

**AN EVALUATION OF MAINTENANCE CULTURE ON INSTITUTIONAL
BUILDINGS; UNIVERSITY OF BENIN
JUNIOR STAFF QUARTERS**

BY

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CERTIFICATION

This is to certify that this project work “An Evaluation of Maintenance Culture on Institutional Buildings; A Case Study of University of Benin Junior Staff Quarters” was carried out by **Omobogie Joy** in the Department of Estate Management under my supervision for the award of Bachelor of Science (B.Sc.) Degree. The work embodied in this project is original and has not been submitted in part or full for any other degree or diploma of this or any other university.

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TABLE OF CONTENTS

CERTIFICATION	-	-	-	-	-	-	-	-	-	ii
ACKNOWLEDGEMENTS	-	-	-	-	-	-	-	-	-	iii
TABLE OF CONTENTS	-	-	-	-	-	-	-	-	-	iv
ABSTRACT	-	-	-	-	-	-	-	-	-	vi
CHAPTER ONE: INTRODUCTION										
1.1	Background to the Study	-	-	-	-	-	-	-	-	1
1.2	Statement of the Problem	-	-	-	-	-	-	-	-	4
1.3	Aim and Objectives of the Study	-	-	-	-	-	-	-	-	5
1.4	Research Questions	-	-	-	-	-	-	-	-	6
1.5	Scope of the Study	-	-	-	-	-	-	-	-	6
1.6	Significance of the Study	-	-	-	-	-	-	-	-	6
1.7	Study Area	-	-	-	-	-	-	-	-	7
CHAPTER TWO: LITERATURE REVIEW										
2.1	Preamble	-	-	-	-	-	-	-	-	9
2.2	The Concept of Maintenance	-	-	-	-	-	-	-	-	9
2.2.1	Definition of Maintenance	-	-	-	-	-	-	-	-	9
2.2.2	Types of Maintenance-	-	-	-	-	-	-	-	-	14
2.2.3	Nature of Maintenance	-	-	-	-	-	-	-	-	16
2.2.4	Technology of Maintenance	-	-	-	-	-	-	-	-	18
2.3	Maintenance Culture	-	-	-	-	-	-	-	-	19
2.3.1	Past Efforts made on Maintenance Culture	-	-	-	-	-	-	-	-	20
2.4	Maintenance of Public Buildings	-	-	-	-	-	-	-	-	21

2.5	Maintenance Needs of Buildings-	-	-	-	-	-	-	-	23
2.5.1	Factors Influencing Maintenance Needs and Cost	-	-	-	-	-	-	-	24
2.6	Factors that are Responsible for the Deterioration of a Building-	-	-	-	-	-	-	-	25
2.7	Influence of Maintenance on Public Buildings-	-	-	-	-	-	-	-	30

CHAPTER THREE: RESEARCH METHODOLOGY

3.1	Introduction-	-	-	-	-	-	-	-	32
3.2	Research Design	-	-	-	-	-	-	-	32
3.3	Population of the Study	-	-	-	-	-	-	-	32
3.4	Sample Frame	-	-	-	-	-	-	-	33
3.5	Sample Size-	-	-	-	-	-	-	-	33
3.6	Sampling Technique-	-	-	-	-	-	-	-	33
3.7	Research Instrument-	-	-	-	-	-	-	-	33
3.8	Validity and Reliability of the Research Instrument-	-	-	-	-	-	-	-	34
3.9	Method of Data Collection-	-	-	-	-	-	-	-	34
3.10	Method of Data Analysis-	-	-	-	-	-	-	-	35

CHAPTER FOUR: DATA PRESENTATION AND INTERPRETATION OF RESULTS

36

CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary	-	-	-	-	-	-	-	-	43
Conclusion	-	-	-	-	-	-	-	-	44
Recommendations	-	-	-	-	-	-	-	-	44
REFERENCES	-	-	-	-	-	-	-	-	46
APPENDIX	-	-	-	-	-	-	-	-	50

ABSTRACT

Infrastructural Facilities in public institutions in Nigeria are Inadequately maintained and few that are maintained are allowed to Deteriorate completely without any sustainable maintenance plan or strategy

This study aims at evaluating the maintenance culture on institutional buildings in buildings in Nigeria particular focus will be on University of Benin junior staff Quarters; to know their current state and maintenance performed on these buildings, particularly from occupiers perspective and hopefully with the view of addressing the maintenance needs of the building, identifying the Element of the Junior Staff Quarters that Needs the most repairs , examining the factors contributing to the deterioration of the Junior staff quarters and identifying the strategies for improving the maintenance of the junior staff quarters. The data for this study was collected using a structured questionnaire and personal observation. The purposive technique will be utilised in this study. This sampling technique is considered appropriate for this research given that it will allow the researcher to focus on a specific group of people and area of interest to gather in-depth data on the research topic.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

A building is more than just a structure as it serves a number of other vital purposes beyond shelter. An institutional building is any building belonging to an establishment (in the case of this study University of Benin) where the people have permissible access (Rajeev et al., 2018), and they generally serve the purpose of providing a service to the public. Building maintenance is defined as the sum of all technical and associated administrative procedures intended to keep a building in order to restore it to a state in which it can perform its needed function. Building maintenance entails preserving or keeping the economic value of a building.

According to Oladapo (2006), cited in Adenuga (2012), buildings are required to provide a conducive and safe environment for various human activities. This, essentially, is the question of function. The extent to which the buildings provide the required environment for the required activity is a measure of the functionality of the building. Buildings once constructed are expected to provide this major function of sheltering for a number of years. It is highly desirable to produce buildings that are maintenance free for the expected life span; however, this is very difficult to achieve owing to the rate at which buildings deteriorate overtime because of its initial design, construction techniques, the environmental conditions and the use or intensity of use of the building.

Maintenance is a procedure for keeping an eye on a building after it has been completed to ensure that it continues to run and function properly (Abdul Lateef et al., 2010). It encompasses all planned or unplanned technical, administrative and managerial efforts made to retain or restore an item to an acceptable condition (Chan, 2010). To retain implies that defects are prevented from developing by carrying out work in anticipation of failure. To

restore means that minor defects had already occurred before they are corrected. In order for an item or facility to continue to perform its required function, some degrees of improvement are needed over the life span of the building as standards of comfort and amenity arise where there are statutory requirements for maintenance. The acceptable standard must not be less than that necessary to meet them and the accepted standard must sustain the utility and value of the facility. Culture on the other hand is defined as the cultivated behaviour of particular people as expressed in their habits, attitudes towards each other, their moral and religious beliefs which are mostly learned and socially transmitted from one generation to another (Kohls, 2011). Tijani et al. (2016) described maintenance culture as the habit of regularly and consistently keeping buildings, machine, facilities, equipment, infrastructure, etc. in a good and working condition.

Building maintenance encompasses not only actions related to the physical execution of maintenance work, but also those related to its inception, finance, and organization. Also, the concept of an acceptable state entails an awareness of the criteria for the building's and its parts' efficient use, which necessitates a deeper examination of building performance (Chanter et al., 2007). Building maintenance is a process and service that aims to preserve, repair, protect, and care for a building's fabric and engineering services after completion, repair, refurbishment, or replacement to current standards to enable it to serve its intended functions throughout its life span without drastically disrupting its basic features and use without drastically disrupting its basic features and use (Olanrewaju, 2010). According to Wood (2009), maintenance entails keeping an item in a usable condition or restoring it to a usable condition. Building maintenance simply refers to keeping, retaining, prolonging, or preserving a structure or building to an acceptable quality. Building maintenance is the entire activity performed on a structure to keep it in excellent working order and to guarantee that it complies with all legislative standards. This can be ensured by frequently inspecting the

building before it fails or fixing it when it does so that it continues to perform to an acceptable quality. Taking a cue from project management, building maintenance can be defined as the use of all resources to produce an end product, which is the preservation of the structure in a usable condition. Maintenance aids in the detection of significant uncertainty about an entity's (structure and its services) ability to meet specific legislative criteria.

Exhibiting proper management and timely maintenance in buildings prevent deterioration, ensures safety and also sustain their values and qualities (Kportufe, 2015). Therefore, maintenance is crucial in upholding building performance to minimize lifecycle costs towards ensuring a safe environment (Abdullah et al., 2014).

Mbamali, (2013) stated that in Nigeria maintenance culture is an attitude that has been handled with levity, whether in homes, offices or schools, or public buildings. Furthermore, Roslan, et al. (2014) also mentioned that despite the huge investment in public buildings, the attitude of public institutions on maintenance culture has negatively affected sustainable maintenance strategy to preserve the quality of buildings. Thus, this has poorly affected the total value of public properties and buildings causing a rapid increase in the deterioration of the fabric and finishes Twuamai-Ampofo, et al. (2017) and Ofori, et al. (2015) resulting to reduction in a large portion of the nation's wealth (Ugwu et al., 2018).

According to Wahab and Basari (2013), maintenance operations include technical and administrative tasks that are completed in order to meet the needs of the building's tenants. Maintenance is involved in the optimal usage of the building with an appropriate safety and security system for the consumers, according to Cobbinah, (2010). With these criteria in mind, available research supports maintenance as a restorative or rejuvenating activity that aids in restoring the structure's aesthetics while also insuring its durability. The major goal of building maintenance, according to Adejimi (2005), is to keep buildings in their original

functional, structural, and aesthetic states. Buildings, according to Odediran et al (2012), must provide a safe and suitable atmosphere for numerous human activities. Consequently, this serves as a call to action for maintenance, which is one of the most basic actions that can help to keep buildings in good shape. It is in this regard this study undertakes an evaluation of maintenance culture on institutional buildings; a case study of University of Benin Junior Staff Quarters; to know their current state and maintenance performed on these buildings, particularly from occupier's perspective.

1.2 Statement of the Problem

Looking at the deplorable state of public buildings across the country for decades, a large chunk of the country's resources have been channelled towards Transportation Infrastructure, Government administrative Buildings for ministries and Parastatals, Colleges of Education, Universities, Primary and Secondary Schools. All are geared toward repositioning the underdeveloped economy. However, remarkable actions needed to ensure sustainability of these varieties of infrastructure has not been given the right and sufficient attention in terms of how to carry out its maintenance operations. Adenuga and Iyagba, (2005) submitted that public buildings are in very poor and deplorable conditions of structural and decorative disrepairs. In spite of millions of Naira spent to erect all these buildings, they are left, as soon as commissioned to face premature but steady and rapid deterioration, decay and dilapidation (Adenuga, 2012).

Construction of structures without functional maintenance plans or policies for the structure puts the occupants in grave danger and results in significant economic loss. Many infrastructure facilities in public institutions in Nigeria are insufficiently maintained, according to past studies on infrastructure upkeep. The handfuls that are kept are left to decay totally without any long-term maintenance strategy or plan. As a result, numerous infrastructures in public institutions are rapidly losing their economic value while also putting

the lives of their occupants in jeopardy. There seem to be no infrastructure maintenance plan in place at the University of Benin Junior Staff Quarters, and that the current public infrastructure facilities are deteriorating at a rapid rate. Unless an infrastructure maintenance program or plan is devised and implemented, the University would soon suffer massive infrastructure damage. As a result, this study will look into the deterioration and upkeep of University of Benin Junior Staff Quarters. It is hoped that the result of this would result in the development of an infrastructure building maintenance strategy in University of Benin in particular, and Nigerian institutions generally.

1.3 Aim and Objectives of the Study

The aim of this study is to evaluate the maintenance culture on institutional buildings in Nigeria: case study of University of Benin Junior Staff Quarters; to know their current state and maintenance performed on these buildings, particularly from occupier's perspective.

Meanwhile, the specific objectives of this study are to:

1. To identify the current maintenance practices carried out on University of Benin Junior Staff Quarters.
2. To ascertain the frequency of maintenance carried out on University of Benin Junior Staff Quarters.
3. To identify the major maintenance needs of University of Benin Junior Staff Quarters.
4. To ascertain the challenges of maintaining institutional buildings in Nigeria.

1.4 Research Questions

The study will be guided by the following research questions:

1. What is the current maintenance practices carried out on University of Benin Junior Staff Quarters?

2. What is the frequency of maintenance carried out on University of Benin Junior Staff Quarters?
3. What are the maintenance needs of University of Benin Junior Staff Quarters?
4. What are the challenges of maintaining institutional buildings in Nigeria?

1.5 Scope of the Study

The scope of this study is centred on the maintenance culture of institutional buildings in Nigeria. However, particular focus will be on the University of Benin Junior Staff Quarters.

1.6 Significance of the Study

This research will allow the University of Benin Management and the appropriate government authorities to crucially evaluate the current state of University of Benin Junior Staff Quarters and the living condition of its occupants hopefully with a view of addressing the maintenance needs of the building.

This study will spur the University Management to design an effective framework for building upkeep, and assist in gaining access to current maintenance practices at the University of Benin generally.

This study is also significant because it made intelligent suggestions, contributions, and recommendations for the adoption of an effective maintenance framework to address building maintenance issues in institutional buildings in Nigeria.

Lastly, this study is significant as it will be a research tool for other researchers who may wish to undertake further research on this area or similar subject areas; thus adding to the list of existing literatures.

1.7 Study Area

Benin City is the capital of Edo State of Nigeria as well as the administrative headquarters of Oredo Local Government Area. It is one of the oldest and the largest cities in Nigeria. It is a pre-colonial city and its urban history dates back to the 7th century B.C. (The Columbia Encyclopaedia, 2007).

Geographically, Benin City, lies within the latitude 60201 and 60311 north and longitude 50321 and 50411 east of the Greenwich Meridian. The city covers a total land area about 112.5 square kilometres, and lies at about 18.64meters above sea level. The present day Benin Metropolis comprises of four (4) local government areas – namely, Oredo, Egor, Ikpoba Okha, and Ovia North East which is the host local government to the University of Benin.

The university was initially established in 1970 as the Mid-West Institute of Technology at the former Marere Teachers Training College along Ekenwa Road in Benin City. The institute was accorded the status of a full-fledged university by the Federal Government on 1st July 1971 with Ugbowo Campus as its main campus. Between 1974 and 1984 the physical development of the university at the Ugbowo Campus accelerated to keep pace with the expansion of the staff and student population.

CHAPTER TWO

LITERATURE REVIEW

2.1 Preamble

This chapter borders on existing literature related to the objectives of this study. It attempts to draw out findings from existing studies that will inform the direction of the study's research. The chapter is divided into sections. The chapter is discussed under the following sub-topics: The Concept of Maintenance, Types of Maintenance, Nature of Maintenance, Technology of Maintenance, Maintenance Culture, Maintenance of Public Buildings, Maintenance Needs of Buildings, Factors Influencing Maintenance Needs and Cost, Factors that are Responsible for the Deterioration of a Building, and Influence of Maintenance on Public Buildings.

2.2 The Concept of Maintenance

2.2.1 Definition of Maintenance

According to British Standard 3811 (1974), maintenance is the sum of all technical and administrative procedures used to keep an object in working order or restore it to a state where it can fulfil its intended function. It is clear from this definition of maintenance that it encompasses not only actions related to the physical execution of maintenance work, but also those related to its planning, finance, and organization. Also, the concept of an acceptable state entails an awareness of the criteria for the building's and its parts' efficient use, which necessitates a deeper examination of building performance (Chanter et al 2007). Building maintenance is a process and service that aims to preserve, repair, protect, and care for a building's fabric and engineering services after completion, repair, refurbishment, or replacement to current standards to enable it to serve its intended functions throughout its life span without drastically disrupting its basic features and use without drastically disrupting its

basic features and use (Olanrewaju, 2010). According to Wood (2009), maintenance entails keeping an item in a usable condition or restoring it to a usable condition.

Maintenance is a routine task that involves keeping an eye on a building after it has been completed to ensure that it continues to run and function properly (Abdul Lateef et al., 2010). According to Wahab & Basari (2013), maintenance operations include technical and administrative tasks that are completed in order to meet the needs of the building's tenants. Cobbinah (2010) states that maintenance is engaged in the effective usage of buildings with an appropriate safety and security system for customers. With these criteria in mind, available research supports maintenance as a restorative or rejuvenating activity that aids in restoring the structure's aesthetics while also insuring its durability. The major goal of building maintenance, according to Adejimi (2005), is to keep buildings in their original functional, structural, and aesthetic states. According to Khozaei et al. (2010), university students prefer to stay in places that provide security, privacy, and enough space to meet their demands. Buildings, according to Odediran et al (2012), must provide a safe and suitable atmosphere for numerous human activities. As a result, this serves as a call to action, as maintenance is the most basic of actions that can help to keep structures in good shape.

Building maintenance according to (Anderson, 1996, Lee, 1991) as cited by (Owolabi, 2014) is an important aspect of building management that is often neglected. Maintenance assists retaining economic life of buildings. Moreover, it is an activity that requires high level of productivity at the private and the 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.

Upkeep of public buildings is frequently neglected because building owners appear to prefer facilities that require little to no maintenance while downplaying the reality that maintenance is unavoidable. According to Seeley (1987), producing maintenance-free buildings is highly desirable but difficult to achieve, despite the fact that much may be done during the design stage to limit the amount of subsequent maintenance labor. People spend 90% of their lives in buildings all over the world (Isshaku, 2013). As a result, they are a very significant and precious asset that should not be overlooked.

According to Seeley (1987), maintenance begins the day the builder leaves the job site. The quantity of maintenance required during the life of the structure is determined by the design, materials, workmanship, function, and use, as well as their connection. “Maintenance is any activity conducted in order to retain, or restore every aspect of a building to an acceptable standard,” writes Chudley (1980, p.110). Effective maintenance necessitates accurate problem detection and the implementation of appropriate corrective actions, all of which are based on sound technical knowledge.

One of the primary goals of building maintenance is to keep a structure in its original functional state, as much as possible, so that it can fulfill its intended purpose (Chanter and Swallow, 2007). Repairs or replacements may be essential during the maintenance process, but the major goal of all maintenance processes is to avoid the need to repair or replace the structure, furnishings, services, equipment, or fittings that make up the overall components of any building as much as possible.

Upkeep of public buildings is frequently neglected because building owners appear to prefer facilities that require little to no maintenance while downplaying the reality that maintenance is unavoidable. According to Seeley (1987), producing maintenance-free buildings is highly desirable but difficult to achieve, despite the fact that much may be done during the design

stage to limit the amount of subsequent maintenance labour. People spend 90% of their lives in buildings all over the world (Isshaku, 2013). As a result, they are a very significant and precious asset that should not be overlooked.

The upkeep of a property, including structural, electrical, and plumbing systems, is the responsibility of building maintenance. The major purpose is to manage a structure and its grounds, as well as to personalize the facility's demands. Maintenance obligations differ from one structure to the next. Maintenance operations are conducted to keep an infrastructure in its original state so that its economic value and durability are preserved. Maintaining the economic worth of a structure enhances its rental value, while maintaining its durability improves the building's conduciveness, restores the building to useable conditions, and repairs and prevents damage to the structure. Building care also produces aesthetic benefits since a well-maintained structure adds attractiveness to the environment. Misuse of facilities, a bad management team, lack of funds for maintenance, and the use of low-quality materials by the maintenance department, as well as an ineffective maintenance strategy frequently lead maintenance to fall short of expectations. Poor maintenance management will shorten the life of a structure and speed up the deterioration process. In addition, bad maintenance will have an impact on the building's state, as well as posing a threat to occupants by making them feel insecure, causing inconvenience, and causing a lot of problems for the residents and others.

Building maintenance is a vital activity in the construction business since it is important regardless of whether the structures are huge or little, simple or complicated, and whether they are in established, developing, or underdeveloped locations. Buildings must be well-maintained throughout their life cycle to ensure their operation and improve services. Building maintenance managers have traditionally demanded that the outcomes of building maintenance meet certain criteria, such as restoring physical condition to a specified standard,

preventing further deterioration or failure, restoring correct operation within specified levels, replacing components at the end of their useful, economic life with modern engineering equivalents, and making temporary repairs (Queensland Government 2, 2017). The quantity of budget allocated has a considerable impact on the quality of maintenance activities. Simply put, because the expense of maintaining institutional buildings is extremely high, mean maintenance culture is dictated by money invested in various maintenance tasks.

One of the issues that contribute to poor building condition is a lack of maintenance management. Infrastructure development with a suitable maintenance structure is one of the fundamental features of a developed country, which is why many developed countries have a large number of well-maintained infrastructures such as sky scrapers and towering skyscrapers. Infrastructure development and maintenance are critical to a country's socioeconomic progress. The ideal method to achieve outstanding maintenance is to create a maintenance management system that meets the user's expectations as closely as possible (Pintelon, 1999). This illustrates why it's important to keep a building up to certain standards that aren't simply attractive to the eye, but genuinely are. Many industrialized countries put money into infrastructure and rely on it as a source of revenue. As a result, they take infrastructure maintenance quite seriously. Due to a lack of money, resident misuse of facilities, bribery and corruption, and other factors, routine infrastructure maintenance has been a key problem in many Nigerian public institutions. Nigerian construction projects are valued billions of Naira. It is critical that construction management procedures are given careful consideration; otherwise, the infrastructure's administration will suffer. Before maintenance plans are created to protect the economic value and durability of public buildings, they are permitted to deteriorate to the point of becoming unusable. Such structures are sometimes left without any type of care for an extended period of time, resulting in a

complete overhaul and reconstruction of the previously created project, resulting in a significant economic waste.

2.2.2 Types of Maintenance

There are two types of maintenance; the planned and unplanned maintenance.

Planned Maintenance is preventive maintenance. Preventive maintenance consists; scheduled maintenance and conditioned maintenance. Unplanned maintenance consists of corrective/emergence maintenance.

Furthermore, maintenance as categorized by BS 3811 includes the following terms and definitions

Unplanned Maintenance

This is maintenance carried out with no predetermined plan.” It refers to work necessitated by unforeseen breakdown or damages. For example, the ripping-off of a building, through the action of a storm, and its remedial action constitute unforeseen damages. It can also be termed unexpected and unavoidable maintenance. This type of maintenance involves activities carried out due to sudden change in the building condition.

Planned Maintenance

This is the maintenance organized and carried out with forethought, control and the use of records to a predetermined plan. It involves activities which are carried out based on informed knowledge about the working condition of the facility.

Preventive Maintenance

This is the maintenance carried out at predetermined intervals or corresponding to prescribed criteria and intended to reduce the probability of failure or the performance degradation of an

item. It involves activities carried out to increase the life expectancy of the facility without any actual or long term damage.

Corrective Maintenance

This is the maintenance carried out after a failure has occurred and intended to restore an item to a state in which it can perform its required function. It involves activities carried out as a result of observed defects not total failure of specific elements of the facility.

Emergency Maintenance

This is the maintenance which is carried out immediately to avoid serious consequences. This is referred to as day-to-day maintenance, resulting from such incidents as gas leaks and gale damage.

Condition-based Maintenance

This is a form of preventive maintenance initiated as a result of knowledge of the condition of an item from routine or continuous monitoring.

Scheduled Maintenance

This is a form of preventive maintenance carried out to a predetermined interval of time, number of operations, mileage, etc.

Running maintenance

This is maintenance which can be carried out whilst an item is in service. Seeley (1987) posited that maintenance can be subdivided into three broad categories:

Major Repair or Restoration

This involves such as re-roofing or rebuilding defective walls and often incorporating an element of improvement.

Periodic Maintenance

This is typical of being activities usually carried out at regular intervals like annual contracts for decorations and paintings etc.

Routine or Day-to-Day Maintenance

This is basically preventive in nature, such as sweeping, removal of cobwebs, checking rainwater gutters, servicing mechanical and electrical installations etc.

2.2.3 Nature of Maintenance

Major repairs or replacements will be required during the maintenance process, but the main goal of all maintenance activities is to keep the structure from being in a state that necessitates total replacement of the furniture, services, equipment, or fittings that collectively make up the total environment of any building, or the structure itself (Chudley, 1981). Maintenance is defined by British Standard 3811 (1974) as work done to keep or restore every facility (i.e., every portion of the site, building, and content) at an acceptable standard and cost. According to this perspective, to 'keep the facility' means that much is done to prevent defects from developing, while 'to restore the facility' means that minor defects occur, perhaps as a result of prolonged use or overlooking minor details, and these minor defects are then corrected, and 'to an acceptable standard and acceptable cost' means that maintenance work is carried out to suit individual needs.

Servicing, Rectification, and Replacement are the three basic components of maintenance, according to Seeley (1987).

Servicing:

Essentially, this is a cleaning activity. Cleaning is done on a daily, monthly, or 3-5 year basis, and is sometimes referred to as day maintenance. For example, floors are swept daily,

windows are washed monthly, and painting is done every 3-5 years. As technology becomes more advanced, more extensive servicing schedules are required.

Rectification:

This work frequently occurs early in a building's life cycle and is caused by design flaws, inherent flaws in or unsuitability of components, damage to goods during transit installation, and incorrect assembly. Rectification is a good place to start if you want to save money on maintenance because it can be avoided. All of this is required to verify that components and materials are acceptable for their intended use and are installed correctly.

Replacement:

Items that degrade with use or with the passage of time, as well as those that fail after a given period of use or time are examples of replacement difficulties. Deteriorating items are likely to be huge and expensive (e.g., machine tools, and home appliances). Non-perishable products are typically small and affordable (e.g., light bulbs, vacuum tubes). The longer a deteriorating object is used the more maintenance it needs to stay in working order. Additionally, the longer an item is maintained, the lower its resale value becomes and the more probable it is to be rendered obsolete by new technology. However, if the item is replaced regularly, investment expenses rise. As a result, the challenge is determining when to replace such products and how much maintenance (especially preventative) to undertake so that the total operating, maintenance, and investment costs are as low as possible (BSI, 1993).

2.2.4 Technology of Maintenance

Seeley (1987) defines maintenance technology as the sum of all factors that influence and increase the requirement for maintenance work. Defects in building components are frequently the result of a variety of unconnected design decisions, such as the use of inappropriate materials, erroneous load calculations, an inadequate understanding of the

circumstances of use, and an inadequate evaluation of exposure. He also stated that, in addition to addressing the physical and chemical attributes of building materials, the designer should ensure that materials are employed in such a way that they maximize their potential whenever possible. When the properties of building upkeep are considered, and it is determined that they are unlikely to withstand the test of time, special attention should be paid to maintenance in order to assure ease of replacement. This is where the maintenance activity that will be performed is determined. Frost action, salt crystallization, sunshine, biological agents, abrasions and impact, chemical action and corrosion, and incompatibility of modern building materials can all impair the durability of building materials (Cobbinah, 2010).

Building flaws are multiplying as new building approaches and technologies are developed. They have resulted in enormous sums of money being spent to keep the structure in working order, and in other cases, demolition and replacement only a few years after it was built. Many of these failures are due to a lack of understanding of new materials, components, and processes, according to Seeley (1987). This serves as a reminder to building professionals to get enough understanding of building materials, including their chemical and physical qualities, as well as how to apply that information in construction and maintenance tasks.

2.3 Maintenance Culture

Maintenance Culture is defined as the values, ways of thinking, behaviour, perception, practices and the underlying assumptions of an individual or society as it pertains to maintenance as a matter of importance (Tijani et al. 2016). It is pivotal to increasing the quality of maintenance by extending the lifespan of a facility (Abdullah et al., 2014). Furthermore, Olatunji et al. (2016) viewed maintenance culture as a program that guarantees the quality of the services provided, preservation of public assets and reduction of unnecessary expenses. For a society to achieve the status of being developed it must practice

good maintenance culture (Olufunke 2011). Abdullah et al. (2014) reiterated that effective maintenance brings to the fore the attitude to preserve and protect public facilities. In other words, it focuses on the design and implementation of technical arrangements in the prevention or correction of premature failure of building components with minimal cost and time without compromising system performance and safety parameters (Chiekezie, 2017). Following the assertion of Tijani et al. (2016), maintenance culture has to be a priority especially as regards public facilities with the idea of regularly and consistently keeping the building in good working condition.

According to Usman et al. (2012), reflections of a poor maintenance culture is a peculiar feature of almost every public building in Nigeria. As a result, buildings age faster than expected with shorter life span due to poor maintenance culture and lack of measured standard which has become a major problem to both the public and private sectors. Corruption, bad leadership, nonchalant attitude towards government property, inadequate provision of resources and lack of maintenance policy were revealed as the drivers of the evident poor maintenance of buildings (Tijani et al., 2016; Onwuanyi & Oyetunji, 2019).

Achieving effective maintenance culture according to Alejo (2018) can be achieved by proper identification of defects, thorough experience of material usage, current remedial measures, resource management and execution of sustainable policies. In many instances, as stated by Eke et al. (2017), users carry out maintenance operations unknowingly at particular times in a building life span. These are done in form of cleaning, washing, painting and decoration. However, Kportufe (2015) established the fact that any maintenance work carried out on building; be it minor or major can be categorized into three classes which are servicing, rectification and replacement. These classes of maintenance encompass daily and regular cleaning to prevent major problems, repair works carried out at the early stage of the building

life span to correct defects in building elements, and restoration work on the building structure.

2.3.1 Past Efforts made on Maintenance Culture

Pre-Colonial Era: Before the advent of the Europeans into West African sub-region, traditional houses were built, for both public and private uses. Most of these houses used locally available materials, on their readily available family land, and by the assistance of a readily available family members and friends to help build using their own local method of construction. During these times, there was no noticeable problem of maintenance, even though they were built with mud, thatch, bamboo, wood and other locally available materials (Akin, 2005).

Colonial Era: During the colonial era, foreign building designs started coming in. These came in different forms and styles that looked too complex for the local builders and owners to handle in copying or maintaining. These buildings were built and maintained by the Europeans with the assistance of few local artisans as labors. Some of the artisans ended up getting some skills on the technology of these buildings. However, this technology transfer was negligible if one looks at the replication of such foreign buildings which were limited to the homes of the Europeans and some glorified indigenous civil servants who enjoyed the Government Rest Houses.

Post-Colonial Era: With the oil boom of the 70s various modern and post-modern structures in form of high-rise and skyscrapers started springing up in Lagos and many of the State capitals. Materials and technology used in their construction were mostly imported. At this same time, population explosion struck the country which she has never recovered from even till now.

2.4 Maintenance of Public Buildings

A building is a structure that envelopes exterior walls and roof, erected on the soil composing of other related elements designed for a purpose (Cobbinah, 2010). The primary function of building is to provide conducive and safe environment for people and other human activities throughout its expected life span (Eke, et al., 2017). Deterioration in buildings is caused by wear and tear resulting from continuous usage, aging of the building, design defects and construction error as well as building exposure to weather effects (Thaheem & Alberto, 2014).

Maintenance to retain the original state of a building may be more important than its actual construction as its physical appearance forms the basis upon which society perceives its quality (Kportufe, 2015; Roslan, et al., 2014). Protecting and maintaining buildings require the combination of proactive and reactive maintenance (Eke et al., 2017). Maintenance could be either planned or unplanned. A planned maintenance is an organized arrangement or predetermined repair work done to control a defect whereas an unplanned maintenance is the repair work carried out to restore a sudden defective facility back to its original state (Tijani et al., 2016). Maintenance of public buildings is geared towards the design and implementation of technical processes that supports the prevention and correction of untimely failure with minimal cost and time without compromising the quality and safety of the building as well as to retain the building in an acceptable condition and appealing environment (Abdullah et al., 2014; Ayoola, 2016; Chiekezie, 2017).

It was reported in Eke et al. (2017), that building maintenance which is a key aspect of building management has been much neglected in Nigeria particularly for public buildings. Public Buildings in Nigeria are not properly maintained due to a poor maintenance culture (Abdullah et al., 2014). In recent times, it has been observed that public buildings are subjected to monumental neglect whereas privately owned buildings on the other hand are

properly maintained. This lack of maintenance attitude towards public buildings has caused infrastructural decay in public spaces (Tijani et al., 2016). Many public buildings have suffered from neglect which has resulted to devastating condition (Eke et al., 2017; Alejo, 2018). The dearth of maintenance of public buildings in Nigeria as captured by numerous researchers is caused by numerous factors such as inadequate finance; building design; statutory requirements and building regulations; availability of building materials and parts; components of building fixtures; safety consideration; maintenance policy as well as type of the institution (Sefa et al., 2014).

2.5 Maintenance Needs of Buildings

Building maintenance often extends the life of buildings, allowing them to last longer than facilities that are scarcely or never maintained. A building's life can be divided into two categories: structural and economic. The structural or physical life of a structure ends when it is no longer economically viable to maintain it, but the economic life is concerned with earning power and is the time of effective life before replacement (Isshaku, 2013). According to Seeley (1987), structures typically have a useful life of fifty (50) to sixty (60) years. As a result, maintenance contributes to a building's long life.

According to the Royal Institute of Chartered Surveyors (2009), proper maintenance entails gathering and analyzing data from a variety of sources, including regular condition surveys of the building stock, pre-acquisition surveys prior to any building purchase, the existing planned maintenance programme (or profile), and faults and repairs reported by the public.

According to Zulkarnain et al. (2011), the primary goal of maintenance is to preserve a structure in its early stage as much as possible so that it can efficiently perform its purpose. The basic goals of building maintenance are to preserve the value of an investment, keep the structure in good repair so that it can continue to serve its purpose, and offer a pleasing look.

Maintenance is less expensive, faster, and easier than costly repairs. The important priority for the building should be identifying the building's maintenance needs, because when maintenance activities are carried out at regular intervals with a suitable maintenance framework, it is not only cheaper, but it also extends the life of the structure.

2.5.1 Factors Influencing Maintenance Needs and Cost

According to Hackman et al. (2008), if buildings are viewed as a collection of components and pieces, these components and parts may need to be changed when they wear out. In reality, if regular service and maintenance are not performed, the building may eventually cease to function. Cost of maintenance, age and condition of facility, availability of necessary resources, urgency, future use, and sociological concerns are among the primary factors that can impact the decision to perform maintenance, according to Seeley (1993).

Cobbinah (2010) outlined a number of elements that influence the decision to perform building repair. The fundamental elements are as follows:

Inadequate Finance

He noted that maintenance costs can be easily absorbed in commercial and industrial organizations where they may account for as little as 0.5 percent of turnover, but that maintenance is nevertheless taken for granted in these circumstances unless it threatens output or profitability. This simply means that, unless where there is a direct link between maintenance and profit turnover, maintenance expenditures are the simplest to cut. The problem of slashing maintenance budgets is especially significant in the public sector, because the negative consequences of bad maintenance are less visible. Day-to-day maintenance are frequently overlooked, and efforts focused at improving and rehabilitating buildings are viewed as less important than new development. As a result of this issue,

current facilities rapidly deteriorate, as there is a widespread belief that maintenance is not profit-driven.

Poor Building Design

When a building is planned without sufficient consideration for how to maintain specific components of the building, it necessitates the use of more difficult maintenance techniques, making maintenance more costly. Poor detailing and the use of inappropriate components and materials are regular complaints. In addition, construction errors caused by inadequate plans and specifications, combined with poor workmanship as a result of incompetent contractors being granted building contracts, are common causes of rapid physical degradation in structures. When building a structure, keep in mind that all facilities, regardless of the materials used in construction, will require maintenance at some point, therefore make sure there is enough access and room for critical maintenance like cleaning and small repairs to pipes, ducts, and cables.

2.6 Factors that are Responsible for the Deterioration of a Building

Neglecting maintenance over time has serious consequences, including fast rising deterioration of building materials, as well as detrimental impacts on building components, all of which eventually affect the occupants. A sheltering structure is a basic human amenity, and as such, it is subjected to daily use, resulting in wear and tear. A building is also subjected to natural factors such as wind load, which deteriorate it. Man is also responsible for the deterioration of buildings through a variety of activities that are carried out or disregarded. These include failing to clean, disregarding the primary causes of degradation, failing to raise awareness of maintenance needs among building users, and adopting a negative attitude of deferring maintenance actions until they are absolutely necessary. Age, human factor, design element, environmental factor, location factor, quality and suitability of

materials used, and faulty construction are the key reasons of deterioration in a building. These factors are discussed as follows:

Design Factors

The volume of maintenance work required by the completed building is directly related to the decisions made by designers during the design process. As a result, the designer's responsibility in building maintenance cannot be overstated. Design issues, such as confusing specifications, poor design decisions, and incorrect assessments of the loads to which the structure will be exposed and subjected, will have an impact on the structure's maintenance. Failure of a building component will come from the use of materials that are not suitable for some constructions owing to a lack of awareness of their characteristics and the use of structural components that are too small. A building's structure can quickly deteriorate due to poor design. To avoid future maintenance issues, it is critical to pay close attention to a building's likely maintenance requirements from the design phase.

Human Factor

Socio-cultural and economic aspects are two types of human factors. The developer's educational level, the competency of the experts involved in the project's design, construction and management, and the attitude of the building's end-users are all socio-cultural aspects. Maintenance staff's lack of maintenance culture and inhabitants' misuse of buildings are two components of the human factor. Deterioration develops as a result of the maintenance staff's absence of a proper maintenance culture. Maintenance is hampered and hence deteriorates if the necessary capital is not provided, either owing to insufficient budgeting or inadequate financial resource allocation. Delay in attending to the repair job can result in a more serious maintenance problem. Failure to perform routine maintenance on time, lack of knowledge about factors that cause deterioration, poor planning, budgeting, and allocation of insufficient monetary resources to enable maintenance activities to be undertaken, lack of awareness of

maintenance needs among users, casual approach to repairs, and failure to establish acceptable standards may all contribute to deterioration. The building's users also contribute to its degradation, which can take a variety of forms. One of these methods is vandalism, which is defined as the deliberate destruction and disfigurement of a structure and its components, such as doors, windows, furniture, electrical, and sanitary fixtures. Lack of security, a lack of knowledge among users about the importance of keeping their surroundings clean, and a failure to restore vandalism-damaged areas are just a few of the factors that contribute to continued degradation in buildings. In some circumstances, buildings are transformed to uses other than that for which they were designed, resulting in fast degradation. Building overuse and overcrowding can hasten degradation and contribute significantly to the poor living conditions seen within them. A structure with conscientious residents will require less maintenance than one with irresponsible occupants.

Environmental Factors

These refer to the effect of soil types, climatic condition, and vegetation on the building maintenance. The severity of these environmental factors is based on the site and orientation of the building. For example, a structure built on a firm, evenly slope, well drained and stable soil will require less work to maintain. Similarly, some building materials are sensitive to climatic factors like temperature, rainfall and humidity. For example, extremes in heat and cold can lead to cracks in concrete, if adequate expansion joints are not provided. While extreme sunshine and frequent rains can also make paints on exposed external wall to fade faster. In addition, a building in an area of heavy rainfall is more likely to have maintenance problems of roof leakages or roofs blown away during heavy rainstorms. The chemical constitute of the atmosphere due to environmental pollution also affect the rate of deterioration of external finishes of a building. A building close to the sea for example in areas such as Lagos in Nigeria, is exposed to salty moist breezes from the sea which leads to

chemical reactions on exposed wall surfaces and roof. High humidity can also affect some metabolic fittings and rust can easily occur.

Age of Building

The older the building is, the more the need for its maintenance (Sharma and Gahlot, 2006). As a building gets older, hence closer to its full life span, it deteriorate at a fast rate and the cost of maintenance tends to be higher than in the earlier stages of usage.

Faulty Materials

This has a cross-effect on the maintenance effect of human factors. The following factors contribute to poor construction quality, which leads to future maintenance issues: incorrect material and specification selection, use of substandard materials, inadequate material inspection, provision of inadequate storage facilities on site, inconsistent mixing of materials on site, use of inappropriate materials in relation to use, and use of stale/expired materials. On the basis of absolute scale, a building owner should not consider employing less expensive materials. He should be more concerned with the cost-in-use of each alternative material, as this will help him evaluate the materials' life cycle costs. As a result, he will be able to choose the highest-quality materials that will require the least amount of upkeep. In the long run, lower-cost materials may require more frequent maintenance than higher-cost materials.

Faulty System

Inadequate technical know-how of a designer, unsatisfactory design details, inability of the builder to follow specifications/drawings, inadequate testing of the system before commissioning, failure to follow maintenance instructions and inability of the owner to operate the system as instructed can generate maintenance problems in building structures. Akinsola et al. (2012), buttressed other factors which can attribute to poor maintenance as inadequate routine maintenance, an ineffective maintenance programme, lack of proper

inspections on a planned basis, changing standards or/and tastes and Inadequate data to enable the preceding items to be properly carried out.

Maintenance Funds

Factors such as the organization's policy, asset management strategy, the asset in question, present condition and age profile, operating requirements, and backlog maintenance impact how maintenance funds are distributed (Al-hammad, 2012). Because of insufficient maintenance resources supplied by senior management, maintenance employees have difficulty determining a building's maintenance standard. Top management does not understand organizational and maintenance objectives; as a result, maintenance resources are insufficient to meet maintenance needs (Lateef, Khamidi, and Idrus, 2011). Maintenance funds are not delivered as and when they are due, resulting in delays in the completion of work, increased deterioration of building components, and the accumulation of maintenance backlogs. According to Lateef et al. (2010), maintenance is budget-driven rather than need-driven. Maintenance is only performed if funds are available, which automatically delays proactive maintenance until funds are available to complete the tasks. The maintenance manager's personality and dexterity come into play in putting the maintenance budget in its proper place through proper management awareness of the importance of maintenance and its relationship to the organization's objectives; provided that the budget has an impact on the organization's overall success.

These factors or causes can be seen in their entirety. For example, newly constructed structures are in better shape than older structures, making age a realistic factor in degradation. The structure is susceptible to a variety of influences over time. Environmental elements such as severe moisture content (too high and too low), high and fluctuating temperature, and prevailing winds, among others, have an impact on the building, according to Afranie et al (1999). In areas with high humidity, some materials will hold more moisture,

causing them to become over saturated, which can have a negative impact on the material, no matter how minor. In addition, in low-humidity environments, some materials may deteriorate due to a lack of moisture content. The timber members, cement-based elements, and roofing, particularly corrugated iron sheets, are shown to be the most damaged components of buildings (Afranie et al, 1999). In high humid conditions, organic materials and metals present in a building are frequently attacked and corroded.

The placement of a structure has a direct impact on the problem of maintenance. The precise position of the building is referred to as the location. The environment's geography, soil, nature of social and seismic movement, salt-laden winds and salty water effects, as well as high temperatures and severe temperature variations, all influence location.

2.7 Influence of Maintenance on Public Buildings

Maintenance is very important in enhancing the physical appearance of buildings. Apart from decay, deterioration and degradation of the building itself, inadequate maintenance can reduce performance, affect health and threaten the safety of occupants and those in the vicinity (Twuamai-Ampofo et al., 2017). Deduction made from past research Abdullah et al. (2014), Roslan et al. (2014) and Kportufe (2015) show that maintenance affords innumerable benefits as it prevents the process of decay and degradation in building; maintains structural stability and safety and invariably optimise its performance.

Adequate responsive maintenance practice has been discovered to help inform plans for renovation, refurbishment, retrofitting or new buildings. It also determines the causes of defects and helps prevent its re-occurrence to ensure continued compliance with statutory requirements (Eke et al., 2017; Alejo, 2018).

Odediran (2012) stated that a large percentage of building occupants carry out "servicing" daily maintenance in form of daily, weekly, monthly, quarterly, and yearly. Albeit most do

this without knowing they are carrying out maintenance they do this in form of cleaning, washing of windows, regular painting and decoration. This research totally agrees with this assertion with servicing ranking high along with rectification, replacement and renovation. Conversion and Extension ranks above average while Alteration ranks low.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The plan and procedure used to conduct the research activity are described in this chapter. The definition of research methodology is a methodical approach to problem-solving. It is how researchers approach their task of describing, understanding, and forecasting phenomena (Rajasekar, Philominathan, & Chinnathambi, 2006).

Details on the approach that will be taken to perform the study are provided in this chapter. The research design, the study's target audience, the sample size, the sampling strategy, the research instrument, its reliability and validity, the method of data collecting, and ultimately the method of data analysis are all taken into account.

3.2 Research Design

The specific plan for doing the research is called the research design. In order to accomplish the stated aims, a descriptive and quantitative survey research methodology will be adopted in this study. For such a survey, structured questions are seen to be the most effective method.

3.3 Population of the Study

The term 'population' here refers to the whole universal set that is present in a given research region; that is, potential responders who have the traits or information necessary for participation in the study under consideration. Thus, the population of this study will consist of occupants of institution buildings in Nigeria.

3.4 Sample Frame

A sampling frame is just the collection of source items from which the sample is drawn. The definition also covers the function of sample frames, which is to offer a way to choose the

specific target population members who will be questioned in the survey (Turner, 2003). The sample frame for this study will comprise of occupants of Junior Staff Quarters, University of Benin, Benin City.

3.5 Sample Size

There are fifty seven (57) flats in the University of Benin Junior Staff Quarters consisting of forty four (44) 2 bedroom and thirteen (13) one bedroom flats. This study thus used the entire population as the sample size as suggested by Isreal (2003) cited in Adebisi, Ezeokoli, Oletubo and Alade (2015) which noted that the entire population would have to be sampled in small populations to achieve a desirable level of precision. Hence the sample size of this study consists of the entire 57 staff living in the University of Benin Junior Staff Quarters.

3.6 Sampling Technique

The purposive sampling technique will be utilised in this study. This sampling technique is considered appropriate for this research given that it will allow the researcher to focus on a specific group of people and area of interest to gather in-depth data on the research topic.

3.7 Research Instrument

A structured questionnaire which will be designed by the researcher to collect pertinent and appropriate data from the respondents will serve as the research instrument for this study. Without revealing their identity, the respondents will be given the questionnaire to complete. Each question will require the respondents to provide a specific response by ticking the box next to the proper response with a (✓). There will be two sections on the questionnaire; A and B respectively. The demographic information about the respondents, including their gender, age, marital status, length of stay in the quarters, and their position in the institution, will be the emphasis of Section A. Meanwhile, Section B will concentrate on the issues brought up by the research questions.

3.8 Validity and Reliability of the Research Instrument

The expert judgment technique will be used to assess the instrument's face and content validity. In this respect, the researcher's supervisor will be provided a sample of the questionnaire's draft copy in order to guarantee that the research instrument catches the needed data and information by evaluating the questionnaire's efficacy and the questions' relevancy. Before printing and distributing the survey to the respondents, the researcher will make the required modifications and comments based on the supervisor's evaluation. This will make it easier to verify the validity and dependability of the research instrument's data.

3.9 Method of Data Collection

Primary and secondary sources will be used as the main sources of information for this investigation. Primary data will be collected through the distribution and collection of structured questionnaires. During a field survey, the researcher will personally administer the research instrument to the respondents face-to-face. The questionnaires will self-filled by the respondents, and the researcher will collect them for further examination. The World Wide Web, popularly known as the internet, textbooks, articles from scholarly publications, unpublished theses and dissertations, and other secondary sources of data will also be used in this study.

3.10 Method of Data Analysis

The information/data obtained from the field survey (the administration and retrieval of the study instruments) will be computed using descriptive statistics like frequency count and simple percentage. The data computation findings will then analyzed and evaluated using Mean score in light of the research objectives and questions raised in chapter one of this study. Chapter 4 of this research presents the data computation results and a discussion of the results.

CHAPTER FOUR

DATA PRESENTATION AND INTERPRETATION OF RESULTS

The aim of this research project was to find out the maintenance culture practice on institutional building in Nigeria; a case study of the junior staff quarter in the University of Benin. The aim was achieved through the following specific objectives:

1. To identify the current maintenance practices carried out on the University of Benin junior staff quarters.
2. To ascertain the frequency of maintenance carried out on University of Benin Junior Staff Quarters.
3. To identify the major maintenance needs of University of Benin Junior Staff Quarters.
4. To ascertain the challenges of maintaining institutional buildings in Nigeria.

In line with the above stated objectives, this chapter presents data analysis and findings from the interview, site observation and survey questionnaire. It begins with descriptive analysis of the demographic's variables of participating firms and respondents. This is followed by analysis the present conditions of facilities, current management practices and challenges in facilities management. The main statistical methods and tools used were Mean index Score. Data collected from the questionnaires were tabulated and analyzed according to their ranking on mean index score.

This chapter talk about the result and interpretation of the data. The responses are organized in tables to help analyses the responses to the relevant question in the questionnaire. It is important to know that this data analysis is done with technical precision so as to avoid erroneous inferences which could affect the objective of the study. The main objectives are to determine the views of the respondents on the questions contained in the questionnaire.

Demographic Information

Item	Variable	Frequency	Percentage
Gender	Male	33	57.9%
	Female	24	42.1%
Age	Below 30years	40	70.2%
	31-35 years	9	15.8%
	36-40 years	5	8.8%
	41-45 years	2	3.5%
	46 years and above	1	1.8%
Marital status	Single	39	68.4%
	Married	18	31.6%
Length of stay	Below 6 years	9	15.8%
	6 -10 years	21	36.8%
	11 -15 years	21	36.8%
	16 – 20 years	5	8.8%
	21 years and above	1	1.8%
Position of respondent	Graduate assistant	28	48.1%
	Lecturer II	19	33.3%
	Lecturer I	8	14%
	Lab technician	2	3.5%

From the table above it can be seen that 33(57.9%) are male while 24(42.1%) are female respondent. The age of the respondent shows that 40(70.2%) are below 30 years, 9(15.8%) are 31 -35 years, 5(8.8%) are 36 -40 years, 2(3.5%) are 41 -45 years and 1(1.8%) are 46 years and above. The marital status shows that 39(68.4%) are single while 18(31.6%) are married people. The length of stay shows that 9(15.8%) have stay below 6 years, 21(36.8%) have stay between 6 -10years, 21(36.8%) have stay between 11-15 years, 5(8.8%) have stay between 16 -20 years and 1(1.8%) have stay from 21 years and above. The position of the respondent shows that 28(48.1%) are graduate assistant, 19(33.3%) are lecturer II, 8(14%) are lecturer I and 2(3.5%) are lab technicians.

Research Question 1: What is the current maintenance practices carried out on University of Benin junior staff quarters?

S/N	Item	Variables	Mean	Frequency	Percentage
1	How would you rate the current maintenance practice of the University of Benin with regards to its junior staff quarters?	Excellent	4.12	2	3.5%
		Good		2	3.5%
		Fair		13	22.8%
		Average		10	17.5%
		Poor		30	52.6%
2	Preventive maintenance is usually practiced	Agree	1,86	17	29.8%
		Disagree		31	54.4%
		Neutral		9	15.8%
3	Corrective maintenance is usually practiced	Agree	1.82	13	22.8%
		Disagree		41	71.9%
		Neutral		3	5.3%
4	Maintenance work is rarely carried out regardless of the complaints of occupants	Agree	1.88	22	38.5%
		Disagree		20	35.1%
		Neutral		15	26.3%

From the first research question which focused on the current maintenance practice carried out on the University of Benin junior staff quarters, 30(52.6%) of respondents agreed that the maintenance is poor from the data gathered. 31(54.4%) said preventive maintenance is not practiced in the maintenance of the junior staff quarters. 41(71.9%) also disagree that corrective maintenance is not usually practiced in the junior staff quarters. 22(38.5%) agree that maintenance work is rarely carried out regardless of the complaints of the occupants.

Research Question 2: What is the frequency of maintenance carried out on University of Benin junior staff quarters?

S/N	Item	Variables	Mean	Frequency	Percentage
5	How often are faulty electrical installation are attended to?	Frequently	2.58	7	12.3%
		Not frequently		20	35.1%
		Rarely		20	35.1%
		Never		10	17.5%
		Do not know		-	-
6	How often are pipe linkages attended to?	Frequently	3.72	7	12.3%
		Not frequently		5	8.8%
		Rarely		9	15.8%
		Never		12	21.1%
		Do not know		24	42.1%
7	How often are the building renovated or painted?	Once it is newly taken over	5.42	5	8.8%
		Once in 10 years		2	5.3%
		Once in 20 years		-	-
		Once in 30 years		-	-
		Once in 40 years		-	-
		Never been painted		50	87.7%
8	Damage louvers, doors and windows are immediately removed and replaced when they are bad	Agree	1.91	8	14%
		Disagree		46	80.7%
		Neutral		3	5.3%
9	Buildings in the quarters receive prompt maintenance work	Agree	1.96	5	8.8%
		Disagree		49	86%
		Neutral		3	5.3%

The second research question focused on the frequency of maintenance practices carried out in the University of Benin junior staff quarters. 20(35.1%) said they rarely carried out faulty electrical installation. 24(42.1%) said they don't know how often are their pipe leakages are

attended to or maintained in the quarters. 50(87.7%) said the quarters have never been painted or renovated. 46(80.7%) disagree that damage louvers, doors and windows are not immediately removed or replaced when they are bad. 49(86%) disagree that the building does not receive prompt maintenance work on time.

Research Question 3: What are the maintenance needs of university of benin junior staff quarters?

S/N	Item	Variables	Mean	Frequency	Percentage
10	There are damaged doors and windows that need immediate replacement	Agree	1.35	39	68.4%
		Disagree		16	28.1%
		Not sure		2	3.5%
11	Most electrical installations are faulty and in bad condition and needs to be fixed or replaced	Agree	1.51	32	56.1%
		Disagree		21	36.8%
		Not sure		4	7%
12	There is lack of regular water supply to the building in the quarters	Agree	1.58	24	42.1%
		Disagree		33	57.9%
13	The roofs of the building are bad and needs to be replaced	Agree	1.32	39	68,4%
		Disagree		18	31.6%
14	The building in the quarters look too old and dirty and need to be painted	Agree	1.26	42	73.7%
		Disagree		15	26.3%
15	There are no proper drainages and working sewage system in the quarters	Agree	1.44	37	64.9%
		Disagree		15	26.3%
		Not sure		5	8,8%

The third research question focused on the maintenance needs of the University of Benin junior staff quarters. From the table above it shows that 39(68.4%) agree that there are damaged doors and windows that need immediate replacement. 32(56.1%) agree that most electrical installation are faulty and in bad condition and need to be fixed or replaced. 33(57.9%) disagree that the roofs are bad and need to be replaced. 42(73.7%) agree that the

building in the quarters look too old and dirty and need to be painted or renovated to a modern standard for living. 37 (64.9%) agree that there are no proper drainages and working sewage system in the quarters.

Research Question 4: What are the challenges of maintaining institutional building in Nigeria?

S/N	Item	Variables	Mean	Frequency	Percentage
16	Inadequate government funding	Strongly agree Agree Disagree Strongly disagree Neutral	1.68	32 17 5 - 3	56.1% 29.8% 8.8% - 5.3%
17	Lackadaisical attitude of those in charge of institutional buildings	Strongly agree Agree Disagree Strongly disagree Neutral	1.60	33 18 4 - 2	57.9% 31.6% 7% - 3.5%
18	Poor maintenance culture of institution management and Nigerians generally	Strongly agree Agree Disagree Strongly disagree Neutral	1.91	15 37 2 1 2	26.3% 64.9% 3.5% 1.8% 3.5%
19	Structural design and policy issue	Strongly agree Agree Disagree Strongly disagree Neutral	1.79	23 27 5 - 2	40.4% 47.4% 8.8% - 3.5%
20	The general tendency to execute work only when it becomes a matter of urgency	Strongly agree Agree Disagree Strongly disagree Neutral	1.74	32 14 8 - 3	56.1% 24.6% 14% - 5.3%

21	Absence of planned maintenance program	Strongly agree	1.37	46	80.7%
		Agree		7	12.3%
		Disagree		1	1.8%
		Strongly disagree		-	-
		Neutral		3	5.3%

The fourth research question focused on the challenges of maintaining institutional building in Nigeria. 32(56.1%) strongly agree that there is inadequate government funding to the welfare of the staff and the institution generally. 33(57.9%) strongly agree that the attitude of people in charge of institutional building is bad. And they need to be training and equip also. 37(64.9%) agree that there is poor maintenance culture in the management of institution building generally. 27(47.4%) agree that there is structural design and policy issue in the maintenance of building in the institution. 32(56.1%) strongly agree that the general tendency to execute work comes with it is a matter of urgency. 46(80.7%) strongly agree that the institution lack absence of planned maintenance program.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

This study looks at the maintenance culture in institutional building in Nigeria a case study of the University of Benin junior staff quarters, University of Benin. The study looks at the different objectives, the current maintenance practices carried out on the junior staff quarters, how frequent is maintenance carried in the junior staff quarters, the maintenance needs of the junior staff quarters and the challenges of maintaining institutional building in Nigeria. Data was gathered from the various respondents focusing of the aim and objective of the study. From the analysis conducted it shows that the current maintenance practice is poor, preventive maintenance is usually practiced, corrective maintenance is not practiced, maintenance work is rarely carried out in the junior staff quarters. Faulty electrical installation are not frequently attended to, many don't know if the leak pipes are attended to, most of the building that not been renovated or painted for long, damages doors and windows are not immediately replaced when they are bad, the building does not receive prompt maintenance work, many of the building need doors and windows for immediate replacement, the building need regular water supply, the buildings are too old and dirty and need a new look and standard structure, there is no proper drainage and working sewage in the quarters. Government needs to release funds so the welfare of the staff can be attended to, the institution should train people on the need for maintenance of the quarters, there is poor maintenance culture in the institution, there is need to work on damages structure fast not when an accident happen before funds and action are done on the building. The institutional lack planned maintenance program.

Conclusion

Building maintenance is a very crucial aspect of construction. It has always been a major problem in Nigeria because so many people do not practice proper building maintenance, which leads to early deterioration of a building resulting to loss of property, reduction in economic value of the building and also leads to an overall inefficiency or failure of the building. This study undertook an assessment of the maintenance culture in institutional building in Nigeria, focusing on the University of Benin junior staff quarters a case study. The study revealed that the current maintenance practice in the University of Benin junior staff quarters is poor, preventive maintenance is usually practiced, corrective maintenance is not practiced, maintenance work is rarely carried out in the junior staff quarters. The study also revealed that the buildings in the quarters are too old and dirty, lack adequate water supply, and need a new look and standard structure. To this end therefore, it is the researchers opinion that government needs to release funds so that the (housing) welfare of the staff in the quarters can be attended to, and that the institution should train people on the need for maintenance of the quarters.

Recommendations

Having considered the general idea of maintenance culture practice, its application in bulk and the educational institution as well as problems experienced in its practice, the following recommendations are necessary for the maintenance practice in the university and the country as a whole:

Formal training in building maintenance should be incorporated in various tertiary institution with necessary input from key staff organization that have applied maintenance behaviour principles and theories. The advantage of this is to ensure that organization are attracted to the discipline and that they embrace its practice. With this the occupant of the building will know the right things to do and also help to maintain the structure of the building, there

would be more people trained specifically for the management of the staff quarters and there will be no need to settle for unskilled person or mediocre to do the job.

Better planning techniques should be adopted by the university management, with this appropriation of funds made available for maintenances development and management will be used for the good of the university and the staff.

Periodic checks and study of each apartment and other materials should be carried out regularly and properly especially when complains are being filed.

Suggestions for Further Study

It is the researcher's opinion that further research be conducted on the following areas:

1. Research should be carried out on the challenges of maintaining institutional buildings in Nigeria.
2. Further research should also be conducted on the need and importance of preventive maintenance.
3. The researcher also suggests that similar research be undertaken on University of Benin senior staff quarters.

Contribution to knowledge

This research will allow the University of Benin Management and the appropriate government authorities to crucially evaluate the current state of University of Benin Junior Staff Quarters and the living condition of its occupants hopefully with a view of addressing the maintenance needs of the building.

This study will spur the University Management to design an effective framework for building upkeep, and assist in gaining access to current maintenance practices at the University of Benin generally.

Maintenance culture on institutional buildings, specifically the UNIBEN junior staff quarters, could contribute valuable insights into best practices for sustaining infrastructure. It could uncover challenges faced by junior staff in maintaining these buildings and offer recommendations for improvement, potentially enhancing the longevity and efficiency of the structures.

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APPENDIX

DEPARTMENT OF ESTATE MANAGEMENT

FACULTY OF ENVIRONMENTAL SCIENCES

UNIVERSITY OF BENIN, BENIN CITY

Dear Sir/Madam,

I am a 500 level student of the above named Department and Faculty currently working on the topic “**An evaluation of the maintenance culture on institutional buildings in Nigeria: case study of University of Benin Junior Staff Quarters**”. The purpose of this questionnaire is to obtain first-hand information on my final year project work. Your identity remains undisclosed during and after this research and your response will be treated with utmost confidentiality and used only for academic purpose.

**Joy Omobogie
(Researcher)**

SECTION A: Personal Data of Respondents

Please tick [] the option that corresponds to your opinion.

1. Gender: Male (); Female ()
2. Age: Below 31 years (); 31 – 35years (); 36 – 40years (); 41 – 45 years (); 46 years and above ()
3. Marital Status: Single (); Married (); Separated (); Divorced ().
4. Length of stay: Below 6years () 6 – 10 years () 11 – 15years () 16 – 20years () 21years and above ().
5. Position: Graduate Assistant (); Lecturer II (), Lecturer I (); Lab. Technician (); Others (Please specify) _____.

SECTION B: Research Questions

Please indicate your degree of agreement or disagreement with the following statements by ticking () on the appropriate column.

QUESTIONNAIRE ON THE EVALUATION OF MAINTENANCE CULTURE ON INSTITUTIONAL BUILDINGS IN NIGERIA

RQ 1: What is the current maintenance practices carried out on University of Benin Junior Staff Quarters?

1. How would you rate the current maintenance practice of the University of Benin with regards to its Junior Staff Quarters?
 - a) Excellent ()
 - b) Good ()
 - c) Fair ()
 - d) Average ()
 - e) Poor ()
2. Preventive maintenance is usually practiced.
 - a) Agree ()
 - b) Disagree ()
 - c) Neutral ()
3. Corrective maintenance is usually practiced.
 - a) Agree ()
 - b) Disagree ()
 - c) Neutral ()
4. Maintenance work is rarely carried out regardless of the complaints of occupants.
 - a) Agree
 - b) Disagree
 - c) Neutral ()

RQ 2: What is the frequency of maintenance carried out on University of Benin Junior Staff Quarters?

5. How often are faulty electrical installation are attended to?
 - a) Frequently ()
 - b) Not frequently ()
 - c) Rarely ()
 - d) Never ()
 - e) Do not know

6. How often are pipe linkages attended to?
 - a) Frequently ()
 - b) Not frequently ()
 - c) Rarely ()
 - d) Never ()
 - e) Do not know
7. How often are the buildings renovated or painted?
 - a) Once it is newly taken over
 - b) Once in 10yrs
 - c) Once in 20yrs
 - d) Once in 330yrs
 - e) Once in 40yrs
 - f) Never been renovated or painted
8. Damage louvers, doors and windows are immediately removed and replaced when they are bad?
 - a) Agree ()
 - b) Disagree ()
 - c) Not sure ()
9. Buildings in the quarters receive prompt maintenance work.
 - a) Agree ()
 - b) Disagree ()
 - c) Not sure ()

RQ 3: What are the maintenance needs of University of Benin Junior Staff Quarters?

10. There are damaged doors and windows that need immediate replacement.
 - a) Agree ()
 - b) Disagree ()
 - c) Not sure ()
11. Most electrical installations are faulty and in bad condition and needs to be fixed or replaced.
 - a) Agree ()
 - b) Disagree ()
 - c) Not sure ()
12. There is lack of regular water supply to the buildings in the quarters.
 - a) Agree ()
 - b) Disagree ()
13. The roofs of the buildings are bad and needs to be replaced.
 - a) Agree ()
 - b) Disagree ()
14. The buildings in the quarters look too old and dirty and needs to be painted.
 - a) Agree ()
 - b) Disagree ()
15. There are no proper drainages and working sewage system in the quarters.
 - a) Agree ()
 - b) Disagree ()
 - c) Not Sure ()

RQ 4: What are the challenges of maintaining institutional buildings in Nigeria?

- 16. Inadequate government funding.
 - a) Strongly Agree ()
 - b) Agree ()
 - c) Disagree ()
 - d) Strongly Disagree
 - e) Neutral ()
- 17. Lackadaisical attitude of those in charge of institutional buildings.
 - a) Strongly Agree ()
 - b) Agree ()
 - c) Disagree ()
 - d) Strongly Disagree ()
 - e) Neutral
- 18. Poor maintenance culture of Institution Management and Nigerians generally.
 - a) Strongly Agree ()
 - b) Agree ()
 - c) Disagree ()
 - d) Strongly Disagree ()
 - e) Neutral ()
- 19. Structural design and policy issues.
 - a) Strongly Agree ()
 - b) Agree ()
 - c) Disagree ()
 - d) Strongly Disagree ()
 - e) Neutral ()
- 20. The general tendency to execute work only when it becomes a matter of urgency.
 - a) Agree ()
 - b) Strongly Agree ()
 - c) Disagree ()
 - d) Strongly Disagree ()
 - e) Neutral ()
- 21. Absence of planned maintenance program.
 - a) Agree ()
 - b) Strongly Agree ()
 - c) Disagree ()
 - d) Strongly Disagree ()
 - e) Neutral ()
- 22. Are there any measures or initiatives you would like suggest to enhance the maintenance effectiveness in the University of Benin Junior Staff Quarters? Please state briefly below:
