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Factors Militating against Effective Maintenance of Tertiary Institutions' Buildings in Enugu Urban, Nigeria

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Abstract:

The efficiency and performance of buildings are influenced by the level of maintenance carried out on them. In tertiary institutions, maintenance among other functions is the prerogative of the institute's department of works; however, the conspicuous unmaintained buildings in most of the institutions create room for questioning the reason for the existing anomaly. The aim of the study was to identify the factors militating against effective maintenance of tertiary institutions' buildings with a view to creating awareness of them so as to induce the consciousness required for initiating a positive response. In achieving this aim, the study made use of both primary and secondary data for eliciting the relevant information. A survey was carried out on the five tertiary institutions in Enugu urban using both oral interview and questionnaire to elicit the necessary data. The simple random sampling was applied to a list of heads of academic departments of each institution, while the head of department of works of each institution was added to generate a sample size of 91. Out of the 91 questionnaires distributed, 59 was returned and used for the study. The study revealed that lack of funds plus the bureaucracy associated with accessing them, and absence of maintenance policy were the major hindrances to effective maintenance. The conclusion reached was that tertiary institutions' buildings in Enugu urban are not well maintained due to lack of funds and absence of maintenance policy. The recommendation was that government, as a matter of urgency should make funds available as well as simplify the process of accessing them; furthermore, institutions are to develop and adopt a maintenance policy, which will provide direction to maintenance action.

Keywords: Budgets, effectiveness of maintenance, funds, maintenance policy, unmaintained facilities

1. Introduction

It is the bounden duty of every government to provide affordable and qualitative education for its citizens; as such, the provision of tertiary institutions is one of those ways that government commits itself to enhancing the quality of life of the citizens.

Tertiary institutions contribute to the development of the environment where they are located and generally provide opportunity for learning for the citizens of the area and beyond. Buildings in these institutions are normally large and massive to house different departments, require huge investment of resources for their realization and are considered critical factors in the achievement of desirable outcomes (Olatunji, Aghimien, Oke and Akinkunmi, 2016). Hence, they assert that any inadequacy in building facilities represents a loss in value of the institutions.

Tertiary institutions, apart from providing spaces for teaching and learning in the different skills are also expected to promote character formation of the students as well as provide robust environment that will facilitate academic activities; as such, the environment must be conducive enough to make the desired impact (Owolabi et al., 2014; Lee, 1995, Olowoake and Wu, n.d). Furthermore, Jolaoso, Musa and Oriola (2012) affirmed that in fulfilling these objectives, tertiary institutions will contribute to sanity, development and sustainability of any nation; as such they and Owolabi, et al. (2014) attributed the state of buildings and environment as key indicators of measuring the level of development and condition and state of the citizenry. Corroborating these views, Olatunji et al. (2016) established a strong correlation between learning and the environment in which knowledge is imparted. Hence, the provision of functional buildings which will serve the purpose intended (Oladapo, 2005) is important to national development and is in turn a function of the durability of the building. The durability of buildings apart from being achieved through the use of standardized materials and procedures, is also achieved through pre planned actions, aimed at restoring the failing or failed parts of the structure for

its continued performance. Supporting this assertion, Olatunji et al. (2016) affirmed that tertiary institutions' buildings require maintenance in order to create a conducive environment that supports and stimulates learning, teaching, innovation and research.

Unfortunately, a worrisome trend is the use of massive construction of new buildings as an index of measuring development (Owolabi et al. 2014); the quality of education and success of most tertiary institutions are judged by the level of infrastructural development in them. The result is that new facilities are built, which outpace the maintenance capacity of these institutions. Furthermore, to worsen the situation, funds are readily made available for new construction than for maintaining the older stock of buildings (Sharafadeen, Owolabi and Segun, 2015, Waziri and Vanduhe, 2013), thereby making the institutions junkyards for non-functional buildings, which impair the performance of both the students and the staff, reduce the quality of living in the schools and question the place of maintenance in the list of priorities of both the government and the management of these institutions. Although a department is established for taking care of institutions' facilities, the state of the buildings in these institutions suggests high inefficiency of such department towards maintenance. Shohet (2003) cited in Adenuga and Ibiyemi (2009) upheld that continuous performance of tertiary institutions' buildings and their parts is dependent on the extent of continuous and planned periodic maintenance, which is not the case in most institutions.

The aim of this paper is to identify the factors, which militate against the effective maintenance of tertiary institutions' buildings with a view to creating an awareness of them and their consequences so as to induce the necessary consciousness capable of initiating a positive response. The study will, therefore x-ray the objectives of maintenance, the effectiveness of maintenance and the problems, which militate against effective maintenance.

1.1. Statement of the Problem

Tertiary institutions have become junk yards for dilapidated structures while still providing spaces for a vast array of new buildings construction. The situation is worrisome as it demonstrates a deliberate waste of resources, which contradicts the objectives of sustainability (Jimoh and Iyagba, 2012). The existence of department of works in all of these institutions and the conspicuous unmaintained facilities in them create room for questioning the reasons behind the current apathy towards maintenance, which the study seeks to identify.

2. Review of Literature

The British Standard (BSI, 1993) defined maintenance as a combination of any actions required to retain an item in, or restore it to an acceptable condition. Similarly, Olatunji et al. (2016), Owolabi et al. (2014), Hackman and Scott (2009) assert that maintenance is required for retaining the economic life of buildings; as such, it helps to restore a building to its initial investment value (Emiedafe, 2016; Akinsola, Ameh and Omitogun, 2016, Odeleye, 1995 cited in Jolaoso, Musa and Oriola 2012).

Maintenance, therefore, stems from the need to keep buildings functional and sustainable (Hackman and Scott, 2009); it also arises from the limitedness or short life span of materials from which buildings are made, and extends to some other factors like quality of materials used, quality of workmanship, frequency of use, nature of use, the age of the asset, ecological factors, nature of activities within and around the asset (Olowoake and Wu, n.d). Therefore, if buildings must fulfill their functions in spite of being composed of fragile material parts and affected by other factors as mentioned above, adequate maintenance carried out on them must take the first priority. Furthermore, to ensure that the initial functional, structural and aesthetic states of buildings are preserved, planned maintenance must be carried out at intervals on them.

Unfortunately, the culture of preventive maintenance is lacking in the country (Usman, Gambo and Chen, 2012; Olowoake and Wu, n.d); reports on the undesirable conditions of some school buildings (Owolabi et al., 2014, Zubairu, 1999) confirm this assertion. Maintenance is rather initiated when defects have become too obvious and the facility has degenerated to the level of becoming a hindrance to the optimal performance of the users.

In advanced countries like America, maintenance is not a response to failure; anecdotal evidence shows that planning for maintenance, apart from other factors is informed by the life span of components of the building; this means that as components approach the end of their life span, maintenance is scheduled to change them. Furthermore, every constructed facility has a maintenance manual, which further assists in their effective maintenance. Unfortunately, such practice is yet to be entrenched in the Nigerian environment. Although, the National Building Code (NBC 2006) advocates for the preparation of maintenance manual by a consortium of Architect, Builder and Engineer, such is still passive as the code is yet to be approved and subsequently implemented. Until this is done, maintenance will always be a major problem in the country.

In Nigeria, attitude to maintenance is reactive in nature, often embarked upon in response to failure or total breakdown of parts; such approach consequently results to delay in or shut down of the normal functioning of a portion of or the whole facility until after its restoration. This approach does not lead to effective maintenance as it results to waste of resources, stagnation of money yielding projects and inefficiency.

Effective maintenance consists of those actions aimed at improving the quality of living environment and raising the value of properties and, in addition must be cost, time and quality effective (Iwarere, 2009 cited in Iwarere and Lawal, 2011; Chin-man, 2002 and Spedding, 1987). According to Horner, El-Haram and Munns. (1997), effective maintenance is giving the right response to different maintenance needs and situations; hence there is no right method of maintenance, however, maintenance actions must correspond with maintenance needs and type at a particular time, and must be achieved within the available resources and organizational policy. It also requires a pre-determined way of assessing maintenance need, organizing and proper deployment of resources for their achievement. Maintenance, whether planned, corrective or emergency must always emerge from the management planning desk where adequate provision of fund should be made in order to respond accordingly should the need arise.

3. Methodology

The study covers only public tertiary institutions in Enugu urban, Enugu state, Nigeria. There are five public institutions located within the urban center in Enugu namely: the Institute of Management and Technology (IMT), University of Nigeria, Enugu campus (UNEC), Enugu state College of Education Technical (ESCET), Enugu state University of Science and Technology (ESUT) and ESUT college of medicine, park lane hospital, Enugu.

A list of the academic departments in each of these schools was drawn up and a random sampling was applied to each of the list, thus generating a total sample size of (86) for the departments. As there are only five schools that participated in the study, each of their department of works and maintenance was included in the list, thereby, making a total sample size of (91). The study made use of oral interview and questionnaire to elicit relevant information for the study. The questionnaire used for the study was divided into three sections: section A provided for the supply of relevant demographic information, section B provided for general supply of information related to the nature of maintenance in the school and the factors affecting effective maintenance in the school, section C provided questions directed to the heads of works and maintenance departments while section D was designed to obtain information from the heads of the sampled academic departments. Out of the (91) questionnaires distributed to the respondents, (59) were returned and used for the study. The distribution and return rate of the questionnaires among the five schools is shown in table 1. Presentation of findings is by simple percentages and mean score ranking.

Institution	No of questionnaire distributed	No of returned questionnaire	Percentage (%)
Enugu State college of Education Technical (ESCET)	22	11	18.6
College of Medicine, Park lane, Enugu	5	3	5.1
Enugu State University of Science and technology (ESUT)	25	16	27.1
Institute of Management and Technology (IMT)	23	19	32.2
University of Nigeria, Enugu campus (UNEC)	16	10	17
Total	91	59	100

Table 1: Distribution and return rate of questionnaires

4. Analysis of Data and Results

Below are the results of data collected from the field survey as extracted from the data collection instrument. The analysis of data bearing directly on the objectives of the study will be done according to sections, hence section B containing general information on maintenance will be presented first and the rest presented afterwards.

- Section B- general questions on maintenance

Maintenance is necessary for optimum performance of buildings	SA (5)	A (4)	N (3)	D (2)	SD (1)	Total
No of response	50	9	0	0	0	59
Percentage of response (%)	85	15	0	0	0	100

SA= strongly agree, A= agree, N= neutral, D= disagree, SD= strongly disagree

Table 2: Level of agreement to the importance of maintenance on the optimum performance of buildings

Source: field survey (2016)

My institution is well maintained	SA (5)	A (4)	N (3)	D (2)	SD (1)	Total
No of response	0	7	0	46	6	59
Percentage of response (%)	0	12	0	78	10	100

SA= strongly agree, A= agree, N= neutral, D= disagree, SD= strongly disagree

Table 3: Level of agreement to maintenance of sampled institutions

Source: field survey (2016)

Preventive maintenance is carried out on our facilities	SA (5)	A (4)	N (3)	D (2)	SD (1)	Total
No of response	3	19	0	20	17	59
Percentage of response (%)	5	32	0	34	29	100

SA= strongly agree, A= agree, N= neutral, D= disagree, SD= strongly disagree

Table 4: Level of agreement to the use of preventive maintenance as a maintenance option in the institutions

Source: field survey (2016)

Factors affecting effective maintenance	5	4	3	2	1	Mean	Rank
Corruption	19	18	8	4	10	3.54	6
Lack of funds	38	15	2	2	2	4.44	1
Apathy to maintenance	15	31	1	4	6	3.69	3
Lack of training and re-training of staff	16	17	12	5	9	3.44	8
Lack of good inventory system and shortage of materials	7	25	12	7	8	3.27	9
Lack of skilled manpower to maintain works	8	34	7	5	5	3.59	5
No long-term arrangements made for the supply of essential parts for replacements	31	15	9	0	4	4.17	2
The level of dilapidation has not advanced to the point where maintenance action is required	2	6	23	11	17	2.41	11
Unavailability of building maintenance policy	21	18	3	5	12	3.53	7
Unavailability of skilled appointed maintenance personnel	9	24	6	12	8	3.15	10
Lack of understanding of the importance of maintenance	15	24	8	9	3	3.66	4

Table 5: Mean score ranking of factors militating against effective maintenance
Source: field survey (2016)

➤ Section c-works department

section was meant only for the heads or directors of works and maintenance department, hence, working only with five institutions, the sample size is five. Data collected from them are presented below.

Is there any maintenance policy?	Yes	No	Total
No of response	1	4	5
Percentage of response (%)	20	80	100

Table 6: Availability of maintenance policy in institutions
Source: field survey (2016)

Do you have maintenance schedule?	Yes	No	I don't know	Total
No of response	1	3	1	5
Percentage of response (%)	20	60	20	100

Table 7: Availability of maintenance schedule
Source: field survey (2016)

Is maintenance budgeted for?	Yes	No	Total
No of response	2	3	5
Percentage of response (%)	40	60	100

Table 8: Provision of budget for maintenance
Source: field survey (2016)

➤ Section D-Heads of academic department

Adequacy of management's response to request	VA (5)	A (4)	N (3)	I (2)	VI (1)	Total
No of response	0	16	0	17	21	54
Percentage of response (%)	0	30	0	31	39	100

VA= very adequate, A= adequate, N= neutral, I= inadequate, VI= very inadequate

Table 9: Adequacy of management's response to maintenance request
Source: field survey (2016)

4.1. Summary/Discussion of Findings

It is an undisputable fact that maintenance is necessary for optimum performance of buildings as respondents completely agree to the statement (Table 2). However, as is the norm in Nigeria, principles are rarely translated to actions as more than 80% of the respondents, report that maintenance is hardly ever carried out in the institutions in spite of being fully aware of its importance to optimum performance of buildings. The situation, therefore, agrees with the reports of Owolabi *et al.*(2014) and Zubairu, (1999)that tertiary institutions are not well maintained. Further confirmation on lack of maintenance in tertiary institutions is made by more than 50% of the respondents disagreeing with the fact that maintenance option in the school is preventive, thereby giving credence to assertions previously made that maintenance in Nigeria is mainly reactive in nature.

In ranking the factors militating against effective maintenance of buildings in tertiary institutions, respondents revealed that lack of funds was a major constraint. Although 40% of the respondents agree to have a budget for maintenance (Table 8), they asserted that

the bureaucracy associated with the process of accessing funds for maintenance has constituted the current apathy to it (Table 5). In Table 8 also, 60% of the respondents revealed that there is no budget for maintenance and this explains the reason why lack of understanding of the importance of maintenance was ranked 4th (Table 5).

Again the 2nd ranked factor militating against effective maintenance was no long term arrangement for the supply of essential parts for replacement. In ranking 2nd, this factor, apart from revealing the maintenance option (corrective), which prevails in many institutions, also supports the initial assertion of the respondents that lack of funds was a major hindrance to effective maintenance. This is because if funds were available, long term arrangement for the supply of essential parts would be made. Further down the ranking line, lack of understanding of the importance of maintenance with the 4th position confirms the reason for the bureaucracy and delays involved in approving and accessing funds for maintenance. Other factors include lack of skilled manpower (5th), lack of training and re-training of staff (8th) and unavailability of skilled appointed maintenance personnel (10th), which, corresponding with surveys by Ajayi and Adenuga (2010) and Adenuga, Odusami and Faremi (2007) will slow down the advancement of maintenance action. Of utmost importance is the 7th position given to unavailability of maintenance policy as militating against effectiveness of maintenance (Table 5 and 4.5) as the oversight gives credence to Faworaja (1996) cited in Waziri and Vanduhe (2013) assertion that the culture of maintenance is lacking in Nigeria and is evident in lack of maintenance policy; this, therefore, justifies the reason for the current state of buildings in tertiary institutions in Enugu.

5. Conclusions and Recommendations

Maintenance of tertiary institutions' buildings in Enugu is necessary in preserving the value of asset as well as important in the achievement of desirable outcomes (Olatunji, Aghimien, Oke and Akinkunmi, 2016). The condition of buildings in most of the institutions, however, negates this affirmation and creates a gap between what is desirable for optimum performance of buildings and actions taken to that effect. In the light of the prevailing situations, the study concludes that:

- Effective maintenance is not carried out in higher institutions' buildings as the evidences supporting the statement are very glaring;
- Maintenance is militated by lack of funds and worsened by the fact that the process of accessing funds is daunting and discourages future attempts to it.
- Most institutions don't have a maintenance policy, as such advancing effective maintenance will be difficult if not unattainable.
- The study therefore, recommends as follows:
- Governments should as a matter of urgency make available funds for maintenance and simply the process of accessing them;
- Institution's should develop and adopt a policy for maintenance, which will provide direction to maintenance personnel;
- Maintenance personnel must undergo training periodically to enable them assess correctly the maintenance need of the facilities under their control and apply appropriate measures for their correction.

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