A Conceptual Facilities Management Tactics For Educational Infrastructures in Rivers State, Nigeria

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Abstract:

The study therefore focuses on developing a facility Management Plan for facilities at Kenule Benson Sara-Wawa polytechnic Kira campus in Rivers State, Nigeria, and presents findings on the effectiveness of maintenance practice used, the prevailing methods of executing maintenance practice efficiency factors affecting building maintenance, and the overall facility management practice, it goes further to give an overview of the current state of infrastructure. Therefore, a facility management plan for the maintenance of educational infrastructure is developed to tackle the issues of lack of maintenance and bureaucratic bottle necks of maintenance in public schools. A detailed literature was reviewed on public schools infrastructure with both qualitative and quantitative research method, 80 questionnaires were designed and 50 were retrieved to collect data from students.

1.0 INTRODUCTION

Rivers State currently is observed to witnessed development in the educational sector through the construction of new public educational infrastructures and these infrastructural developments accounts for a greater percentage of the state investment. Consequently, it is importance that these facilities including buildings be properly managed and maintained in order to achieve its intended purposes. However, facility maintenance assists in retaining economic life of building, reduction in resources applied to building maintenance, it further brings about improved utilization of infrastructures by ensuring the highest standard serviceability, security and safety in entire infrastructures provided. In line with the aforementioned situation, using appropriate facilities management tactics for maintenance work is therefore necessary if value and

pleasantness of the state' infrastructural stock is to be sustained. But the greatest issues affecting education in different localities in the Rivers State is the current poor state of the educational infrastructures. Even though education is the most effective means that brings about the change that would boost the economic development of Rivers State and public schools in the past, used to be an institution of envy (Asiyai, 2013). Unfortunately, the reverse is now the case as those public schools infrastructures are presumed as not well managed in line with the laid down development and maintenance policy. In addition, Olagunji *et al.* (2003), opined that public buildings in Nigeria are generally faced with dilapidation due to lack of maintenance. However, in Rivers State, the inadequate and/or lack of appropriate tactics for the management of the infrastructures in the Kenule Benson Saro-Wiwa Polytechnic Kira Campus, Tai Local Government of Rivers State Nigeria has consequences on economic and social development. Consequently, this result in problems of completed but unoccupied buildings in a deteriorating state.

Therefore, this paper dwell on conceptualising a facilities management tactics that should be adopted for educational infrastructures management/maintenance in Rivers State, Nigeria. with the objectives of: (1) assessing the current condition of the infrastructures at the Ken Saro-wiwa Polytechnic Kira Campus; (2) examining the effectiveness of the maintenance practices used in maintaining infrastructure at case study; and (3) ascertaining the factors militating against effective maintenance practices use at the case study; and finally conceptualise a facility maintenance management plan for the management of the educational infrastructures in the school..

2.0 Literature Review

2.1 Concept of Facility Management

The International Facilities Management Association (IFMA, 2012) as cited in Ihuah and Eaton (2015) describes facilities management as a profession that encompasses multiple disciplines ensuring functionality of the built environment by integrating people, place, process and technology. Facilities management is increasingly gaining recognition as it is contributing significantly to the overall effectiveness of many organizations in the world. Barret and Baldry (2003) stated that Facilities Management (FM) offers an integrated approach to maintained, improve and adapt the buildings and other infrastructures to create an enabling environment that strongly supports the primary objectives of the organization. Chotipanich (2004) observed

Facilities Management from strategic management perspective as the prime source for management of infrastructure, resources and services with the view of supporting and sustaining the operational strategy of the organization overtime. Facilities Management covers all aspects of property, space management, environmental control, health, safety, support services, and requires appropriate monitoring and control centre that are established in the organization. Facilities Management as a field has incorporated many diverse functions of space planning, space inventory, space and furniture standard settings, project management, programming requirements, financial control, purchasing construction management, scheduling, layout, design and on-going maintenance management. Alexander (1996) Fencer (2004) defines facilities management as a process that ensures the buildings and other technical system to support the operation of an organization

2.2 Facilities Management Functions

Atkin (2003) stated that the use of facilities management will facilitate the following;
Services delivery that is effective and responsive, facilitate changes in the use of space for the future, to make resources commercial ,create competitive advantage for the organization core business and Improve the organizations' culture and image.

2.3 In-House Service Provisions

According to Barret and Baldry (2003), in-house approach of facilities management is essentially referred to as a services that is provided by a dedicated resources directly employed by the client organization, where monitoring and control of performance is normally done under the terms of conventional employer/employee relationship; Although internal service-level agreements may be employed as a regulating mechanism. Wise (2007) insight to the benefits of in-house provision of FM functions and stated that In-house employee usually will perform better than outsourced employees who make decisions based on how they will affect their own employers, not the people for whom they are working by proxy. In addition, Wise (2007) contented that in-house service provisions results of long-term financial analysis usually support in-house rather than outsourcing option; in-house solution offers the company the opportunity to grow people instead of hiring from outside, and so provide career prospects that reduce staff turnover. Again, outsourcing could enable the organization to pick the best service provider in terms of

experience, quality, speed and efficiency. However, these may be quick fixes which are not sustainable in the run. But, Atkin and Brooks (2005) provided an insight on the disadvantage of in-house provision of Facilities Management functions; **as a** non coordinated scope and will lead almost inevitably, to problems in the management of the services with higher supervision costs and lowering of customer satisfaction. However, without delineation of roles and responsibilities, it can be difficult to measure the performance of in-house personnel. Given that the organization's management may be looking periodically at the market for external service provision, it makes sense for the in-house teams to operate in business like way so that it can compete fairly if the need arises".

2.3 Outsourcing Service Provisions

Barrett and Baldry 2003 considers outsourcing as an involvement of an external party to the management of role of facilities. He used the term contracting-out as a generic term to describe the process by which a user employs a separate organization (the suppliers), under a contract, to perform a function, which could, alternatively, have been performed by an in-house staff. Many authors including (Collings, 2007; McCray and Clark, 1999) listed problems of outsourcing which include: **t**he volume of deal is much, hence outsourcing vendors unable to manage the volume of work ethic between organization and outsourcing vendor, inability to perform task within specified frame time and produce results, inadequate contract performance measures and penalties, inadequate capability to deal with time allocated with management when associating with outsourcing vendor, no flexibility in practice, out sourcing contracts focus solely on cost cutting measures. Some organizations favour a totally in-house facilities management option while others literally contract out every services possible, yet others use a combination of both; it depends on the priority of the activities or services of an organization. Since, both in-house and outsource facilities management have unique abilities to contribute to the achievement of best value for money.

2.4 Maintenance Management Strategies For Educational Infrastructures

- **Unplanned Maintenance Strategy** - Commonly known as reactive maintenance is an emergency maintenance with respect to unexpected cases and leads to high cost. This is the position of (Yaakob, 2005).

- **Planned Maintenance Strategy** - The basis of planned maintenance is reliable on accurate data Management normally plans its maintenance work properly especially the person in charge of monitoring the maintenance work (Yaakob, 2005). Planned maintenance includes:
- **Pro-active Maintenance:** According to Hasham (2003), proactive maintenance is one type of maintenance that detects the failure from the source . He also stated that proactive maintenance is designed to the useful age of the equipment to wear-out stage by adopting a high level of mastery with respect to operating precision.
- **Preventive Maintenance:** According to Horner et al (1997), the efficiency of the equipment being assessed at regular time interval, which can extend the life of the equipment and is designed to overcome the disadvantages of corrective maintenance by reducing the probability failure. Preventive maintenance is better than corrective because it is planned to reduce maintenance cost of major damage.
- **Corrective Maintenance or Condition Based Maintenance:** Homer et al (1997) stated that corrective maintaining tasks often take place in response to breakdown or users' request which is completely different from preventive maintenance because it is based on the condition of the equipment and it involves just the repair or replacement of an element that has failed in its function. According to Homer further stated that corrective maintenance can be extremely expensive because the failure of an item can cause a large amount, of consequential damage to other element in the building and failure of an item can occur at a time that is inconvenient to both user and the maintaining authority.
- **Condition Based Maintenance (CBM):** Condition based maintenance (CBM) is employed to monitors the actual condition of an asset before a maintenance decision(s) is undertaken. Condition Based Maintenance dictates that maintenance should only be performed when certain indicators show signs of decreasing performance or an upcoming facility or equipment failure.

The background for this form of maintenance is carried out in response to a significant deterioration of work or equipment component. This deterioration is indicated by a change in the monitored parameter of the condition and performance. This maintenance is similar to pre-planned maintenance in that regular inspections are made and the condition recorded. However

no work/replacement would be undertaken until there was a significant change in condition/performance of the item. The following applies to Condition based maintenance:

- Condition based maintenance (CBM) are basically Health, safety and significant components which condition are to be monitored and for which 'online' condition monitoring techniques are available and cost effective.
- Components whose condition can be monitored and for which the cost of applying condition-based maintenance is less than the cost of applying corrective or preventive maintenance.

3.0 Methodology of the Paper

For this paper, i administered 80 Questionnaire, to staff in the department of works and students of the Polytechnic. Out of the administered questionnaire, I retrieved 50 from respondent .A response rate of 62% . I also interviewed staff, students and members of staff of the Polytechnic.

I implore the use of SPSS in my data analysis and the presentation of my findings is tables and percentages.

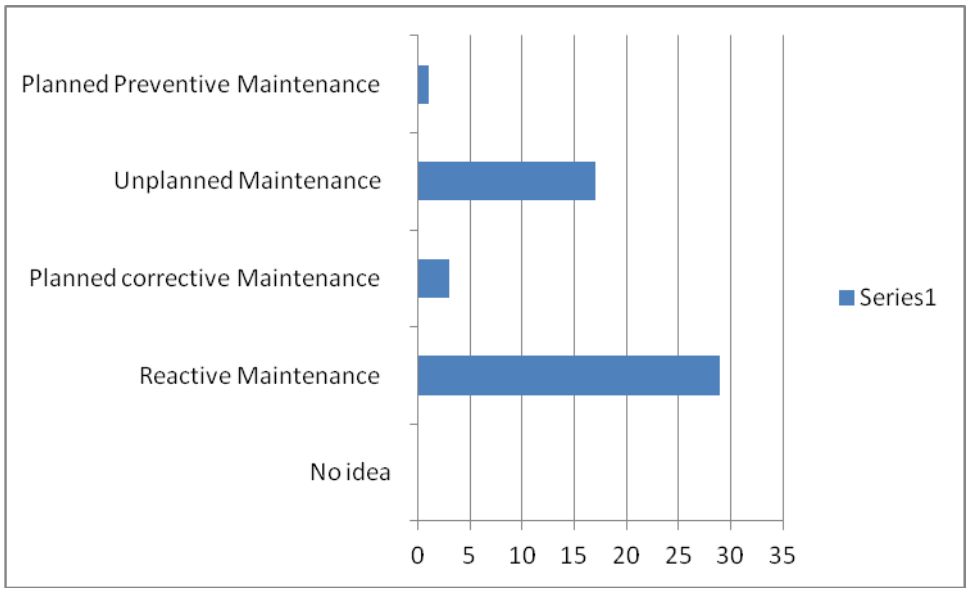
4. DATA ANALYSIS AND DISCUSSION

This analysis was done according to research objectives and is presented in order to answer the research questions.

Building Maintenance Strategy Adopted

The maintenance strategy adopted at the school shown in Plate 2. This revealed that 58% of the respondents agree that it is reactive maintenance, while 34% indicated as unplanned maintenance. The table further revealed that 2% of respondents agree to be planned preventive maintenance, while 6% as planned corrective maintenance. The implication is that majority of the respondents agree that the maintenance strategy adopted includes reactive maintenance, unplanned maintenance, planned corrective whereas, planned preventive maintenance the effective maintenance management practices.

TABLE 1 : Graphical Representation of Building Maintenance Strategy



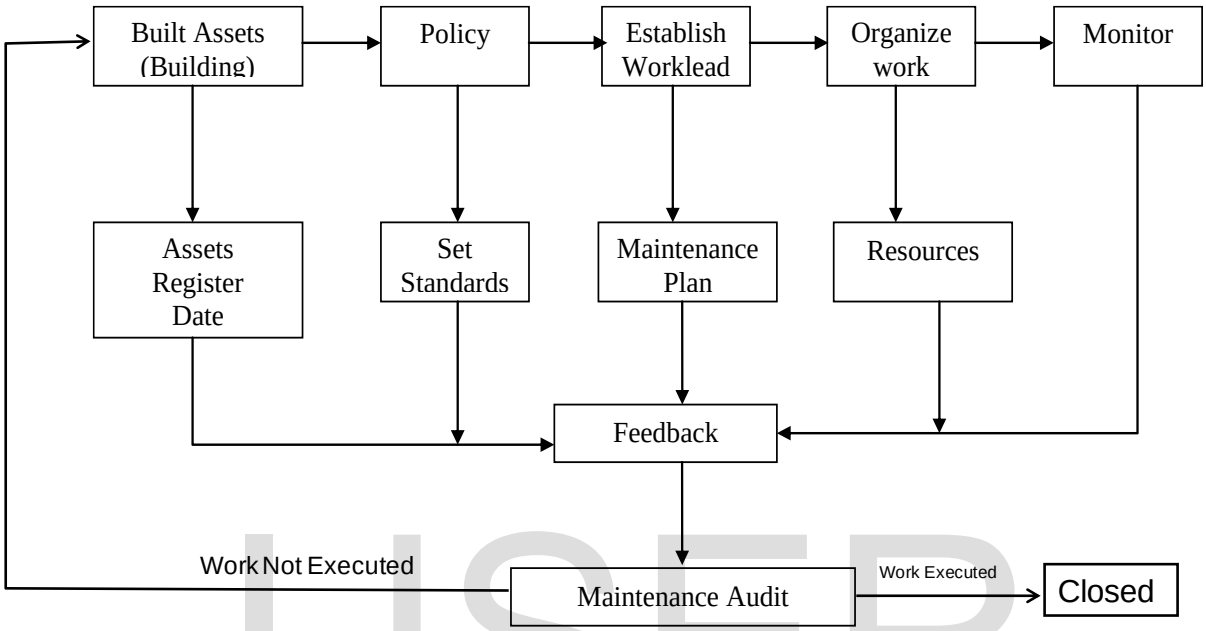
Source: Authors' Field Survey, 2017

Developing a Facility Management Plan

According to Allen, the need for a facility Maintenance Management Plan set synergies between social, environmental and financial resulting from integration as the potential roles of governance structures, skills or techniques models, management, measurement and reporting systems in implementing sustainable maintenance. This plan requires that organizations address all dimension of sustainable maintenance simultaneously by ensuring long term economic and financial performance, creating values for the society through a responsible management and maintenance of buildings. All the system need to be adequately designed and practiced within organization according to the facility management plan.

PLATE 1

FACILITY MANAGEMENT PLAN (FLOW CHART)



Facility Management Plan

From the flow chart above, all maintenance activity commenced at built asset entry. it flows through policy formulation through workload that is established. The activity is organised and monitored. All maintenance activities and resources all pass through a feedback system and a maintenance audit.. Where the activity is satisfactory, it is closed out. Otherwise, it goes back to the built asset start point and then follow the flow process.

5.0 INTERPRETATION AND DISCUSSION OF FINDINGS

These analysis have provided a critical insight into developing a Facility Management Plan towards Sustainable Maintenance Practices of Public Schools in Rivers State Nigeria. These insights have informed how sustainable maintenance management practices would be undertaken and could be effectively addressed.

- Determine the prevailing method of executing maintenance practices.

- Ascertain factors militating against effective and efficient maintenance practices in Public School.
- Evaluate the overall facility maintenance management Plan practiced in Public Schools.
- Assess the current condition of infrastructure at kenule Benson Saro-Wiwa Polytechnic. Kira Campus.
- Development Facility Maintenance Management Plan for educational infrastructure.

6.0 CONCLUSION AND RECOMMENDATIONS

Sustainable building maintenance practices is viewed as an integral part of sustainable development goal applied to the construction industry with the creation and responsible facility management plan of a healthy built environment based on resources

- A broad-based maintenance framework that will encompasses all stakeholder in the public housing estate is essential to drive social, financial and environmental sustainability.
- In order to offer solutions, the study have outlined these key elements that should be implemented for maintenance sustainability.
- Integrated management systems, whose actual implementation requires the effective management of compliance; (financial, social, and environmental performance; risk management; and knowledge management.
- Integrated management, measurement and reporting systems, which may allow an integrated approach to maintenance sustainability through planning, execution, monitoring and communication.
- Adequately designed, and implemented, integrated reporting can play an active and constructive role in maintenance managing sustainability beyond compliance.
- This approach requires that public housing managers actually alter their existing maintenance practices beyond more rhetoric and allow a concrete strategic developments towards sustainable building maintenance practices.

7.0 Recommendations

1. Adoption of a broad-based maintenance sustainability framework that will encompass all public housing estates.
2. Maintenance Plan and maintenance actions must be instituted

3. The various maintenance activities should be encouraged in equal measure, as funds be set aside for each activities enforcement and follow up to ensure compliance to maintenance plan.
4. There is need to improve maintenance strategies and establish sound policies to ensure clarity of the procedures of work to be undertaken.
5. The completed and unoccupied housing estate should be occupied and the uncompleted to devoid deterioration.
6. All maintenance activities involved in affecting maintenance practice should embrace virtually adequate funding, sound policies, release funds for maintenance, use of competent staff, proper use of facilities, quick response and the use of good quality materials for maintenance.
7. Integrated reporting system and compliance must be put in place to achieve sustainable maintenance practices.

It is hoped that these recommendations if implemented will reduce maintenance problem besetting the built environment sector as to enhance sustainability in building maintenance practices.

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