

**ASSESSMENT OF THE MAINTENANCE PRACTICE OF PUBLIC PRIMARY  
SCHOOLS IN LAGOS STATE (a case study of Shomolu LGA)**

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**Abstract**

The administrative structure of public primary schools is facing challenges in effectively maintaining infrastructural facilities and providing essential services due to the scarcity of dedicated funds earmarked for maintenance purposes. This situation has significant consequences on the comfort, usability, and overall environment of the school and on the health and academic performance of the dependent pupils it accommodates for learning purposes. Maintenance should be tailored to suit the unique requirements of each facility or organization. This study is aimed at assessing the maintenance practice of public primary schools by evaluating the conditions of the school buildings, identifying the current maintenance practice and assessing the challenges of implementation of proactive maintenance in order to evaluate and understand the current state of maintenance practice in public primary schools. Quantitative research design was adopted for the study using double cluster sampling technique. A total of 108 questionnaires were retrieved out of the 140 distributed to public primary school head teachers, assistant head teachers, teachers and other support staffs. Descriptive statistical tools such as tables, frequency and median were used for the analysis of the data. The inferential study discovered that there is no adequate maintenance plan in place for the management of the public school facilities. Corrective maintenance is the order of the day despite its inherent characteristics such as high cost implication. The study recommends that maintenance crew should be employed amongst the staffs of each locality while the management staff should maintain adequate log book of maintenance activities. The ineffective maintenance management style should be reviewed in earnest.

**Keywords:** Public primary schools, preventive maintenance, corrective maintenance, conditions of building.

## **1.0 Introduction**

Primary school education is the bedrock of all formal means of learning. The attainment of primary education is mandatory for children according to the Child Rights Act of Lagos State, Part 2, Section 15 (Child Rights Act, 2007). The uniqueness in this study lies in the fact that, a significant portion of the users of the facilities under consideration comprise pupils who are dependent on the government and their families lack awareness of basic maintenance expectations for the school assets being reviewed. Several studies have reached the consensus that the school environment has a significant impact on students' academic performance and significantly influences the productivity and job satisfaction of teachers (Barret, et al., 2019; Izobo-Martins, 2018; Kiptum, 2018; Takwate, 2018; Udo & Chuks). This implies that the school environment is not merely a physical space; it is a crucial element of the learning process for students/pupils, as the available facilities facilitate easy learning. These essential learning resources, whether present in the initial designs or later incorporated to enhance pupils' learning, need proper maintenance and utilization so that future students can also benefit from the same enriching learning experience as their predecessors (Higgins et. al., 2005). Unfortunately, the lack of a well-defined maintenance management strategy for public school facilities in Nigeria has been a major contributing factor to the state of deterioration of the structures. This issue has resulted in significant disparities between private and public educational institutions in the country (Garba, 2020; Inegbedion, 2015). Public primary schools have been particularly affected, and this problem is notably evident in Lagos state. The absence of proper maintenance, combined with other factors, has led to a decline in the quality of the public education system in Nigeria, in spite of the scarce resource and the involvement of various stakeholders. For the education system to flourish, adequate maintenance of public primary school assets is essential to ensure their sustainability. This underscores the need for a study on the assessment of the maintenance practice of public primary schools in Lagos state using Shomolu Local Government Area as case study. The aim of the study is to evaluate and understand the current state of maintenance practices in public primary schools through the evaluation of the condition buildings, identification of the current maintenance practice and assessment of challenges faced by the implementation of maintenance. This will invariably inform policy makers

on the strength and weakness of the current maintenance practice of public primary schools thereby contributing to the improvement of education.

## **2.0 Building Maintenance practice in public schools**

The nation's poor maintenance culture has significantly hindered progress, but taking proactive steps towards maintenance can help salvage the country from the severe infrastructural decay as the major contributors to this issue include poor leadership, corruption, attitudinal problems, and the absence of a maintenance policy (Tijani et al.2016). The primary objective of building maintenance is to preserve buildings in their initial functional, structural and aesthetic state (Adejimi, 2005). This is to ensure that such a facility continues to remain in such state and retain its investment value over a long period of time. Odediran et al. (2012) observed that the ability of a building, to provide the required environment for a particular activity, is a measure of its functionality. Therefore, as the components of a building begin to deteriorate, it becomes necessary to take some measures to ensure that the desired characteristics of that facility, which provide safety and convenience, are retained through adequate maintenance. Maintenance enhances the quality of a building structure to meet modern requirements in order to prolong the life span of the building. It is required to ensure the safety of building occupants. Shohet, Puterman and Gilboa (2002) made it clear that there are increasing demands on maintenance programme to provide tools that will support maintenance planning. This is also confirmed by Olagunju (2012) who also noted that the absence of appropriate tools for predictive maintenance of existing buildings can have a detrimental effect on the future of such buildings. The BS EN 13306 (2017) has defined maintenance management as all activities of the management that determine the maintenance requirements, objectives, strategies, responsibilities, and implementation of them by such means as maintenance planning, maintenance control, the improvement of maintenance activities.

Maintenance strategy is the management method used in order to achieve the maintenance objectives such as outsourcing of maintenance and allocation of resources (BS EN 13306, 2017). Planning, organizing, directing, and controlling maintenance are the four management functions of implementing building maintenance management. The implementation of maintenance activities with reduction in resource consumption, maintenance costs, avoiding work interruptions, and increasing staff and student satisfaction by creating conditions that ensure their health and safety, facilitating teaching, learning and improving academic results are all tools for effective

school maintenance management (Stok, Marenjak & Pusic, 2022). According to Riza (2006), the size of the building and the standards of its users are the main factors influencing building maintenance. An effective maintenance management is crucial to minimize the risk of major breakdowns therefore, a well-thought-out strategic plan is necessary, as suggested by Loosemore & Hsin (2001) and Shohet (2003). Managing school buildings requires careful consideration to enhance educational outcomes and facilitate a conducive learning environment (Hoadley, 2010). Several factors can impact the performance of primary school education, such as the age of the building, its surroundings, available managerial resources, and the labour sources used for maintenance, whether in-house or outsourced. To avoid failure, organizations must engage in proper planning, as emphasized by Hicks (2004). Strategic plans should align with the organization's vision, mission, and goals. In the context of managing maintenance in education, the primary objective is to retain and improve the performance of all assets owned by the institution. Implementing maintenance strategies within a school environment may pose challenges, and success requires careful planning and consideration of the different types of maintenance.

Unplanned maintenance, also known as reactive maintenance, corrective maintenance, breakdown maintenance, or run-to-failure maintenance (Kamal, 2021), occurs as a result of unforeseen breakdowns or damages to facilities that require immediate attention. On the other hand, planned maintenance is organized and carried out with careful forethought, control, and the use of records to ensure effective maintenance (Wood, 2009). The different types of maintenance according to BS EN 13306 (2017) for effective asset management are:

1. Pro-active maintenance: This type of maintenance focuses on detecting potential failures at their source and aims to extend the life of equipment while enhancing production capacity. It involves a high level of mastery in operating precision.
2. Preventive maintenance: In this strategy, equipment efficiency is regularly assessed at specific intervals to extend its lifespan. The goal is to reduce the probability of failures and avoid sudden breakdowns, minimizing operational costs, and improving system reliability. It helps prevent premature failure and reduces the frequency and severity of failures.
3. Corrective maintenance or condition-based maintenance: Corrective maintenance tasks are performed in response to breakdowns or user requests. It differs from preventive

maintenance as it is based on the condition of the equipment. Although this approach is simple and relies on daily maintenance tasks, it can be expensive due to consequential damage and inconvenient timing.

4. Predictive maintenance: This strategy utilizes condition-based or condition-monitoring approaches, involving tools such as vibration analysis, infrared thermographs, and ultrasonic detection. It allows for inspections while equipment is running or during stoppage periods to predict potential failures.
5. Condition-based maintenance (CBM): CBM is maintenance performed when the need arises, relying on real-time data to prioritize and optimize maintenance resources. It involves observing the system's state through condition monitoring and taking action only when maintenance is necessary. This approach is applicable to both mission-critical systems with active redundancy and non-mission-critical systems lacking redundancy and fault reporting.

The choice of maintenance strategy depends on the specific problem detected, but proper planning is essential for effective asset management and cost planning. Preventive maintenance is often considered the most relevant strategy as it provides a well-structured schedule for facility maintenance and aids in maintenance management and cost optimization.

### **3.0 Methodology**

Descriptive research design is adopted for this study using quantitative research approach. The study population comprised staffs of all public primary schools in Shomolu Local Government Area of Lagos state. Lagos is amongst the most populated states in the country, a mega city with over one thousand public primary schools. The sampling frame is made up of the list of all public primary schools in Shomolu LGA, Lagos state. According to the annual school census report of the year 2018/2019 by the Lagos State Ministry of Education, there are 48 public primary schools in Shomolu LGA. Double-stage cluster sampling technique was used for the distribution of the questionnaires. This is primarily due to the fact that, the sampling frame was developed into partial units of Local Council Development Areas (LCDA) and samples were chosen randomly from the division making data collection more manageable and organized (Kothari, 2004). A total of 140 questionnaires were administered to head teachers and their assistance, teaching and non-teaching

staffs of public primary schools while 108 questionnaires were returned valid for the study making 77% of the total distributed. Descriptive statistical tools such as frequency, percentile, mean and median were used to analyze the data gathered.

#### 4.0 Results and Discussions

A total of one hundred and eight questionnaires were retrieved to elicit information on the study population. These are as presented in the tables that follows.

Table 1 shows the demographic information of the respondents, using the percentiles as a tool, majority of the respondents have spent more than 5 years in the school (43.6%) having worked in the school between 5 to 8 years and 25.0% have spent between 9 to 12 years in the school, hence information given by the respondents on the maintenance policy of the school can be relied upon with their considerable amount of years spent in the school. The result also showed that 46.3% of the respondents have either BSc or HND academic qualifications with 26.9% having MSc, for this reason, their educational attainment can indicate their being pragmatic about information given on the maintenance practice of the school. 46.3% of the respondents are assistant head teacher, and 25.0% are head-teacher that are both in the management level of the school system, thus their responses are very cogent to the maintenance activities going on the school.

Table 1: Demographic Information

S/N	ITEMS	VARIABLES	FREQUENCY	PERCENTILES
1	YEARS IN SCHOOL	1-4	27	25
		5-8	50	46.3
		9-12	27	25
		13-16	2	1.9
		17 above	2	1.9
		TOTAL	108	100
2	ACADEMIC QUALIFICATION	SSCE/ND/NCE	27	25
		BSc./HND	50	46.3
		MSc.	29	25
		PhD	2	1.9
		TOTAL	108	100
3	STATUS IN SCHOOL	Head-teacher	27	25
		Ass. Head teacher	50	46.3
		Teachers	29	25
		Non-academic staffs	2	1.9

Source: Field Survey Report, 2023

**Table 2: Conditions of school building components such as classrooms, laboratories and offices.**

<b>Building Condition</b>	<b>SA (5)</b>	<b>A (4)</b>	<b>N (3)</b>	<b>D (2)</b>	<b>SD (1)</b>	<b>Median</b>	<b>Remark</b>
The condition of the floor and floor finishes are adequate	3 (2.8%)	6 (5.6%)	24 (22.2%)	60 (55.6%)	15 (13.9%)	3.85	Disagreement
The toilet facilities are adequate in number and functional	3 (2.8%)	6 (5.6%)	24 (22.2%)	60 (55.6%)	15 (13.9%)	3.85	Disagreement
The façade of the building are in pleasant condition	2 (1.9%)	2 (1.9%)	13 (12.0%)	75 (69.4%)	16 (14.8%)	3.99	Disagreement
The walls including painting are in good shape	3 (2.8%)	3 (2.8%)	12 (11.1%)	68 (63.0%)	22 (20.4%)	4.03	Disagreement
There is regular and adequate supply of portable water	3 (2.8%)	3 (2.8%)	12 (11.1%)	68 (63.0%)	22 (20.4%)	4.03	Disagreement
The ceiling with the ceiling finishes are adequate for conducive learning	2 (1.9%)	2 (1.9%)	16 (13.9%)	65 (60.2%)	23 (21.3%)	4.02	Disagreement
Furniture (chairs, tables, cupboards) and fittings in the classroom and laboratories are adequate	2 (1.9%)	2 (1.9%)	16 (13.0%)	66 (61.1%)	22 (20.4%)	4.01	Disagreement
There is adequate provision of socket outlets for electronic gadgets	2 (1.9%)	2 (1.9%)	16 (13.9%)	65 (60.2%)	23 (21.3%)	4.02	Disagreement
The doors and windows are in place	3 (2.8%)	0 (0.0%)	14 (13.0%)	67 (62.0%)	24 (22.2%)	4.05	Disagreement
The roofs of the buildings are in good shape	3 (2.8%)	1 (0.9%)	13 (12.0%)	66 (61.1%)	25 (23.1%)	4.06	Disagreement
Good/enough provision for fans in all the buildings in the school premises	3 (2.8%)	0 (0.0%)	14 (13.0%)	67 (62.0%)	24 (22.2%)	4.05	Disagreement
The materials used for the fabrication of the doors and windows are pleasant for learning	2 (1.9%)	0 (0.0%)	10 (8.3%)	66 (61.1%)	30 (27.8%)	4.14	Disagreement

Source: field survey (2023)

Table 2 shows the results of the survey on the conditions of some selected components of the school building facilities such as classrooms, laboratories and offices. The analysis of the survey indicated that the respondents disagree to the adequacy of the condition of the floors (including floor finishes), ceiling, furniture, windows, portable water supply and toilet facilities etc. based on their median ranging from 3.85 to 4.18. The unpleasant façade of the building has the highest frequency of 75 while the inadequacies of the toilet facilities and the conditions of the floors has 55.5% of the respondents agreeing to these. 68% of the respondents disagree with the adequacy and regular supply of portable water for the dependent pupils. These findings are in agreement with that of Ibo and Wokekoro (2022) on the deplorable condition of the state of the buildings of public secondary schools in Bayelsa state Nigeria.

**Table 3: Identification of the current type of maintenance practice in place for public primary schools.**

S/N	FACTORS	SA 5	A 4	N 3	D 2	SD 1	TOTAL	MEDIAN	REMARK
<b>PREVENTIVE MAINTENANCE</b>									
1	There is routine/schedule check of basic facilities for the smooth running of the school e.g. water, waste disposal, etc.	2	1	11	56	37	107	2	Disagree
2	Periodic inspection of the school facilities e.g. toilets, classrooms, laboratories, dining etc. is in place and functional.	3	1	13	66	25	108	2	Disagree
3	Conditions of facilities are not recorded upon every periodic check.	28	68	8	0	4	108	4	Agree
4	There is no organizational body in the school that determines the spaces to be maintained.	19	75	12	0	2	108	4	Agree



5	Maintenance is carried out periodically.	2	0	12	75	19	108	2	Disagree
<b>CORRECTIVE MAINTENANCE</b>									
6	Repair/replacement is carried out in response to fault/damage to facilities.	22	68	12	3	3	108	4	Agree
7	Rectification of items is carried out after complete breakdown.	22	66	14	3	3	108	4	Agree
8	Faults are rectified only when there is an emergency/threat in any facility.	23	65	15	2	3	108	4	Agree
9	Maintenance is carried out before the occurrence of a breakdown.	2	3	19	66	18	108	2	Disagree
10	There is no regular replacement of some elements of the school for aesthetics purposes/redecorations.	15	60	24	6	3	108	4	Agree

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Source: field survey (2023)

In Table 3, the respondents disagree with the notion of availability of routine or schedule check and periodic inspection of basic facilities such as running water, waste disposal, toilet, classrooms, laboratories, dining etc. to be in place for the smooth running of the school. They also disagree with the fact that maintenance is carried out periodically. But the respondents agreed that neither were the conditions of facilities recorded nor were there organizational body in the school that determines the spaces to be maintained. The table also indicated that corrective maintenance do take place where repair/replacement is carried out in response to fault/damage. Rectification of items were also carried out after complete breakdown and faults were rectified only when there is emergency or threat to the facilities. The respondents disagree that maintenance is carried out before the occurrence of breakdown. This is in line with the findings of Adisa et al. (2015) which indicates passivity in the maintenance of school buildings and Garba (2020), that the maintenance of school buildings should be planned to avoid the breakdown of facilities.

**Table 4: Challenges facing implementation of maintenance of school buildings**

Challenges	SA (5)	A (4)	N (3)	D (2)	SD (1)	Median	Remark
Funding is a factor that is responsible for deterioration of school buildings	15 (13.9%)	60 (55.6%)	24 (22.2%)	6 (5.6%)	3 (2.8%)	3.85	Agreed
The buildings were not properly supervised during Construction	18 (16.7%)	66 (61.1%)	19 (17.6%)	3 (2.8%)	2 (1.9%)	4.03	Agreed
There is adequate financing for maintenance from other stakeholders apart from the government	3 (2.8%)	3 (2.8%)	12 (11.1%)	68 (63.0%)	22 (20.4%)	4.03	Disagreed
Lack of Maintenance Culture causes further complicates maintenance	22 (20.4%)	68 (63.0%)	12 (11.1%)	3 (2.8%)	3 (2.8%)	4.03	Agreed
Inventories of the building condition and routine maintenance are taken at intervals	2 (1.9%)	2 (1.9%)	15 (13.9%)	65 (60.2%)	23 (21.3%)	4.04	Disagreed
Building users report disrepair to offices on time	2 (1.9%)	2 (1.9%)	14 (13.0%)	66 (61.1%)	22 (20.4%)	4.05	Disagreed
Low quality of building materials complicates maintenance	22 (20.4%)	66 (61.1%)	14 (13.0%)	2 (1.9%)	2 (1.9%)	4.05	Agreed
Proper training on building maintenance conduct are given to the school administrators	3 (2.8%)	0 (0.0%)	14 (13.0%)	67 (62.0%)	24 (22.2%)	4.05	Disagreed
Over Population of the students in the classrooms	24 (22.2%)	67 (62.0%)	14 (13.0%)	0 (0.0%)	3 (2.8%)	4.05	Agreed
Maintenance complaints are responded to in due time	3 (2.8%)	1 (0.9%)	13 (12.0%)	66 (61.1%)	25 (23.1%)	4.06	Disagreed
Users attitude is a factor that is responsible for frequent maintenance of school buildings	2 (1.9%)	1 (0.9%)	7 (6.5%)	77 (71.3%)	21 (19.4%)	4.07	Disagreed
Lack of maintenance culture is a factor that is responsible for deterioration of school buildings	31 (28.7%)	64 (59.3%)	10 (9.3%)	1 (0.9%)	2 (1.9%)	4.14	Agreed
There is a computerized log book for maintenance issues	2 (1.9%)	0 (0.0%)	9 (8.3%)	66 (61.1%)	30 (27.8%)	4.15	Disagreed

**Source:** Field Survey, (2023)

The analysis of Table 4 indicates the respondents view on the challenges facing the implementation of adequate maintenance of the school buildings. The respondents disagreed on the taking of inventories of the conditions of the buildings and routine interval of maintenance as well as the availability of computerised maintenance log book and prompt responses to maintenance complaints. It was further agreed on by the respondents that, lack of maintenance culture complicates the maintenance requirements. Funding was agreed on as one of the challenges facing

the implementation of maintenance as there were no adequate financing from other stakeholders of the school aside the government. The findings of the research on mitigating factors in the maintenance of school buildings in Nigeria conducted by Adisa et.al (2015) also indicates a lack of adequate funding for maintenance as against the findings of Adedayo (2022) which revealed that climatic, material and human factors are the challenges affecting maintenance management of higher education institutions in Nigeria.

**Table 5: Assessment of maintenance plan in place for public primary schools**

S/N	FACTORS	SA	A	N	D	SD	TOTAL	MEDIAN	REMARK
		5	4	3	2	1			
1	There is a maintenance plan in place for the school.	2	1	10	64	31	108	2	Disagree
2	There is no maintenance record for the school.	15	79	12	0	2	108	4	Agree
3	There is a specific type of maintenance strategy in place for the school.	1	3	19	66	18	108	2	Disagree
4	A maintenance policy is not provided in the school.	27	69	10	0	2	108	4	Agree
5	There is maintenance crew in the school.	6	7	20	58	17	108	2	Disagree

Source: field study (2023)

Table 2 shows the result of the assessment of maintenance management plan in place for public primary schools, this was measured on five variables to establish if there is the existence of any maintenance plan in place in the public primary school system. The results were analyzed using the median score since the variables are ordinal with a likert scale of 5 for strongly agree; 4 as agree; 3 as neutral or undecided; 2 as disagree and 1 as strongly disagree. The respondents either agree or disagree with the statements indicating the presence of maintenance plan for public primary school facilities. The respondents disagree with the statement that, there is neither a

maintenance plan nor maintenance strategy likewise there is no provision for maintenance crew amongst the staffs of the school. Moreover, it was discovered that there is neither a maintenance record of previous activities nor is there a maintenance policy for the school facilities. This supports the assertion of Adisa and Onovughakpor (2013) that there is generally no planned maintenance with manuals for public school in Nigeria. Izobo-Martins et.al (2018) also asserts that principals make various attempts to perform maintenance in one way or another but the none availability of a maintenance manual or a well-defined strategy in place has not made their efforts fruitful.

## **5.0 Conclusion**

Based on the findings of the study it is evident that majority of the respondents have a vast knowledge of the mode of operation of the maintenance practice carried out in the public primary schools concerned having been stationed at the school for a period of between five years to twelve years. Moreover majority of information was gathered from the school administrators comprising the head teachers and their assistance that are responsible for the management of the school facilities which makes the result of the findings valid.

The conditions of the primary school buildings ranging from the ceiling to the floor, the walls, windows and doors, toilets are in deplorable state calling for attention in maintenance. This not leaving behind the non-availability of portable water for the middle childhood children which can pose threat to their health.

There is no established presupposed maintenance management plan in place for public primary school. Where faults are rectified after complete breakdown of the facilities, following the order of corrective maintenance which according to previous researches are more expensive than the preventive strategy, records are not maintained for future references on the event to monitor the performance of the building in order to have a preventive maintenance plan hence corrective and emergent maintenance is the norm of the day.

There is lack of maintenance culture on the part of both the government and the school administrators having no record of periodic check on the functionalities of the facilities in place thus resulting in deferred maintenance of the buildings in public primary schools. This is attributed also to the lack of adequate funding by the government and other stakeholders of the school. Hence,

leading to deferred corrective maintenance strategy as the order of the day. This study is focused on the assessment of the conditions of the school, identification of the existing maintenance practice and the assessment of challenges for the implementation of active maintenance practice, further studies can be explored on the perception of the school stakeholders using qualitative research design to generate data from both government agencies/ministry and the school heads for triangulation purpose.

## **6.0 Recommendation**

The non-existence of maintenance crew amongst the employed staffs of the school is a reason for concern to address immediate needs for the dependent primary school pupils before further deterioration of the facilities which might become a threat to the life of the young children. A maintenance strategy should be formulated. The maintenance strategy should be well-aligned with the overall condition of the existing school buildings as well as with the strategic goals of the state government on educational policy. Strategic performance indicators should be used in controlling the strategic development of maintenance. The maintenance strategy should periodically be revised in order to remain dynamic. Maintenance crew should be established at least in all the Local Council Development Area (LCDA) of each Local Government Area of the state to give periodic report in form of maintenance request and feedback to the necessary quarters.

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