

**THE EFFECT OF MAINTENANCE CULTURE ON THE QUALITY OF PUBLIC
BUILDING IN OREDO BENIN CITY**

BY

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FACULTY OF ENVIRONMENTAL SCIENCE

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BENIN CITY

APRIL, 2024

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**PROJECT SUBMITTED TO THE DEPARTMENT OF ESTATE MANAGEMENT
FACULTY OF ENVIRONMENTAL SCIENCE, UNIVERSITY OF BENIN, NIGERIA IN
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BACHELOR OF SCIENCE (B.Sc.) IN ESTATE MANAGEMENT.**

SUPERVISED BY ESV. E. O ALOHAN

APRIL, 2024

CERTIFICATION

This is to certify that this project work “ The effect of maintenance culture on the quality of public building in Oredo, Benin-City.” was carried out by **OGBARO JULIET ORISHESHOLAYE** 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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DATE

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(Head of Department)

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(External Examiner)

DATE

DECLARATION

I declare that this research work titled “The effect of maintenance culture on the quality of public building in Oredo, Benin City” is an original work carried out by me, **OGBARO JULIET ORISHESHOLAYE** with Matriculation Number **ENV1805770** in the Department of Estate Management University of Benin, Benin City under the supervision of the Department Board.

Ogbaro Juliet Orishesholaye

Signature Date.....

ENV1805770

DEDICATION

I dedicate this work to God Almighty. For his infinite mercies, guidance, and protection throughout my study. To Him alone be the glory.

ACKNOWLEDGMENT

I extend my deepest appreciation to the individuals whose support and guidance were integral to the completion of this project and my academic journey as a whole.

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ABSTRACT

This study investigates the maintenance culture and its impact on public office buildings in Oredo, Benin City, Nigeria. Using a descriptive survey design with staff from the Oredo secretariat's maintenance department, the study found that the state of maintenance of public buildings is very poor and users have negative perceptions towards maintenance. Key strategies identified to enhance maintenance culture include establishing a dedicated maintenance team, increasing budgets, regular inspections, public education, and stricter penalties for vandalism. Additional strategies include performance-based contracts, technology-driven solutions, clear maintenance standards, sustainability principles, and staff training. Implementing these recommendations can significantly improve the condition of public buildings and user perceptions.

CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

Public property refers to property that is dedicated to public use and is a subset of state property. The term can describe the use to which the property is put or the character of its ownership, which is collectively owned by the population of a state. This is in contrast to private property, which is owned by individuals or artificial entities that represent the financial interests of persons, such as corporations. State ownership, also known as public ownership, government ownership, or state property, refers to property interests vested in the state rather than individuals or communities (Wikipedia, 2015).

Public buildings are buildings owned by a town, state, or organized private sector that are utilized by the general public. They can also include any facility owned or leased by a governmental organization and primarily used for meetings, general business, and residential purposes (Cholasuke, 2004). As mentioned by Cholasuke (2004) and Ogunbayo (2021), public buildings deteriorate at different rates, similar to any other physical construction. The rate of deterioration is influenced by the level of involvement of users and maintenance staff in the facility's upkeep.

However, the public generally perceives public facilities as government-owned assets with no individual ownership (Adeleye, 2009). As a result, these facilities, intended to serve the public, often deteriorate and remain unused because people lack the motivation to ensure their sustainability. Consequently, public facilities have a limited lifespan primarily due to a lack of interest and care. This highlights the importance of a strong maintenance culture to ensure

infrastructural development is meaningful. According to Ajibola (2009), individuals must adopt a culture of maintenance to maximize the value of their investments. This applies not only to personal possessions like buildings, machinery, vehicles, household items, and furniture but also extends to public physical assets. The quality of our lives and our ability to effectively utilize and appreciate these assets, as well as our bodies, depends on our commitment to embracing a maintenance culture. Therefore, it is essential to provide a clear definition of the term "maintenance culture" to understand its significance in promoting sustainable development. According to Tijani et al. (2016), maintenance culture encompasses the values, mindset, behaviors, perceptions, practices, and underlying assumptions related to the importance of maintenance within a society. Ajibola (2009) defines culture as "the collective beliefs and values held by a group; the convictions, traditions, rituals, and societal conduct of a specific nation or community." Furthermore, he describes maintenance as "the regular tasks performed to ensure a machine, structure, or piece of equipment remains in a sound state," whether by preserving it in its current state or restoring it to an acceptable condition. Adeleye (2009) sees maintenance as the act of ensuring that equipment and mechanized infrastructure remain operational for continuous use. Eti et al. (2006) view maintenance as the preservation and upkeep of objects to maintain them as close as possible to their original condition. Therefore, maintenance involves preserving and maintaining all development projects that bring benefits to the community. However, it is important to note that the necessary focus on organizing and executing maintenance operations has often been overlooked when it comes to ensuring the sustainability of various infrastructure projects. As Adenuga and Iyagba (2005) have pointed out, public buildings often exist in a state of severe disrepair, both structurally and aesthetically. Despite significant financial investments in their construction, these buildings are often left to deteriorate

and decay after their commissioning, as highlighted by Adenuga in 2012. Building maintenance refers to the practice of preserving the economic value of a structure. It involves performing technical and administrative procedures to maintain or restore the building to its intended condition. According to Oke (2005), building maintenance is crucial for the performance and profitability of corporate organizations. Maintenance includes various operations, both technical and administrative, that aim to uphold the acceptable standard of an object (Crespo et al., 2009).

In recent years, there has been a growing emphasis on sustainable infrastructure development, with a focus on the efficient management of public buildings. While the significance of maintenance culture and its impact on property quality has been studied in other sectors, research specifically examining this relationship in the context of public buildings is lacking.

Public buildings present unique challenges, such as heavy foot traffic, diverse user requirements, and complex systems and equipment. These challenges necessitate an effective maintenance culture to ensure optimal functioning and high-quality standards. Neglecting maintenance can lead to substandard conditions, safety hazards, and increased repair and replacement costs. Public buildings comprise a diverse array of facilities, such as government offices, hospitals, educational institutions, and recreational centers. The maintenance culture in these sectors can vary due to differences in organizational structures, funding resources, and priorities. To develop a thorough understanding of the connection between maintenance culture and property quality, this research will focus on selected public buildings in Oredo, Benin City. The study will examine the buildings' current state and maintenance practices, considering the perspectives of both management and users.

1.1 Statement of the Problem

The decline in permanent quality maintenance in public buildings has led to accelerated deterioration, increased safety risks, increased long-term costs, and loss of functionality and accessibility to many of the facilities it is designed to carry will serve the community. Furthermore, this study will only focus on some selected public buildings including public office buildings, it may highlight the consequences of these challenges on the degradation of public housing systems, which may pose safety risks and a decline in the quality of all public buildings. Mbamali (2013) asserted that in Nigeria, the concept of maintenance culture, whether in residences, offices, schools, or public buildings, has been negligently developed. Furthermore, Roslan et al. (2014) highlighted that despite significant investments in public buildings, the state institutional level of maintenance culture has had a negative impact on sustainable maintenance strategies aimed at preserving the quality of buildings on. As a result, this poor road has significantly reduced the value of all public properties and buildings, and has accelerated the deterioration of building materials and finished water as noted by Twuamai-Ampofo and colleagues. (2017) and Ofori et al. (2015), ultimately resulting in a decline in a significant portion of the country's wealth (Ugwu et al., 2018).

An earlier study by Andrew E in 2021 examined the reasons for the deteriorating conditions in public buildings, particularly hospitals, in developing countries during pandemics. He identified inadequate investments, lack of well-designed maintenance plans, and insufficient skilled manpower as major factors contributing to this decline but few studies examined the end-use of public housing views on potential funding and remedial measures. Similarly, an analysis of a study conducted by Zubairu (1998) concluded that insufficient funds, inadequate maintenance,

leakage and other recurring issues are the main reasons for government office buildings which has deteriorated in Nigeria this also leads to employee dissatisfaction with workplaces . Addressing financial and organizational gaps can help manage building maintenance issues in the public sector. Ogunbayo , B. , Aigbawboa , C.S. (2022) found additional differences in one of their studies. where he found out how to overcome the challenges of promoting maintenance culture but no other research has been done in the area of implementing effective maintenance culture in public buildings. This study aims to explore the possible factors and research findings on the impact of maintenance culture and quality of public buildings and most of these studies have addressed maintenance culture reduction factors and strategies of some countries a possibly influenced by others also research that had been pursued towards the lack of a maintenance culture which is not used by these authorities who provided public housing but focused mainly on the establishment of new development infrastructures. By addressing these challenges this research will solely focus on how maintenance culture will impact the quality of public buildings, particularly the public office's building.

1.2 Research Questions

1. What is the current state of maintenance in public buildings in Oredo, Benin City?
2. What are the ways of implementing maintenance culture in public buildings?
3. What are the altitude and perceptions of users in public buildings as to maintenance
4. What strategies and best practices can enhance maintenance culture and the quality of public buildings?

1.3 Aims and Objectives of the Study

The main aim of the study is to investigate, analyze, and understand the current state of maintenance culture and its effects on the public office building particularly the public office secretariat in Oredo, Benin City, to produce sustainable solutions to the maintenance of public buildings in Nigeria.

The specific objectives are:

1. Assess the Current State of the Maintenance Culture of Public Buildings in Oredo, Benin City
2. To Explore Strategies for Enhancing Maintenance Culture
3. To identify the ways of implementing maintenance culture in the study area.
4. To investigate the altitude and users' perceptions of maintenance in public buildings,

1.4 Significance of the Study

In order to identify and analyze the current state of maintenance culture in public sector buildings and propose strategies to enhance maintenance culture, it was necessary to investigate the impact of maintenance culture and quality of public buildings on. Although research on maintenance culture has been conducted in the past, there is insufficient research supporting the maintenance culture of the selected public buildings discussed in this study. The study provides valuable insights to government officials and policymakers about the importance of cultural repair and its impact on the quality of public housing. It emphasizes the importance of good maintenance practices and resource management, which can inform policies and procedures that encourage routine maintenance. Building managers and maintenance professionals benefit from

the research findings by understanding the importance of their role in ensuring the efficiency, safety and preservation of public buildings. Well-maintained public buildings contribute to the overall beauty of a community, enhance its image and potentially attract investment, tourism and investment opportunities. This study will also serve as a resource for other scholars and researchers interested in further research in this area and subsequently, if applied, will go as far as providing a new explanation of the topic around.

1.5 Scope of the Study

The scope of the study will focus on analyzing the impact of maintenance culture on the quality of a selected public building, namely the Public Works Secretariat, located in Oredo district of Benin. The review will examine the attitudes and practices of stakeholders, including building users, management personnel and relevant government agencies, in relation to maintenance practices in the Office of the Secretary of Public Affairs. In addition, the review will examine the effectiveness of existing maintenance policies, procedures and policies specific to the Office of the Secretary of Public Affairs. The findings of this study will contribute to a better understanding of the impact of a culture of maintenance on the quality of public housing, with a focus on the Public Works Secretariat in Oredo, Benin. This analysis can provide valuable insights and recommendations for improving maintenance practices to ensure the durability and quality of the public infrastructure in the selected building.

1.6 Study Area

Benin City, also known as Edo, is the capital and largest city of Edo State in southern Nigeria. Benin City is situated on a branch of the Benin River and lies on the main highways in the

eastern states from Lagos. It is also connected by roads to Sapele, Siluko, Okene, Ubiaza etc. The town is served by air, Koko and Sapele and Niger River Delta ports Benin City was the capital of the Edo (Bini) Kingdom of Benin (developed in the 13th–19th centuries). It was destroyed in 1897 by the British, who attacked and assaulted a British caravan east of the Edo River, who were told not to enter the town during a religious festival but attempted to do so this Before the British burned the town and much famous bronze, ivory, others and the treasure was taken and looted. Traces of the old wall and dam remain, but the new town is a close companion of houses and streets near the palace and compound of the Oba (Holy King), and government offices Later became Oba Iwuare and now Oba holds tradition and an advisory role in governance. Benin has long been known for its “bronze casts” of course bronze work, some of which are said to date back to the 13th century, and for its ivory and wood carvings, and its museum (1960) has some collections the earliest fragment of a magnificent mouth in the kingdom. The city’s artisans now still use the ancient method of casting cire perdue (“lost wax”), and its carpenters are organized in a cooperative craft Benin, the hub of Nigerian rubber production, has several production facilities and a crepe rubber factory. Nearby is the Nigerian Rubber Research Institute (1961) at Iyanomo. Benin City also has sawmills. Products produced in the city include furniture, beer, and soft drinks. The traditional export of palm oil and palm kernels remains important. The Nigerian Institute for Oil Palm Research (1939) is here. Benin City is the site of the University of Benin (1970).

Source:

<https://www.researchgate.net>



Fig 1.2: Study area in its Regional context

Source: <https://www.researchgate.net>

1.7 Operation of Definition of Terms

- 1. Maintenance:** The technical meaning of maintenance involves functional checks, servicing, repairing or replacing necessary devices, equipment, and machinery, building infrastructure, and supporting utilities in industrial, business, and residential installations. Over time, this has come to include multiple wordings that describe various cost-effective practices to keep equipment operational; these activities occur either before or after a failure.

2. **Culture:** a concept that encompasses the social behavior, institutions, and norms found in human societies, as well as the knowledge, beliefs, arts, laws, customs, capabilities, and habits of the individuals in these groups. Culture is often originated from or attributed to a specific region or location. The definition of culture most often quoted is that of Tyler: "Culture is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society."
(Tyler)
3. **Public building:** a building that belongs to a town or state, and is used by the public. It also means office buildings, theaters, garages, auto camps, hotels, clubs, churches, schools, hospitals, or other places of similar character.
4. **Maintenance Culture:** Maintenance Culture is characterized as the set of values, thought processes, behaviors, attitudes, practices, and fundamental beliefs held by individuals or within a society regarding the significance of maintenance (Tijani et al., 2016).

CHAPTER TWO

LITERATURE REVIEW

2.0 Preamble

Maintenance culture plays a crucial role in ensuring the longevity and quality of public buildings. The effective management and maintenance of these structures are essential for providing safe and functional spaces for the public. This literature review aims to explore the impact of maintenance culture on the quality of public buildings, with a focus on comparing and contrasting various approaches and strategies concerning office secretariat building. By

examining existing research and scholarly articles, this review will provide valuable insights into the significance of maintenance culture in enhancing the quality of public buildings.

2.1 Maintenance Culture

Maintenance culture according to Skaluba [op. cit] is a general term that encompasses beliefs, behaviors and activities that are embraced when it comes to management and preservation of public facilities. In their study, Tijani et al. (2016) define maintenance culture broadly to refer to the beliefs and attitudes, expectations and behaviors, as well as philosophies of care and underlying assumptions that different societies attach to maintenance. Regular maintenance is crucial in enhancing quality and service duration of infrastructures (Abdullah et al,2014). Maintenance culture has also been described as a program that focuses on the achievement of service quality, the protection of public assets, as well as the minimization of avoidable expenses (Olatunji et al. , 2016). In line with this assertion from Olufunke (2011), one culture presented in cultured societies is Cultures of Maintenance. If a nation has to gain superior level of development we as people and organisation in that nation need to learn to make maintenance duties important by socialising new belief systems and practices that keeps structures, systems, facilities, equipment and institutions working optimally for long periods of time even as we seek to continually develop new ones. The practice of consistent, reliable preservation which these countries possess creates the quality services and assets that define a modernized, developed society. Effective preventive measures emphasize the fundamental philosophy of ‘conservation’ within the public domains, as Abdullah et al.(2014) opined. In other words, maintenance involves the implementation and coordination of effectual, punctual technical measures that will not necessitate an excessive amount of money or time in order to protect or rectify the initial unsound failure of the building elements while demanding safety and performance based on

Chiekezie (2017). In their words: More precisely, as Tijani et al. (2016) have it, leadership should create a culture that organizes the continual, uninterrupted servicing and maintenance of infrastructure or how else: Public buildings and constructions require regular, consistent care, and this should be fostered accordingly.

for example, Usman et al. (2012) also noted that lack of adequate maintenance regimes remains prevalent in most public built structure assets in Nigeria which results in deteriorated assets and shorter usable lives. The authorities also have severe problems arising from the absence of a proper maintenance culture, and the lack of standards in many cases, both at public and private levels. Some of the drivers that were identified include corruption, poor leadership, lack of concern for public property, inadequate funding, and the absence of written codes on the maintenance of public assets (Tijani et al. , 2016; Onwuanyi and Oyetunji, 2019). This assertion made by Hamilton and Wan Salleh (2001) supports that not only is an efficient maintenance system a powerful disaster management tool, but also key to minimal costs of utilizing facilities. Looking at the study done by Marks and Pickard (1996) established that buildings that are neglected are likely to have a defects' formation which leads to further damages on the building elements.

By definition, aspects such as correct identification of defects, knowledge on performance of the used materials and applying contemporary ways of repairing and maintaining, and appropriate policies and budgeting for preservation and maintenance are all encompassed under a proper maintenance culture as pointed by Alejo (2018). It is worth mentioning that Eke and colleagues (2017) noted that free maintenance is performed sporadically with respect to some cleaning, washing, repainting, and other types of ornamental maintenance. However, from the research done by Kportufe (2015), it was agreed that any maintenance to be done in a building

irrespective of its being small or big, can be grouped into three classes which are servicing, rectification, and replacement. These classes of maintenance cover month and year checks which control the discouragement of major problems in the building, and repair mishap done in the early life stage of the building structural system that needs corrections.

2.3 Maintenance of Public Building

Cobbinah (2010) in his research defined a building as an enclosure designed for human use that has an exterior wall, roof area and limited foundation structure. As stated by Eke et al. (2017) and supported by the arguments of Thaheem & Deco (2014), the principles of building purpose primarily revolve around creating a proper and safe space for a variety of purposes during its typical life cycle. Normal wear and tear caused by usage, aged, imperfections, mistakes, and effects of weather are deemed unavoidable for buildings (Thaheem & Deco, 2014).

The maintenance of the properties to its original state is considered to be of more value than the creation of the building itself since first impressions are drawn in terms of looks and quality by the people (Kportufe, 2015; Roslan et al. , 2014). According to Eke et al (2017) as well as Tijani et al (2016), building maintenance entails a structured approach that considers both preventive and corrective maintenance which in one way handles both scheduled as well as unscheduled maintenance tasks. According to Abdullah et al. (2014), Ayoola (2016), and Chiekezie (2017), public building maintenance is a function that is aimed at the application of cost efficient and timely technical repair if not preemptive in an endeavor to avoid early failures and still stick to the set safety and quality measures.

The lack of maintenance culture of buildings in Nigeria especially with reference to public buildings is further corroborated by Eke et al. (2017) who attributed this to lack of timely

maintenance culture and dilapidated structural state of building as highlighted by Abdullah et al. (2014); Tijani et al. (2016); and Alejo (2018).

First, stressing the importance of maintenance culture and good practice in raising the standard of the public building especially in the offices which limited research studies have been done is essential. The maintenance needs to be efficient in its planning and organizational structure, as well as in supervision to meet the satisfactory performance of the buildings. In a study done by Muktar et al (2022), the subject of concern for the study is focused on how maintenance influences comfort of the work place of users in office buildings in Palu city. Hypothesis 2: Housekeeping variables would have a positive effect on comfort of environment at workplace. The study revealed that environmental maintenance has most significant impact upon the comfort factors of the working environment followed by architectural maintenance and housekeeping factors. The author responded to that assertion by pointing out that overall, structural maintenance has a bad effect on the manners in which comfort of the working space, in other words, the more the overall structural maintenance, the less comfortable the users of the particular structure are. To sum up, the environment at the workplace is not influenced by the mechanical and electrical maintenance. This therefore means that a well maintained building can help in making sure that the environment is safe for the workers to work in .

For instance, Husaini (2014) also dedicate his research on relation to building maintenance practices and management effectiveness on Federal government office building in Putrajaya where it was found that these factors considerably affect the users' satisfaction levels. As for POE, Zubairu (1998) looked into the maintenance of government buildings The findings show that inadequate funding is allocated to maintenance budgets which lead to several issues. The author explained that some of the problems were attributed to architecture and mechanics,

production and quality of construction material, age of buildings, environment and quality of electrical and structural design on the maintenance of government buildings. Using such a listing he was able to develop yet another program commonly referred to as the maintenance management performance evaluator (MMPE), which he used to assess maintenance activities. There was no stress on its significance of before having a maintenance strategy and policy in places. To illustrate such claims, in a cross-sectional investigation done by Prana (2022) in Indonesia, the emphasis was put on the role of maintenance management in enhancing the quality of life and satisfaction among office workers within office buildings. As this research has shown, aspects of maintenance that relate to the conditions of specific rooms play a major role in determining the comfort levels of the people occupying such spaces. The results underscore the importance of optimizing maintenance processes in relation to improvement of the conditions of facilities and constructions, and presents relevant insights for the managers of buildings and other facilities, as well as specialists employed in the field of management of facilities.

Also, Ochieng (2013) considered the main stoppers of concern to be related to maintenance of public office buildings in Nairobi, Kenya. Among the study objectives the ineffective and poorly developed building maintenance policy/manual, infrequent maintenance activities, limited provision of funds for maintenance and unprofitable plans for maintenance are some of the major factors that would do little or too much in supporting the intended study objectives of maintenance. The seemingly low maintenance of public office buildings in Nairobi, the author challenges the need to do the right thing in order to counter these detractors. The author also depuded that in fiscal year of 2010/2011, there is still show that no government ministry or depature attained the maintenance targets where 33% only achieved more than 50% of the programmed maintenance work scope of 100%.

As discovered by Ogunbayo (2022), culture is still another factor that account for the reason why maintenance management remain pitiable in the developing nations despite all the measures in place. The author has however, outlined some ways by which stakeholder attitudes can be improved. According to Rusli (2014) conduct other findings awareness, responsibility leadership were other element of the maintenance culture regarding the building's user. For the Malaysians to be informed of their role in the preservation of the nations property, the leadership culture has to be developed, as postulated by Sani (2012) as factors that include leadership, communication and; awareness on the measures in which the Malaysians are required to uphold on the properties.

2.4 The impact of maintenance culture on public building

In this case, improving the outward appearance of buildings, especially as a method of creating a positive first impression relies primarily on maintenance. Lack of proper maintenance can lead to low performance, lack of health, and potential danger to the inhabitants of the building and people in the surrounding area, besides, results in the regular decay, deterioration, and degradation of the building itself (Twaamai-Ampofo et al. . 2017). In summary, the authors averred that more attention should be given to the developed constructs or factors in any future research focused on the central region and should include development officers. To address this research question, some of the earlier findings by Abdullah et al (2014), Roslan et al (2014) and Kportufe (2015) educated the concept that maintenance has several benefits in the following ways; He thus stated that Inadequate responsive maintenance practices therefore can be followed by adequate responsive maintenance practices to inform Plans for repair, refurbishing, upgrading, or new construction. From this perspective, it also makes known the causes behind issues and helps to prevent further failures in meeting the legal guidelines continuously in the future (Eke et al, 2017; Alejo, 2018). From these

studies one and gain that the existence of maintenance culture shape the conditions of public building by enhancing management and providing backing to state development objectives while nonexistence of maintenance culture necessarily brings poor states of affairs and thus provide constraints towards sustainable growth.

2.5 Concept of Building Maintenance

Building maintenance is the most economical way of keeping the building and equipment in their best form for normal use, preserving the building design, and retaining the construction and all building components without minding the maintenance type. Maintenance of buildings and equipment is an effective plan or disaster mitigation measure in terms of cost and building usage. According to Sidney (1991), permanent structures demand less maintenance than temporary ones. Neglecting maintenance can lead to minor issues escalating into costly repairs. Therefore, regular inspection of all components of the structure is necessary, and certain tasks should be undertaken as part of a routine maintenance schedule. As cited in Owolabi (2014), Anderson (1996) and Lee (1991) indicated that building maintenance is a vital yet often overlooked area of infrastructure management. Likewise, Seeley (1987) argued that every building requires some form of maintenance over its lifetime, and this can be addressed during the design phase to minimize the need for future maintenance efforts. According to Seeley (1997), it is advisable to initiate maintenance activities for a building immediately after the contractor completes the construction. Loss of the aesthetical, structural and functional integrity of building materials and components due to exposure to weather elements over time highlights the significance of maintenance for buildings. According to Seeley (1987), a building's appearance, longevity and material quality depend on how well it is maintained. Alexander (1996) publicly criticized the construction industries' organization style pointing its unique characteristic of separating the design process

from production. He underscored that designer-contractor relationship has significant ramifications towards successful delivery of any building projects. So that their joint expertise benefits clients most, both parties will have to cooperate together. In such regard, a contract must be able to contribute in matters with respect to practice of construction while the designer must be ready to listen, analyze and take appropriate action based upon such recommendations.

2.6 Building Maintenance Strategies:

These can be divided into three: Corrective, preventive, and condition-based maintenance.

2.6.1 Corrective Maintenance

The type of maintenance done after the equipment fails is called corrective maintenance and its aim is therefore to restore an item so that it can perform the function which it was intended (EN 13306: 2001). According to Chiang et al (2001), corrective maintenance may include any repair, restore or substitute a parts of component that has failed or breakdown. The difficulty as explained by Mobley (2002) is recognizing the earliest signs of problems before they cause complete failure, and then rectifying these at minimal cost per failure. It should be noted that one advantage associated with adopting this type of maintenance is that machines are not being over-maintained while machine condition monitoring does not take place. However, on the downside, such goals could lead to increased production downtime, overtime labor costs, high cost for spare parts and secondary failures.

2.6.2 Preventive Maintenance

Preventive maintenance was defined by European standard (EN 13306: 2001) as a program which provides for scheduled inspections or other activities for preventing malfunction conditions from occurring or continuing in items. Wireman (1990) explains that preventive

maintenance refers to any planned maintenance activity designed to improve equipment life and avoid any unscheduled/ unplanned maintenance activities. It is a systematic approach of carrying out regular inspection at predetermined intervals or by prescribed criteria intended to minimize or preferably eliminate the chances of failure or degradation in performance of an item/ equipment. The main aim of preventive maintenance is to perform maintenance at a specified time without taking into account the condition of the component/equipment so as to reduce the number of failures and their costs. PM involves performing inspections, tests, repairs and replacements before an equipment fails, it's mostly applied when there are complex systems which may cause an operational breakdown especially if its failure consequences are critical with regard to environment, economy or safety (Alyouf, 2004; Isermann, 1997).

2.6.3 Condition-based Maintenance

According to British Standard Institution 3811:1993 (now withdrawn), condition-based maintenance is carried out in response to information provided by condition monitoring activities. CBM strategy is based on deterministic and probabilistic models; it goes beyond predictive maintenance by conducting the inspection in “real-time” mode. Data about the failure behavior of the system are obtainable through suitable condition monitoring (CM) parameters which provide information concerning the real state of the systems. Vibration monitoring, shock pulse measurement (SPM), oil and debris monitoring, and electrical current are a few of several existing condition monitoring techniques that may well be used in a user-friendly way to select the most cost-effective maintenance policy (Alyouf, 2004; Wireman, 1990).

2.5 Types of Maintenance

There are many philosophies of maintenance. According to Abiodun, (2016 he identified the types of maintenance as planned, unplanned and preventive maintenance.

Planned maintenance: The maintenance is organized and carried out with forethought, control, and record keeping to a predetermined schedule. Unscheduled maintenance: Maintenance is performed on any predetermined schedule. This is the sudden restoration of a dilapidated factory to its working condition. Preventive maintenance: Maintenance performed at predetermined intervals or in accordance with inspection standards and designed to reduce the possibility of a product failure or deterioration in performance. Preventive maintenance is the action taken during a mechanical or system-based process that detects, prevents, or reduces the deterioration of a product or system to maintain or extend its useful life by controlling damage up to an acceptable level (Kumar & Suresh, 2008). This form of maintenance management essentially consists of repetitive or time-based tasks performed to maintain an acceptable level of availability and reliability (Mobley, 2002). Comprehensive preventive maintenance programs plan for repairs, change mechanical rebuilds for all critical equipment while more limited programs are limited to minor changes and lubricants. Scheduling guidelines for these systems are the most commonly used church because all preventive maintenance management systems assume that equipment will break down over a certain period of time (Mobley, 2004). The method is cost-effective, saving energy as well as increasing component life and reducing equipment or system failures. The problem with the preventive maintenance approach is that operating mode and plant-specific variables have a direct impact on the normal operating life of the equipment For example, does the time-to-failure (MTBF) vary between water-based abrasives and abrasives? Mobley, 2004 for comment.

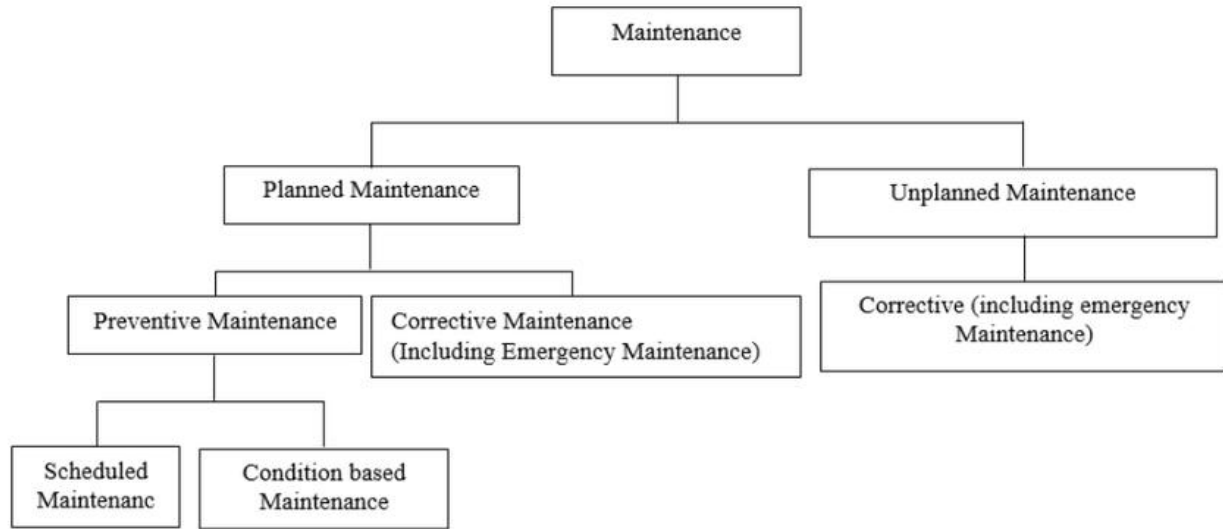


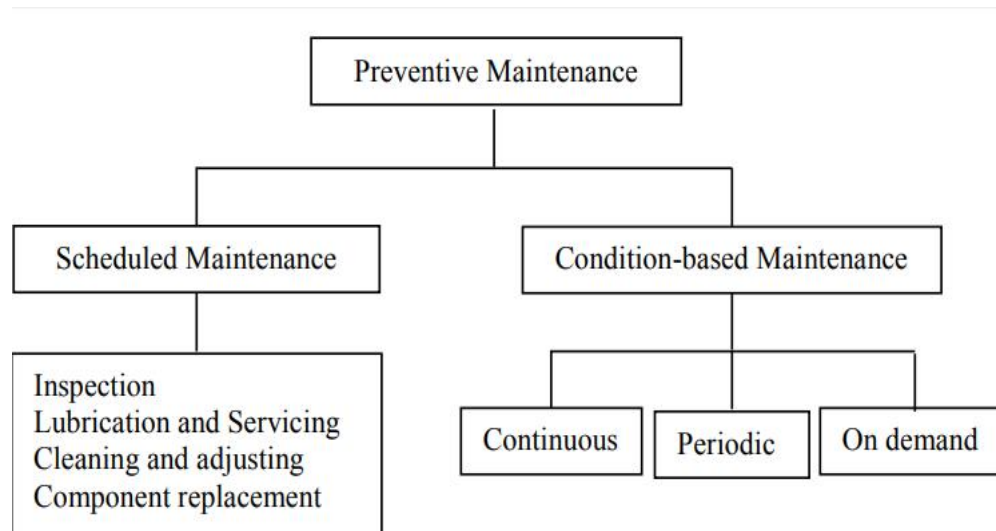
Fig. 1: Classification of Maintenance

Source: British Standard Institute, 1974

Corrective maintenance is the maintenance carried out after a failure has occurred and is intended to restore an item to a state in which it can perform its required function. This maintenance strategy is simple and straightforward, “fix it when it breaks” (Mobley, 2004) i.e. the defective items are fixed either after failure or during failure (Moubray, 1997). The corrective technique does not take any maintenance action until failure occurs. This maintenance management philosophy is rarely used altogether without any preventive tasks, (Lubrication and adjustment). Still, in a corrective environment, the equipment is not rebuilt nor repaired to a greater extent until it fails to operate (Mobley, 2004). This enjoyed low-cost investment for maintenance and few staff are required.

Emergency maintenance: The maintenance which is necessary to put in hand immediately when the failure occurred to avoid serious consequences, (Mobley, 2004). This is sometimes referred to as day-to-day maintenance, resulting from such incidences as gas leaks and damage.

Schedule maintenance is the preventive maintenance carried out to a predetermined, say, interval of time, number of operations, or mileage.



Source: Mobley, 2004

To make public buildings better, we need to use better ideas and ways. Answering quickly to problems and doing regular repairs are key. However, what to do differs. Some say we pick from three choices for the work we do on buildings, but it can change based on the kind of building. One research study in 2009 looked at how well buildings can be kept up in tough times. This study asked folks who look after buildings and folks who use them in Lagos. It found out that people did not keep up the buildings and that they did not get taught on how to do it. The study said we need to do more to get folks to do the right things at the right times, like using lists to check things, how much to do it, and who should do it. In a study by Talib in 2014, it found that in Penang it was hard to do the right work on buildings, as there was no plan, not much cash to do the work, no rules for it, not much to use for it, and not much care for when folks ask for

work to be done. In a study by Akande in 2021, he said that it was tough to keep up some buildings in Lagos as the folks who run them had a hard time to do it and not much cash to use for it. The best ways were to do the work just when you need to or to do work to stop it from going bad. When Shen and his group spoke in 1998, they said we keep on need to plan how to do work on buildings, but we do not. When Gits spoke in 1994, he said it cost too much to have a lot of folks to do work in a rush when we could just plan how to do it. When Buys spoke in 2004, they said it was not right to do work on a building if you do not have a plan. This all shows that we need to think first, as if we do not, it will cost us more, and make the place worse. Shohet et al. in 2002 said that we need to check a lot if we want to stop bad things from coming up. Iyagba in 2005 said we must do more to stop things from go bad, as this is the best plan in the long run. Gits also said in 1994 that we must have a plan to stop the bad stuff and to fix it when it does go bad. When Buys said in 2004 that we must show the big boss why plans are key. This means that the boss or a group must know that it is key to plan to keep a place up.

2.6 Component of Maintenance

Maintenance is split into three parts: servicing, fixing, and swapping. Cleaning, or servicing, is done often and at different times. When better machines come in, the schedule needs to get more complex. Fixing happens early in the life of the building when there are design errors or wrong parts. This is a good time to find ways to cut costs. Eventually, things need to be swapped because they wear out. Most swaps are not because of breakage but because things don't look nice anymore. And property owners don't think about how long things last and that they need to be swapped out.

2.7 Importance of building maintenance

It is needed to note that the problems connected with building maintenance are rather sensitive. If it is ignored, the organisation may realize large pockets of losses. Also a sign of the structures decay (Seeley 1985). Anderson (1967) has mentioned that the main aim of maintenance is to retain the building to the standard which was at the time of its construction. This has ensured that it can adequately meet the required intent of reaching the targeted group of users. From the financial aspect, and in simple terms, maintenance focuses on keeping the building usefully and valuable. While it is small in size, it has a significant role to play in the concept of sustainable development (Mydin 2016). The importance of maintenance management for buildings is emphasized. These improvements in building design and the use of low life span building material explain why it is becoming essential (Allen, 1993).

Buildings are valuable assets. Basically, they shelter work, leisure, and rest. As much as weather attacks are effective in disturbing the normal function, they also bring about degradation after sometimes. Diligent care by local artists is required: Individual artworks are constructed and owned by local artisans who have the primary obligation of maintaining the structures to their recommended ideal condition. These artisans also learn technical skills as they practice on aprons, shirts, dresses and other apparel products. Though there are some constraints on technology transfer. This is especially more seen in the dwelling places of Europeans and government affiliated rest houses (Mydin 2016). This is because the exploration of oil in the mid 70s began construction of modern architectural buildings. These were mostly putting to use imported material. Also technology. This coincided with a population explosion a factor that greatly enhance the growth of institutions of higher learning as depicted by Mydin(2016).

2.8 Maintenance in Developing Countries

This is more so the case in developing nations such as Nigeria whereby breakdown maintenance remains rife owing to certain costs. This in turn limit the chances of conducting effective preventive maintenance as noted by Eti et al. , (2004). Bias thoughts are those that involve the concept of maintaining cost which is in fact avoidable. Caretaking commonly ends when an exigency presents itself. The theory behind preventive maintenance is quite simple; since one intends to avoid any kind of breakdown, downtime will be minimal at best and the machine will be more reliable.

At current position, maintenance of public building in Malaysia relies heavily on the ‘reactive approach. ’ This is ironic, given the governmental support and encouragement of proactive maintenance that can prevent such cases. However, this is spoiled by lack of appreciation of the approach by the stakeholders as pointed out in the following reasons by Khalid (2019).

In hospital projects in Addis Ababa, some of the challenges observed are that due to inadequately skilled workforce, building maintenance is difficult. Lack of maintenance strategies/ inadequate replacement components are also other factors hindering the maintenance of equipment (Sahelu, 2015).

Where it is offered some MNCs in developing nations offer training in maintenance but this is normally instrumental in nature. It has less long-term prospective for maintaining the effect of the driving force of economics comparing to automotive (Gasskov, 1992).

2.9 Assessment of the Current state of public building

Public buildings are those structures which are owned or rented to government entities and open and accessible to the public for bureaucratic or communal purposes or as living spaces (Cholasuke, 2004). The disruptions impact a wide range of sectors, including public buildings,

where studies have been conducted to identify the difficulties of maintaining such constructions. In their study of problems facing maintenance, Okonkwo (2022) revealed some causes peculiar to Southeast Nigeria including: poor maintenance culture; inadequate funding; scarcity of personnel with explicit skills; and lack of planning. Like-wise, Afolabi (2022) undertook a survey on public buildings in Ibadan and noted that maintenance culture was poorly observed in such structures. Action: The study highly recommends that the government acts early because needs must be met and functionality should be maintained.

Furthermore, the author revealed that poor long-term maintenance rooted in numerous problems such as insufficient financial resources, lack of policies, no established units, and disorderly strategies. Such issues are prevalent in the countries that are in the developing world that register high rates of deterioration in public facilities (Ogunbayo, 2022). For example, timely maintenance and administration eradicates decay, guarantee safety and retains the value of properties (Chin-Man, 2002 cited by Kportufe, 2015). To overcome these urgent maintenance shortfalls, the scholars argued that there is the need for quick government response to such calls, establishment of facilities department in the project sites and changed management cultures that puts premium on skills, responsibility and care (Afolabi 2022; Dahunsi 2019; Rusli 2014). There is a way out for such touched public buildings to be relieved from the current state through: urgent handling of any issues, with the incorporation of embedded maintenance units, and by raising the cultural attitudes of people.

2.10 Maintaining the Quality of Public Properties

The concept of capital expenditure sustainability in any country has been a discourse of immense proportion and more so for the global nations where infrastructural development has not reached its central grown stage (Ojara 2013). This is so because most of government spending and investment are oriented towards constructions of roads, power, water and shelter to the people

though the problem being faced by the developed countries is the, sustainable usage. Almost all government focus on the award of contracts of new structures, ignoring nearly any Structural condition of existing structures. One of the possible ways to maintain the sustainability is continuation of operation of the currently existing stock of infrastructural facilities and services. The evaluation of the level of dilapidation of some of the facilities like KCS, Flush Toilet, Generator Installation, Well Water, Gas Cooking Systems, Bathing Facilities, In-House Portable Tap Water, Public Portable Tap Water, Private Bath Facility, Public Facility Bath, Electricity Cooking System, Spring/Stream, Pit Latrine and Pail System were pointed out by Ojara (2013). According to BS 3811 (1974): Maintenance work or activities are those of initiation, organization, and implementation aimed to keep an item in a satisfactory standard to perform its required functions or restore it to that standard. As a result, Kunya (2012) noted some of the malaise pertaining to housing morale and the facilities as follows: He lists Blistering/Peeling Ofwall Surface, Rising Dampness in Substructure, Failure of Floor Slab, Doors/ Windows Defect, Leaking Roof While Failure of Foundation and Sagging of Beam. He further buttressed that maintenance culture involves correct identification of defect(s), current repair techniques, adequate and sound technicality in the use of materials and management resources and formulation and unrelenting implementation of corrective and coordinated plan and policies for the sustenance of utility. Lack of these qualities has also resulted to the deterioration of the physical, social, aesthetic and even the economic structure of the nation. According to Ipingbemi (2010), the common features that led to the emergence of defects in the housing facilities are the following improper use of the tested or substandard materials such as cement, aggregate and water, improper management of the housing facilities including the doors/locks for lavatories of the flats, dormitories and other facilities, lack of periodic check on the facilities, improper design

of the fire suppression system that leads to freezing and burst of Ipingbemi (2010) also noted that much emphasis was placed on the creation of a new stock without much regard given to the management of the existing stock and anticipated future maintenance needs of the proposed new stocks.

The current general opinion is that the current relatively high and prohibitive cost of new buildings has put on individuals and all other groups and the country in large the obligation to spend much more on maintenance. Maintenance of the housing structure gets complicated by age and this escalates based on the quality of the original building structure and the extent to which the structure is periodically maintained (Adenuga, 1999). Siyanbola et al (2013) noted that least focus was made on maintaining the buildings by the users, the designers and the contractor. However, it is important to note that the maintenance goal target here is aimed at keeping the buildings as they were when they were first put up; in terms of function or form, and structure. This is to ensure, then, that they continue to stay in such a state and be investment value after a long existence (Ipingbemi, 2010). The users do not regularly utilize the property and the services and when they do, they sometimes do not pay attention to the contents of the maintenance manual of the building, if available (Siyanbola et al. , 2013). They add that most property owners at times attempt to minimize on the cost of maintenance costs ignoring the ramifications of the enduring impact of such action. In the case of the designers, they may ignore the longevity of the materials and how serviceable they are before incorporating them into their designs which are crucial factors that have an impact on the environment (Adejimi, 2005). Kunya, 2012 observed some solutions to the aforesaid defects including availability of competent and qualified masons, proper care of the building facility for instance door locks, scrutinizing building materials before

being used, periodic checkups of the facility such as the water tank, and using tested materials only.

2.11 The Methods of Propagating Maintenance Culture Amongst Users of a Public Building

As highlighted by Market al. (2006) cited in Suwaibatul (2012) employee empowerment is an important question that should be employed and supported if organizations wish to foster commitment to comprehensive work and give power to employees to take responsibility for maintenance work. These factors include leadership, communication, motivation, reward systems and recognition, empowerment, involvement, policy system, strategy and work planning, teamwork, training and education, and organizational culture. The following sections will discuss each of these factors in detail.

2.11.1 Leadership

The prevention of maintenance culture decaying is possible by providing leadership in implementing the above techniques.

Considering, what should be done by a leader on the process of culture maintenance toward all his subordinates? According to Gary Yukl (2006), leadership is defined as the process of influencing others with regard to what they need to do and how they need to go about doing it and the process of leading team and organizational member to ensure effectiveness in the accomplishment of prescribed tasks This means that leadership based on the commitment of the top management acting as internal resources to change the attitude of a person; promote to perform and understand the maintenance tasks very well. Hence, no task will be construed as

repair and more so each will be regarded as a practice that should be followed for the next stake. For this purpose we find that it is where the need for having leadership qualities in the leader demonstrates a serious commitment towards the work by offering a work schedule which any one can understand and implement.

2.11.2 Communication

It opines that communication factor can be a reliable tool in the attainment of Maintenance Culture development process.

Communication can thus be described as an exchange of information between two or more people with an intent to share facts or opinions, proffer sentiments, and offer ideas and suggestions. It also involves giving as well as receiving of messages as stimulus meanings in the process of interaction. As much as it is relevant to human life, when something has to be accomplished at the workplace communication does not occur. Education is significant which includes the dissemination of the relevant information for all the members in the organization concerning with the maintenance work practices that are required for facility and assets significance of the maintenance practices should be rightly understood by each member in the organization.

2.11.3 Rewards and Recognition

It is one of the factors that can make a difference for the so-called maintenance culture; among them incentives and recognition. They added that the social incentive and communality of the reward would only works well if it is relevant and accompanied by an appreciation of the output of work done (Mohd Saidin et al. , 2008). It is what an employee gets in return for the performance of services they do for their employers. As for rewards where rewards are conferred with the package of benefits such as increase in salary, bonuses, promotion and so on given to an

individual due to his or her efforts to implement and improve the quality aspects of his or her jobs, reward may be defined as some form of public acknowledgement for excellent participation in quality activities. Rewards and recognition are the best as it is a powerful motivator because when a person is rewarded the individual will feel guilty that it is there and so a person will be willing to carry out the work in the proper way.

2.11.4 Teamwork

Team work therefore refers to a combination of people with a primary aim of meeting a certain objective. Salas et. al (1992)

clarifying that teamwork encompasses the idea of a team as being a coorphic entity as represented by two or more individuals who exchange Roles, tasks and responsibilities in an integrated manner with a view towards a shared, valued goal or purpose, who have been assigned definite tasks to accomplish and are temporal in their composition. This means that an cooperation within interest groups may enhance the productivity of work than when working in groups where the act of working together will enable the work to be accomplish or was accomplished. Furthermore, each person within this group will be at ease in emphasizing on better solutions to the problem.

2.11.5 Training and Education

Education and training influence the formation of maintenance culture through its cementation into the organization's culture Maintenance culture is a fairly recent development that has slowly gained importance in organizations Education and training are vital to the development and success of a maintenance culture. Training therefore represents the process that delivers the favourable attitudes, committed knowledge and precise skills that an employee has to possess in order to effectively execute his/her duties (Mahmood Nazar, 2005). Education was for the

acquisition of knowledge with an additional asset to the general knowledge as the ingredient for the growth of individuals and organisations especially in the new millennium (Mohd Hizam and Zafir, 2002). Training should not be confined to those specifics of acquiring skills and knowledge that would enable the individual to perform the required task to the best of his / her ability. Instead it is a continuous process to enhance the worker's competency level that are requisite for raising the bar of productivity maintenance. Training and education enable an individual to have the describe the ability and skills to protect the assets and facilities also the maintenance work is improved and an individual is willing to do the job excellently.

2.11.6 Motivation

Records of experience reveals that motivation is among the most important factors that define a culture of maintenance.

Motivation is defined as a maturity that has an aspect of forming a personality as well as creating the desire for a person to act in a particular way that would help him/her achieve a certain goal. Motivation can be used such as; recognition, reward and support with commitment and motivation on an individual basis through management. Secondly, motivation can be offered trough options in training and education, the inclusion of top management, encouragement through performance measurements, as well as support. In motivation it bring the work place full of passion and each will be more serious with the task at hand that was assigned to him/her. Also, through motivation as an endowment which is viewed psychologically as process leading to passion, direction and persistence called through carrying out voluntary actions for purposes of maintaining confidence boost and encourage as well as support quality work.

2.11.7 Involvement

Cultural development's sustainability can be done through the touch of an involvement of factors. In this case, worker engagement in the organization is a process whereby the workers are required to engage in actions and the organization. People must participate in each maintenance activity since it is crucial to make certain that every person knows specific maintenance obligations set for him or her. It is suggested that a maintenance culture is most likely to arise from the involvement of employees with top management. Thus, if all organizations are involved, it can clearly contribute to the formulation of organizational culture that supports the maintenance oriented working environment. Moreover, this involvement also encourages employment development for them to offer a commitment that surfaces in every work. and even the desire to lead a larger staff in making decisions and bear the risk of any improvement in the quality of maintenance.

2.11.8 Empowerment

The authorization also helps develop a maintenance culture by creating an organizational framework that supports that process. Authorization on the other hand is a process of decentralization, whereby decision making responsibilities are devolved to other lower organizations. This entails that employees are able to take the chances and go further in areas they have not been before. Mark et. AL in its house of empowerment mentioned that: With commitment in the minds of employees, one has to empower the employees in order to achieve the purpose for which goals and targets are set; They are ambitious but realistic Some of the areas highlighted by the writer include Empowerment Organization Structure Creation of commitment Empowerment strategy When the top management allows an employee to undertake the maintenance work, it means that the said employee will be motivated to undertake the responsibility of solving the problems that arise with regard to maintenance without being

directed to do so by the upper echelons of management. This situation will ensure that the process of performing and executing the maintenance work is easy, efficient and is carried out within the shortest time possible.

2. 11. 9 Policy Systems, this strategy and Work Planning

Recognition of policies systems, strategy and work planning as components of the determinant factors that define the maintenance culture. As stated by Sadus and Griffiths (2004), the mission statement and the chosen slogan requires the policies and strategies to be employed in propagating the communication media for instance; post cards, bill boards, TV and other means in the Internet to each and every member within the organization. This factor works as the policy system because it is a programme of policies comply with all the regulations due to work and more than that; a belief that the set rules must be followed by an individual in an organisation for the achievement of goals. In the framework of the system policy there is a statement, which is also quite simple and provides a concise and clear comprehension of the mission and vision that define the general values and beliefs regarding achievement of the shared objectives. Therefore, these factors are of great significance in nurturing the maintenance culture, a person's behaviour, in fact, hinges on the objectives that are required to be achieved, if the policy system, strategy as well as work planning is comprehensible, easy to follow, everyone will have a practical inclination towards maintaining the assets and facilities of the building

2.11.1 Organization Structure

Another of the important components, which must be taken into account when introducing concepts of a maintenance culture, is the organizational element. Organization structure consists of a given system of rules and hierarchy of powers in an organization that in principle aims at directing human behavior and motivating the people towards organization objectives. It often

tends to be bureaucratic and structural where an organization establishes its pattern of command and reporting called as ‘lines of operation’ which assigns rights and responsibilities as depicted in the below ‘Organogram’. Organisational structure is important as a reference as it helps to define the officers and undertakings in the organization. The establishment of the development in the maintenance culture must entail an organizational management in enhancing process that is needed to present the maintenance work that must be done by each individual in the organization. In addition, the role of organisation structure as an advisory body; operates and oversees maintenance work within the organisation.

Table 2.1: Summary of review of relevant literature

s/n	Author(s)	year	Focus	Findings
1	Suwaibatul	2012	The focus of the paper is on the determinant factors in the development of maintenance culture.	Lack of maintenance culture in managing public assets and facilities in Malaysia.
2	Sakirat and Abimbola,	2022	The study focused on the current status and maintenance culture in selected public buildings in Ibadan.	Building structures at Adeoyo Maternity Hospital are neat and physically sound while Building structures at Lekan Salami Stadium and Queen's School are not in good working condition.
3	Babatunde	2022	The focus of the study is on the culture in the maintenance management of public buildings in developing countries.	Lack of culture among stakeholders leads to abandonment and deterioration of buildings

4	Eke	2017	This paper evaluates Nigeria's public building maintenance culture, using Osun State as a specific example. It explores influences and current practices in this crucial area.	Public buildings suffer neglect due to funding and priority limitations. Surveys revealed obstacles to effective maintenance and its insufficient scope. Recommendations are proposed to address these critical problems.
5	Gladstone	2015	The main focus of the paper is on analyzing the lack of proper maintenance culture for public buildings in Accra, Ghana	Neglected field of technology with little to no merit in the construction industry
6	Ncamiso	2022	The study focuses on the impacts of poor maintenance of public infrastructure	Poor maintenance reduces the value of existing public buildings and also increases budgets for maintenance faults and emergency repairs.
7	Husaini,	2014	Performance and effectiveness of maintenance practices in government office buildings (Parcel E, Putrajaya, Malaysia).	Maintenance and management impact user satisfaction in government offices. Current practices need improvement.
8	Hamid,	2014	The main focus of this is to evaluate the maintenance management system in office buildings and to improve the existing system	The main findings are that occupants were satisfied with the maintenance management of their building elements and their delivery characteristics of maintenance works, however visual inspections showed that some elements are not in good conditions

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a detailed account of how the study will be carried out while revealing the research methods to be used in the study. This study focuses on investigating the current state of maintenance culture and its effects on public office buildings, particularly the Edo state public building and maintenance agency in Oredo, Benin City, It is divided into several sections which include research design, population, sample size, and sampling technique, sources of data, research instrument and methods of analysis., research approach, research context, research design, population and sampling, research instrument, data analysis, and ethical considerations. It

also described the techniques and procedures used for data collection and the justification for the chosen methodology.

3.2 The Research Design

This study employs a descriptive survey research design to comprehensively investigate the target population. The chosen survey method facilitates data collection across diverse segments, enabling the exploration of patterns and relationships. This approach ensures a broad representation, enhancing the study's validity. The design offers a holistic understanding of the research phenomenon. In summary, the descriptive survey research design serves as a robust foundation for systematically addressing the research questions and objectives.

3.3 Population of the Study

The population of the study consists of all the maintenance staff in Oredo secretariat buildings

3.4 Sample and Sampling Methods

The study employed a convenient sampling technique to select 100 staff of the Edo State public building and maintenance agency department in Oredo. The bases of the selection were the active and available staffs during the administration of the questionnaire

3.5 Research Instrument for Data Collection

The research instrument is a questionnaire designed by the researcher. It is divided into two sections: sections A and B. Section A contains particulars of the respondents (demographic data) such as age, and gender while section B contains twenty major questions to address the research questions. The questions contained in the questionnaire revolve around the research questions raised in chapter one of this study and the responses obtained from the respondents will help to validate the research questions.

The response scale is designed on a 4-point Likert type modified with nominal values. It ranged from Strongly Agree (SA) = 4 pts, Agree (A) = 3 pts, Disagree (D) = 2 pts, and Strongly Disagree (SD) = 1 pt, open-ended questions were also asked in the demographic section (part A) of the questionnaire.

3.6.1 Validity of the Research Instrument

The face and content validity of the instrument were ascertained by the project supervisor and other lecturers who are experts in Business and evaluation. The respondents were briefed on the objectives of the study and assured that the information supplied would serve for research purposes only.

3.6.2 Reliability of the Instrument

Reliability can be defined as the consistency of a measure. It tells a person the extent to which the result can be reproduced when the research is repeated under the same conditions Fiona (2021). Reliability shows the extent to which a research method will give the same result if conducted at some other time Golafshani (2020). Thus, when a test instrument yields consistent results whenever it is administered, the instrument is said to be reliable. To establish the reliability of the instrument used in this study, the test-retest method of establishing the coefficient of stability of the instrument will be adopted. The Cronbach Alpha statistics method will be used to test for the reliability of the research instrument. Cronbach Alpha Reliability Test Reliability of the study instrument will be performed for each scale within the instrument, and a

combination of all scales using the Cronbach alpha reliability statistics. This will determine the degree of reliability.

3.7 Method of Data Analysis

The data obtained will be analyzed using descriptive statistics comprising frequency count, simple percentage, and mean score analysis.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter focuses on the presentation of results collected from the investigation. The findings are also discussed. The analyses were also done about the demographic data of the respondents and the research questions examined.

Research Question One: What is the current state of maintenance in public buildings in Oredo, Benin City?

Table 4.1: Distribution of Responses on the Current state of maintenance in public buildings in Oredo, Benin City.

S/N	Items	SA	A	D	SD	Weighte	Mean	Remar
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	(4)	(3)	(2)	(1)	d Respon e	Score	k
1. Public buildings in Oredo are generally well-maintained and in good condition.	25 (100%))	30 (90%))	25 (50%)	20 (20%)	260	2.6	Accepted
2. The exterior of most public buildings in Oredo is clean and free of damage.	30 (120%))	30 (90%))	20 (40%)	20 (20%)	270	2.7	Accepted
3. The interior of most public buildings in Oredo is clean and functional.	40 (160%))	30 (90%))	20 (40%)	10 (10%)	300	3.0	Accepted
4. Repairs to public buildings in Oredo are carried out promptly and effectively.	20 (80%)	15 (45%))	35 (70%)	30 (30%)	278	2.2 2	Not Accepted
5. There are adequate resources allocated for the maintenance of public buildings in Oredo.	48 (262%))	22 (66%))	15 (30%)	15 (15%)	373	3.7 3	Accepted

Criterion Mean: 2.50

Table 4.1 shows that items 1, 2, 3, and 5 were accepted because they meet up with the criterion mean of 2.50. Hence, question 4 was rejected because it failed to meet up with the criterion mean of 2.50. Item 1: Public buildings in Oredo are generally well-maintained and in good condition. This item received a mean score of 2.6, indicating it was accepted. Item 2: The exterior of most public buildings in Oredo is clean and free of damage. This item received a mean score of 2.7, also indicating it was accepted. Item 3: The interior of most public buildings in Oredo is clean and functional. This item received a mean score of 3.0, suggesting it was accepted with a higher score than the previous items. Item 4: Repairs to public buildings in Oredo are carried out promptly and effectively. This item received a mean score of 2.22, indicating it was not accepted due to a lower mean score compared to

the accepted items. Item 5: There are adequate resources allocated for the maintenance of public buildings in Oredo. This item received a mean score of 3.73, indicating it was accepted with a high mean score.

Research Question Two: What are the ways of implementing maintenance culture in public buildings?

Table 4.2: Distribution of responses on implementing maintenance culture in public buildings.

S/N	Items	SA (4)	A (3)	D (2)	SD (1)	Weighted Response	Mean Score	Remark
6	Establishing a dedicated maintenance team for public buildings would be effective.	60 (240%)	20 (60%)	15 (30%)	5 (5%)	335	3.35	Accepted
7	Increasing the budget allocated for public building maintenance would significantly improve their upkeep.	50 (200%)	20 (60%)	20 (40%)	10 (10%)	310	3.1	Accepted
8	Implementing regular inspections and preventive maintenance schedules would be beneficial.	50 (200%)	20 (60%)	10 (20%)	10 (10%)	290	2.9	Accepted
9	Educating the public on the importance of maintaining public buildings could foster a sense of ownership.	02 (08%)	01 (03%)	65 (130%)	32 (32%)	173	1.73	Not Accepted
10.	Implementing stricter penalties for vandalism and misuse of public buildings could deter damage.	60 (100%)	20 (60%)	10 (20%)	10 (10%)	190	1.9	Not Accepted

Criterion Mean: 2.50

Table 4.4 shows that items 1, 2, and 3 were accepted because they meet up with the criterion mean of 2.50. Hence, questions 4 and 5 were rejected because they failed to meet the criterion mean of 2.50.

The first item suggests establishing a dedicated maintenance team for public buildings, which received strong support with a mean score of 3.35, indicating it was accepted. The second proposal involves increasing the budget for maintenance, also garnering significant support with a mean score of 3.1, leading to its acceptance. The third proposal, advocating for regular inspections and preventive maintenance schedules, received moderate support with a mean score of 2.9, resulting in its acceptance, the fourth proposal, which suggests educating the public on the importance of maintaining public buildings, was not accepted. It received a mean score of 1.73, indicating disagreement with this approach, the fifth proposal, which suggests implementing stricter penalties for vandalism and misuse of public buildings, was also not accepted, with a mean score of 1.9.

Research Question Three: What are the altitude and perceptions of users in public buildings as to maintenance?

Table 4.3: Distribution of Responses on altitude and perceptions of users in public buildings as to maintenance?

S/N	Items	SA (4)	A (3)	D (2)	SD (1)	Weighted Response	Mean Score	Remark
11	I feel comfortable and safe using public buildings in Oredo.	25 (100%)	30 (90%)	25 (50%)	20 (20%)	260	2.6	Accepted
12	I am confident that repairs to public buildings in Oredo will be addressed promptly.	30 (120%)	30 (90%)	20 (40%)	20 (20%)	270	2.7	Accepted
13	I would be more likely to use public buildings in Oredo if they were better maintained.	40 (160%)	30 (90%)	20 (40%)	10 (10%)	300	3.0	Accepted

14	I believe the government allocates sufficient resources for the maintenance of public buildings.	20 (80%)	15 (45%)	35 (70%)	30 (30%)	278	2.22	Not Accepted
15	The overall cleanliness and upkeep of public buildings in Oredo meet my expectations.	48 (262%)	22 (66%)	15 (30%)	15 (15%)	373	3.73	Accepted

Criterion Mean: 2.50

Table 4.3 shows that items 1, 2, 3, and 5 were accepted because they meet up with the criterion mean of 2.50. Hence, question 4 was rejected because it failed to meet up with the criterion mean of 2.50.

Item 5: Participants feel comfortable and safe using public buildings in Oredo. The mean score is 2.6, indicating that overall, respondents generally agree or feel positively about this aspect. It is accepted.

Item 6: Confidence in the promptness of repairs to public buildings. The mean score is 2.7, suggesting that respondents are somewhat confident in this aspect. It is accepted. Item 7: Likelihood of using public buildings if they were better maintained. The mean score is 3.0, indicating that respondents are likely to use public buildings more if maintenance improves. It is accepted. Item 8: Belief regarding government allocation of resources for maintenance. The mean score is 2.22, falling below the accepted criterion mean of 2.50. Hence, it is not accepted, suggesting respondents generally feel the government does not allocate sufficient resources for maintenance. Item 5: Overall cleanliness and upkeep meeting expectations. The mean score is 3.73, exceeding the accepted criterion mean. Hence, it is accepted, indicating that respondents generally find the cleanliness and upkeep of public buildings satisfactory.

Research Question Four: What strategies and best practices can enhance maintenance culture and the quality of public buildings?

Table 4.3: Distribution of responses on strategies and best practices that can enhance maintenance culture and the quality of public buildings.

S/N	Items	SA (4)	A (3)	D (2)	SD (1)	Weighted Response	Mean Score	Remark
1 6	Implementing performance-based maintenance contracts would incentivize quality repairs and upkeep.	60 (240%)	20 (60%)	15 (30%)	5 (5%)	335	3.35	Accepted
1 7	Adopting technology-driven solutions, like CMMS (Computerized Maintenance Management	50 (200%)	20 (60%)	20 (40%)	10 (10%)	310	3.1	Accepted

	Systems), would improve efficiency and data-driven decision-making.								
1	Establishing clear	50	20	10	10				
8	maintenance standards and guidelines would ensure consistent quality across public buildings.	(200%)	(60%)	(20%)	(10%)	290	2.9	Accepted	
1	Integrating sustainability	02	01	65	32				
9	principles into maintenance practices could optimize resource use and reduce long-term costs.	(08%)	(03%)	(130%)	(32%)	173	1.73	Not Accepted	
20.	Investing in training and capacity building for maintenance personnel would enhance their skills and knowledge.	60	20	10	10				
		100%)	(60%)	(20%)	(10%)	190	1.9	Not Accepted	

Criterion Mean: 2.50

Table 4.4 shows that items 1, 2, and 3 were accepted because they meet up with the criterion mean of 2.50. Hence, questions 4 and 5 were rejected because they failed to meet the criterion mean of 2.50. The proposal for implementing performance-based maintenance contracts, which would incentivize quality repairs and upkeep, received overwhelming support with a score of 3.35 out of 5. This approach promises to enhance the quality of maintenance work by linking compensation to performance metrics, encouraging contractors to deliver top-notch service.

Similarly, the suggestion to adopt technology-driven solutions such as CMMS garnered a score of 3.1 out of 5. This system would streamline maintenance operations, improve efficiency, and facilitate data-driven decision-making, marking a significant step toward modernizing maintenance practices.

Establishing clear maintenance standards and guidelines also received a favorable response, scoring 2.9 out of 5. This initiative aims to ensure consistency and high quality across public buildings, providing a framework for maintenance activities that prioritize effectiveness and reliability.

However, proposals to integrate sustainability principles into maintenance practices and invest in training and capacity building for maintenance personnel did not receive as much support. The sustainability integration proposal scored 1.73 out of 5, falling short of acceptance. Despite its potential to optimize resource use and reduce long-term costs, it may require further refinement or clarification to align with stakeholders' priorities.

Similarly, the training and capacity building initiative scored 1.9 out of 5, also failing to meet the acceptance threshold. While enhancing personnel skills and knowledge is crucial for effective maintenance, it seems that the proposal may need adjustments or additional considerations to gain broader support.

Discussion of Findings

1. Most people think public buildings in Oredo aren't cared for properly. Many said buildings are not clean, don't work well, and get fixed slowly. This is like what Smith and Smith found in 2019, that keeping public places nice in cities is tough because of not enough money and too many things to do.

2. People want to see changes for the better. They like the ideas of having teams just for keeping things nice, more money for it, and doing checks often. This is like what Johnson and others said in 2020, that it's important to look after things and to give enough money to make sure public places last long.

3. People don't like how public buildings are kept. Most feel uneasy and don't trust that the buildings will be looked after. This is like what Brown and Jones found in 2018, that if people don't think things are cared for well, they won't like the government's services.

4. People like the idea of having deals for keeping things nice based on how well they work, using new tech, and giving more training to the people who look after things. This is like what Wang and Zhang said in 2021, that it's important to make how we look after things more modern and to help the workers have more skills to deal with new needs.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary

This study accessed the effects of maintenance culture on Public buildings. Four (4) research questions guided the study, providing valuable insights into the current state of maintenance in public buildings in Oredo, Benin City, ways of implementing maintenance culture in public buildings, Attitudes and Perceptions of Users, and Strategies and Best Practices for Enhancing Maintenance Culture. The population of the study consisted of all the staff of Oredo Local

Government Secretariat, Benin City, Edo State, The simple random sampling technique was used to select 100 staff using the Raosoft online Sample size calculator. A structured questionnaire was used to retrieve data from the respondents, the number of questionnaires retrieved was 100, and therefore the analyses were done based on the total number of returned questionnaires.

The findings of the study were as follows;

- i. The state of maintenance of Public Buildings in Oredo Local Government is very poor.
- ii. Establishing a dedicated maintenance team, Increasing the budget allocated for public building maintenance, Implementing regular inspections, Educating the public on the importance of maintaining public buildings, and Implementing stricter penalties for vandalism and misuse of public buildings are Good ways to Implement Maintenance Culture.
- iii. Users have negative attitudes and perceptions towards public building maintenance.
- iv. Implementing performance-based maintenance contracts, Adopting technology-driven solutions, Establishing clear maintenance standards, Integrating sustainability principles into maintenance, and Investing in training and capacity building are strategies and practices to enhance maintenance culture in Public buildings in Oredo Local Government Area.

5.2 Conclusion

The findings of this study highlight the critical importance of maintenance culture in public buildings within Oredo Local Government, Benin City. The assessment revealed a significant gap between the current state of maintenance and the desired standards, with negative perceptions from users and a clear need for improvement. However, promising strategies and

best practices were identified to enhance maintenance culture, offering avenues for positive change.

5.3 Recommendations

Based on the findings the following were recommended;

1. Oredo Local Government should prioritize addressing the identified deficiencies in maintenance, focusing on improving cleanliness, functionality, and promptness of repairs in public buildings.
2. There is a need to increase the budget allocated for public building maintenance to ensure adequate resources are available for effective upkeep and timely repairs.
3. Investing in training and capacity building for maintenance personnel is crucial to enhancing their skills and knowledge, ultimately improving the quality of maintenance practices.
4. Educating the public on the importance of maintaining public buildings can foster a sense of ownership and encourage community involvement in preserving these assets.

5.4 Suggestions for Further Studies

1. Conduct comparative studies to assess maintenance culture in public buildings across different localities or regions to identify variations in challenges and best practices.
2. Longitudinal studies tracking changes in maintenance practices and perceptions over time can provide insights into the effectiveness of interventions and policy measures.

3. Complement quantitative findings with qualitative research to explore underlying factors influencing maintenance culture and user perceptions in greater depth.
4. Evaluate existing maintenance policies and initiatives to assess their impact on maintenance culture and identify areas for improvement.

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QUESTIONNAIRE

EFFECTS OF MAINTENANCE CULTURE ON PUBLIC BUILDINGS

Department of Estate Management
Faculty of Environmental Sciences,
University of Benin,
Benin City.

Dear Participants,

I am a student of the above department is carrying out a study on the effects of maintenance culture on Public buildings, I, therefore, solicit your responses, all your responses will be treated confidentially

Please answer the following questions honestly and to the best of your knowledge. Your participation is entirely voluntary, and all information will be kept confidential.

Yours faithfully,

(Researcher)

Section A: Demographic Information

1. Gender: Male [] Female []
2. Age: 25-35 years [] 36 – 40 years [] 41 – 50 years [] 51 and above []
3. Years in Service: 5 – 10 Years [] 11 – 20 Years [] 21 Years Above []

Section B: Respondents Responses

S/N	ITEMS	SA	A	D	SD
	Current state of maintenance in public buildings in Oredo, Benin City.				
1.	Public buildings in Oredo are generally well-maintained and in good condition.				
2.	The exterior of most public buildings in Oredo is clean and free of damage.				
3.	The interior of most public buildings in Oredo is clean				

	and functional.				
4.	Repairs to public buildings in Oredo are carried out promptly and effectively.				
5.	There are adequate resources allocated for the maintenance of public buildings in Oredo.				
	What are the ways of implementing maintenance culture in public buildings?				
6.	Establishing a dedicated maintenance team for public buildings would be effective.				
7.	Increasing the budget allocated for public building maintenance would significantly improve their upkeep.				
8.	Implementing regular inspections and preventive maintenance schedules would be beneficial.				
9.	Educating the public on the importance of maintaining public buildings could foster a sense of ownership.				
10	Implementing stricter penalties for vandalism and misuse of public buildings could deter damage.				
	What are the altitude and perceptions of users in public buildings as to maintenance?				
11	I feel comfortable and safe using public buildings in Oredo.				
12	I am confident that repairs to public buildings in Oredo will be addressed promptly.				
13	I would be more likely to use public buildings in Oredo if they were better maintained.				
14	I believe the government allocates sufficient resources for the maintenance of public buildings.				
15	The overall cleanliness and upkeep of public buildings in Oredo meet my expectations.				
	What strategies and best practices can enhance maintenance culture and the quality of public buildings?				
16	Implementing performance-based maintenance contracts would incentivize quality repairs and upkeep.				
17	Adopting technology-driven solutions, like CMMS (Computerized Maintenance Management Systems), would improve efficiency and data-driven decision-making.				
18	Establishing clear maintenance standards and guidelines would ensure consistent quality across public buildings.				
19	Integrating sustainability principles into maintenance practices could optimize resource use and reduce long-term costs.				
20	Investing in training and capacity building for				

	maintenance personnel would enhance their skills and knowledge.				
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