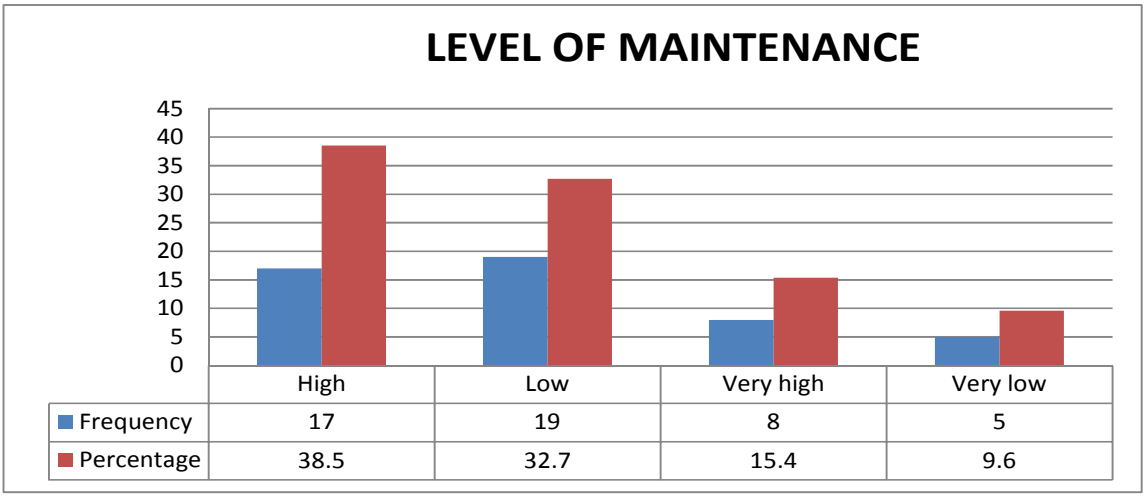
Bar Chart 6. PERIOD OF MAINTENANCE.



	Quarterly	Annually	Always	Whenever fault is detected	Whenever is remember
Frequency	4	7	10	20	11
Percentage	7.7	13.5	19.2	38.4	21.2

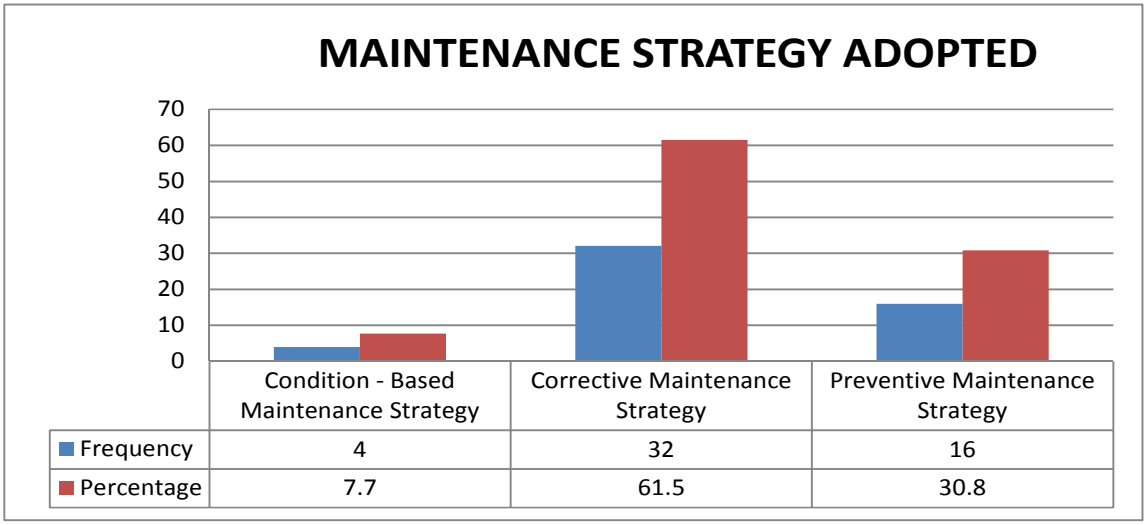
Source: Authors' field survey, 2015.

Bar Chart 7. LEVEL OF MAINTENANCE.



Source: Authors' field survey, 2015

Bar Chart 8. MAINTENANCE STRATEGY ADOPTED.



Source: Authors' field survey, 2015.

With reference to the data collected as shown in Bar chart 3, it is observed that the majority of the respondents making up to 75% were of the view that maintenance of the estate buildings were mainly by the owners of the houses. This accounts for the way the houses were given out after their construction which was on owner occupier basis. Hence it is expected that every occupier, takes responsibility of maintaining the house in which he lives in. we could also see that Zamfara state Housing Co-operation had 15.4%. This also accounts for their presence during and probably after the construction of the estates, as the director of estates office is with the co-operation. The Zamfara state government and Private Maintenance Agencies had very insignificant percentages probably because their activities were not felt by the respondents since after the commissioning and allocation of the building to their different owners.

When we look at the income of the respondents on monthly basis, on Bar chart 4, we could see that majority of the respondents making up to 38.5% had their monthly earning above N50, 000. That means that most of the respondents are well to do and probably have enough resources to take care of their problems and housing needs, 28.8% of the respondents have their monthly incomes as low as 6,000-20,000. This also implies that there are some low income earners within the estates as well. Also we could see small percentages of those that earn 21,000-30,000 - 21.2%, 31,000-40,000 - 7.7% and 41,000-50,000 - 3.86%. This shows that within the estate, there are, the low-income earners, the middle-income earners, and also the high-income earners.

Bar Chart 5 indicates that majority of the respondents making up to 59.6% spend more on maintenance on yearly basis. This could be attributed to a sound understanding of what maintenance, is all about and most of them are civil servants who are considered well to do. 21.2% of the respondents spend the lowest amount in maintenance on yearly basis. These are the set of residents whose attitude towards maintenance work in the estate contributes to the low level of maintenance which affects general maintenance within the estates as could

be seen from picture clips on plates 6, 7 & 8 taken by the Authors. The other respondent who had 3.8%, 1.9% and 13.5%, respectively are those whose attitude towards maintenance is different from others.

Bar Chart 6 indicates that a greater percentage of the respondents making up to 38.4% maintain their buildings whenever a fault is detected. This goes to confirm the sound understanding of what maintenance is all about by most of the respondents and the need to effect repairs once faulty parts are noticed. Whereas 21.2% of the residents were of the opinion that they can only maintain their buildings whenever they remember and this attitude towards maintenance is a problem which poses serious threat to some of the buildings in the estates as could be seen in the picture clips in plates 6, 7, & 8 respectively.

When we refer to Bar chart 7, which illustrates or shows the level of maintenance, we discover that almost half of the respondents culminating to 38.5% were of the opinion that level of maintenance is high within the estates. This could only be attributed to the maintenance strategy adopted which has been effective, and as a result has given rise to what we can see in picture clips in plates 2, 5 & 9. Also when we look at the 36.5% of the respondents opinion which says that the level of maintenance is low, we could easily see this from the attitude of few residents who had to maintain thier buildings anytime they remember. This was a major contributory factor to the defects the authors witnessed in the estates.

8. Discussion:

From the survey conducted, we could say that more money was spent on yearly basis by the respondents making up to 59.6% as seen from Bar chart 5. This could only mean that the respondent understood properly what maintenance is all about, also because most of the residents are civil servants as could be seen from Bar chart 2, it could also be because most are well to do considering the amount earned on monthly basis as could be seen from the analysis in Bar chart 4. From Bar chart 6, it may be seen that most of the respondents fixed their houses only when a fault is detected. Bar Chart 3 also butresses that it was the owners that maintained their houses. It is observed from Bar Chart 7 that the level of maintenance is high, although a reasonable percentage of 36.5% were of the opinion that the level of maintenance is low. One could only think of the effectiveness of the maintenance strategy adopted, as the reason why the maintenance level is high and also considering the fact that most of the occupants earn above N50, 000 as their monthly income, which also showed that majority, in the tune of 59.6% spend over N53, 000 on maintenance on yearly basis. However, the almost near percentage of 36.5% residents was of the opinion that maintenance level is low. This could have been as a result of the 21.2% of the residents who maintain their buildings, whenever they remember, which has led to the unmaintained views witnessed by the authors in some of the pictures taken.

9. Recommendations:

Revelation from the study has shown that the maintenance strategy is effective at least to a reasonable extent. However, in order to continue maintaining the standard of maintenance observed within the Estates, and also improve on the standard; the following recommendations are made:

1. Agencies responsible for maintaining the Estates should be formed and if in existence, they should be empowered to enforce maintenance laws.
2. There is need for monitoring of the Estates by the Agencies concerned at least on quarterly basis to ensure the adherence to the laws guiding the Estate maintenance.
3. Maintenance policy manual should be provided and given to the occupants of the Estate to help as a guide towards enhancing proper maintenance and also to know what and what to maintain in a building.
4. There is need for placement of billboards etc. at strategic positions within the estates, to create awareness which in turn enlightens the residents and reminds them of the need for general estate maintenance.
5. There is also need to adopt preventive maintenance strategy in addition to the corrective maintenance strategy already being adopted. This will ensure a more inclusive and more proactive approach, as better maintenance standard will be achieved, by so doing.
6. The use of substandard materials, poor workmanship, for maintenance should be discouraged so that the buildings could continually be in their good states for a very long time.
7. The state government, the ministries of housing, environment and the state housing co-operation, should all have their hands on deck in the ways they can come, in ensuring a well formulated, organized and well executed effective maintenance plan for the housing estates.

10. Conclusion

An Assessment of the effectiveness of maintenance strategy, in Igala and General Abdulsalam Housing Estates in Gusau Zamfara State has been done. It is clear from what is obtained in Bar Chart 8 that Corrective Maintenance Strategy was adopted in the maintenance of the estates and this has been effective to a significant degree, but not without some disadvantages as - Failure of an item can cause a large amount of consequential

damage to other elements or parts of the building and also Failure of an item can occure at a time, when it is inconvenient to both the user and the operator as could be seen in pictures on plates 6, 7 & 8 respectively. As a result significant costs can be incurred obtaining emergency manpower and very often it is difficult to obtain spare parts at short notice. For better effective maintenance of the estates, the authors suggest an inclusion of Preventive Maintenance Strategy which will help to reduce the probability and likelihood of failure of an element or any part of a building. However the authors would still want to advice and encourage the respondents who maintained thier buildings whenever they remember to turn a new leaf and try to identify parts of thier buildings that require maintenance and see to it that they are properly and timely maintained. it is only when this is done , that we can confidently say that we have effectively maintained our Housing Estates in Gusau and in Nigeria in general.

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