Impact of Maintaining Public University Buildings on Occupants, the Legal Consequences on Owners of the Universities in Cross River State, Nigeria

ABSTRACT

Building maintenance is a very important aspect of every nation infrastructural development and when properly maintained will preserve the condition of building and other facility and will reduce the rate of interruption in occupants services and productivity. Main while Lack of maintenance of building and other facilities will cause dilapidation and deterioration of the building physical structure and aesthetics that will create hardship on the occupants and management of the university. This study centered on impact of maintaining public university buildings; the legal consequences on the management of the universities, using the public universities in Cross River State as case study, two public universities were covered; University of Calabar and Cross River University of Science and Technology the population of study comprises; student and staff with a population of 56,251. The author used quantitative method and stratified random sampling technique for the study. Structured questionnaire were used as instrument for data collection. 382 questionnaires were sent out, and out of the 382 questionnaire administered, only 268 copies were returned representing 70% respondent rate for determination of sample size. Descriptive statistics were used for analysis of data. Given the outcome off the statistical test, the result shows that, condition of building has significant influence on occupant of building with the predictor variable (*condition of building)* in public university in Cross River State. hence, the implication of this finding is that, while keeping the public universities on the part of development remain primary in the policy objectives of successive government, one can state that these conditions appear to be a leaning that has been deeply rooted into the system by demonstrating the pervasiveness and systematic nature that poor maintenance has remained a major set-back to the productive development of the Nigerian public university. Finally the knowledge of the negative impact of poor maintenance on occupant of university building should be well calculated and echoed upon by all stake holders in the public university system.

INTRODUCTION

1.1 Background to the Study

The deplorable condition of most public university buildings within Nigeria and the world in general appears to be a trend that has eaten deep into the system thereby causing untold hardship on the occupants and the built environment in general to the extent which some public universities that pride themselves of certain facilities now have them in a standing shadow evidenced by lack of functionality with subsequent abandonment that will create untold hardship to all occupants and the management.

Hence, it is of primary importance that these building and other facilities which include public buildings are properly maintained to preserve the architectural and aesthetical functions for which they are built. The physical appearance of buildings used as public institutions constitutes the basis upon which the society makes their initial judgment of the quality of services to be offered. When buildings are not maintained or neglected especially in relation to replacing leaking roofs, damaged electricity cables, broken floor tiles, crack on walls, water ingress, dilapidation are bound to occur which may result in extensive and unavoidable damages to the building fabric and physical structure. (Druķis, Gaile, and Goremikins 2017, Seth Emmanuel 2014).

More so, other studies by (Abisuga, Famakin, & Oshodi, 2016 Claudio, Rivera and Ramirez 2016 Gua and Lau 2012 Tanner 2011 Wong and Jan 2003). Reveal that there is a relationship between educational facility and the performance of students and staffs in a tertiary institution.

In an incident of a collapse building designed for fishery department under construction in university of Port Harcourt Nigeria, the University at its 163rd meeting held November 3, 2017. Based on a recommendation of the senior staff disciplinary committee dismissed some erring staff of the department of physical

planning and development (DPPD) for professional negligence to save the image of the school authority.

"Concern about the general state of our public universities, the federal government NEED assessment report of November 1st 2012 of Nigeria public universities, reveals that the universities were grossly mismanaged, incapable of supplying the Nation man power need and offering poor quality education among others." Consequently, it was as a result of several failed attempt by the government to address the condition of infrastructural decay in public universities in Nigeria, that has resulted to the various incessant strike actions and worst of it all is that of January 2022 of the Academic and nonacademic staff union of the university (ASSU) of public universities in Nigeria, Which has caused unquantifiable and untold hardship to the occupants. Therefore the author seeks to address the impact of maintaining public university on occupants; the legal consequences on the management within the study area and to examine whether measure exist to mitigate this impact with a call for further study on this subject.

Keywords: poor maintenance, Building maintenance, defect, Tertiary institution, Obsolescence, Sick Building, Negligence, Legal consequence, Consequence, occupant. Liability,

1.2 Statement of the Problem

Building maintenance is a very important aspect of every nation infrastructural development which infrastructure play a vital role in the socio-economic growth of the nation. When building are properly maintained it preserve the condition as well prevent failure of building facilities that could interrupt occupant activities

and the delivery of services. It has been observed that building public university without a good maintenance frame work from the conception has created untold hardship to the occupants and the university management in general. Hence public university building like any other building will require maintenance budget to keep the building in a state to retain its essence and reduce economic waste.

When buildings are not properly maintained, there is tendency that deterioration of the element will set in which will have negative impact on the occupant's wellbeing. It is therefore important we start to embrace and examine the impacts caused by non-maintaining public universities. This imply when occupants of public universities are negatively impacted due to the poor state of maintenance by the management of the universities, the law need to be enforced to interpret and address the level of impact non-maintenance has caused the occupants (staffs and students). In extreme cases, the psychological and physical impact on occupants could cause illness, stress, depression and death which create untold hardship that will result to the interruption of activities and delivery of services by the occupants and the management or are there no legislature covering occupants and management of public universities within Nigeria?

Therefore this study seek to examine the condition of public university buildings and other facilities, legal consequences on the management of the university and access what measure exist to mitigate the negative impacts on the occupants and access whether legal measures exist to mitigate the negative impact on occupants.

1.7 Scope of the Study

This research cover two public universities in Cross River State comprising; 1 Federal owned University, The University of Calabar, Calabar and a state owned university, Cross River State University of science and technology variously located within the study area. The research is focused on accessing the impact of maintaining public university building on the occupants; its legal consequences on management of the university, survey research strategy was adopted and involved the use of on-site building observations, questionnaire and case studies which cover tertiary institutions and literature from previous research but however limited to the field research of the two public universities in the study area. These will assist the author to evaluate the state of deterioration of the physical structure and other facilities as evidenced by leakages in roof members, wetness of ceiling, Brocken ceiling, wetness/ cracks on wall, broken socket/switches, broken water closet, broken /leaking sewage pipes, damaged door locks among others, the study further examine how the listed conditions can positively or negatively impact occupants of public university building in the study area under consideration. The author captured 4 variables to examine the impact of maintaining public university building on the occupant; the legal consequences on the management of public university building which includes; condition of building, poor maintenance, regular maintenance, occupants of building. However it is confine to the condition of public university in Cross River State and cover class rooms, hostels and office used by occupants within the study area built by the management of the school.

LITERATURE REVIEW

2.1 Concept of Buildings

The concept behind every building is to serve a purpose and when the purpose for which it was built is not attained, then there is a problem and experience has shown that, every building start experiencing wear and tear the moment it is completed while others before completion yet how well the wear and tear is attended by public university management and professionals in the built environment is worrisome which call for attention.

BUILDING MAINTENACE

Maintenance has been variously defined depending on the context under consideration and for the purpose of this study, Maintenance Committee in British recommended building Maintenance to be define as "Work undertaken in order to keep, restore or improve every facility, i.e every part of a building, its services and surrounds, to a currently accepted standard and to sustain the utility and value of the facility'.

- To keep here means that defects are prevented from developing
- To restore means that minor defects, if they are allowed to occur, are then corrected;
- Acceptable standard and acceptable cost indicate that maintenance work is tailed to suit individual needs and conditions.

Suffice to submit that despite several studies on this subject, my experience in several occasion in the curse of attaining my studies has been very frustrating in the class rooms and library concerning availability of power, where to socket your laptop to work availability of water to use the convenience, This is further evidenced by the various incessant strike actions noticed in the public

universities worst of it all is that of January 2022 of the Academic and nonacademic staff union of the university (ASSU, NASSU) of public universities in Nigeria, Which has caused unquantifiable and untold hardship to the occupants. When public building are not maintain it has both positive and negative impacts, which varies from psychological to physical and could reduce the building aesthetics, increase cost and reduce occupant functionality.

Dawson and Parker (1998) as cited by Glen Earthman (2002): posit that, school facilities condition and student Academic Achievement provide a descriptive analysis of the feelings of teachers about the building before, during, and after a renovation project is done on their schools. Teachers reported that, there were many aspects of the renovation project they did not like and they had negative feelings about their work before and during that period of time. After the renovation, however, teachers reported that morale among the faculty was high and their frustration level was much lower than during the renovation.

Empirical studies on various impact of poor maintenance on the occupants of buildings reveal thus; in 2011 U.S. Department of Education survey found that an estimated 14 million American students attended schools in need of repairs. Two-thirds of schools were found to harbor unhealthy environmental conditions like peeling paint, crumbling plaster, nonfunctioning toilets, poor lighting, inadequate ventilation, and decrepit heating and cooling systems. Air quality also plays a role.

Other empirical studies by (Agyekum, Salgin, & Danso, 2017, , Earthman G. 2002, Olarewaju, A. 2012, MaCall, H. 1997, Maxwell, L. 2015, Erin Mcintyre 2016, Lair, 2003) all investigated the condition of building or facility on occupants and

all submitted their findings that there is a relationship between maintaining university building and the occupants of the building.

Health Implication of Maintenance in Public Building on Occupants

The World Health Organization (1948) defined health as a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity and from these definition of health it implies that the wellbeing of every individuals is influenced by the living environment and several studies seem to unveil an existing relationship between building and its occupants and Studies by Uline & Tschannen-Moran, (2008) on the inter-play of quality of facilities, school climate and student achievement reveals that, substandard school buildings and grounds can negatively affect the health of children and adults in schools,

Consequences Of Maintenance public university building On Occupants And Management of University Buildings.

i. **Health of Occupants:**
Several studies have investigated impact of maintenance on health occupants with result showing positive impact due to the state of class rooms, offices and poor sanitary condition in school toilet facilities which further cause their absentee in class.

ii. **Economic Waste /Rebuilding Cost:**

When maintenance in buildings are deferred, or un attended to, It will set the building for more wear and tear and collapse of some element of the building which will attract increase cost for remedial work to put the building back to its original condition,

iii. **Injury, Impairment And Death**

Occupant of poorly maintained university building are prone to injuries as a result of broken tiles, such as slip and fall which could cause injury and impairment that may result to death

iv. Poor Corporate Image And Performance

Well-designed buildings and pleasant surroundings can lead to better attendance and concentration as well as motivation and self-esteem - factors which can improve performance. Clark (2002)

iv. **Legal Frame Work And Building Regulations**

When issues regarding poor maintenance in building are reported with negative consequences resulting to disputes, the legal system must provide an adequate, reasonable, effective and complete way to solve these disputes. Most building are exposed to poor maintenance due to several reason ranging from inability of owner to identify early wear and tear, lack of policy to lack of knowledge of the impact occupants and consequences on the management of the universities but how effective legal matters regarding poor maintenance are address in Nigeria and in particular reference to the study area call for concern to the author.

In Cross River State, the Building regulations address the ways in which new structures are to be built and materials to be used. They may also be applied to maintenance and improvement of existing buildings. The main objective of building regulations is that of securing social acceptable minimum standards. In these study area the Cross River State building regulation law of (1987) published as Cross River State legal notice No.15 of 1984 hereafter refer to as the

principal regulation strictly address the various process and approval of development and control of buildings projects in Calabar and its environ

Legal Consequence

Legal denote that which is allowable or enforceable by being in conformity with the law of the land and the public policy not condemned. Hence legal consequence implies an unpleasant outcome or effect on the occupant that one could reasonable expects to result from an act done consciously or unconsciously which is determinable at law.

Acts of Negligence

Negligence is the omission to do something which a reasonable man is guided upon considerations that regulate the conduct of human affairs or doing something which a prudent and reasonable man could not do. The most usual definition of negligence is that it is a conduct, or a failure to act, that breaches a duty to take care. Negligence can be something that occurs in everyday life, such as a Council that fails to repair the pavement properly, resulting in an injury to a pedestrian.

Owners-Liability

Owners typically consider themselves immune from liability for construction defects or failures. The owner's view is that the designer is obliged to produce plans and specifications that are sufficient for their intended purpose and the contractor is responsible to build the project in accordance with those plans and specifications. However, the owner may be responsible for construction defects in certain circumstances. For example, an owner who provides project information represents (either explicitly in the construction contract or implicitly

as imposed by law) that the information will be accurate. Thus, an owner who inaccurately reports the condition of the building site is responsible for that information in the event that a building failure results. This means that proper skill, knowledge and care are applied to the construction of the building by these professionals. Anyone that could be injured through foreseeable means is encompassed in this duty of care that is provided by the hired persons for the construction defects with regards to everyday situations it can sometimes be difficult to know whether a duty of care was owed.

Liability for Slip and Fall Accident

If you've been injured in a slip and fall accident on someone else's property because of a dangerous condition, you'll likely need to be able to show one of the following in order to win a case for your injuries;

i. Either the property owner or his employee should have known of the dangerous condition because another, "reasonable" person in his or her position would have known about the dangerous condition and fixed it.

ii. Either the property owner or his employee actually did know about the dangerous condition but did not repair or fix it

iii. Either the property owner or his employee caused the dangerous condition (spill, broken flooring, etc.).

In the House of Lords decision *D & F Estates Ltd and Others v Church Commissioners for England and Others* (see *Facilities* Vol. 6/No 9 /September 1988) given on 14 July 1988, the House of Lords considered the extent to which the cost of repairing a defect in a building which was

discovered before the causing of any injury or personal damage to other property, was recoverable by a negligence claim by the occupier against the builder. The case concerned the scope of the duty of care which a builder owes to a party such as an occupier in the absence of a contractual link or a uniquely proximate relationship (that is, a relationship so close that it is akin to contract). This article explains the facts of *D & F Estates* and its implications for the occupiers of buildings.

In May 1999**,** a Simi Valley woman recovered $350,000 against her homeowners association for failure to repair and remediate chronic water damage to her condo and for her personal injuries suffered from exposure to toxic molds, including Stachybotrys. The plaintiff also contracted Meniere's disease as a result of microbiological contamination of her unit. (Tri-Service Reference No. S99-09-19; Jan Hickenbottom v. Raquet Club Villa HOA, VCSC case no. SC 020 526.). In May 1998, the owners of a 7,000-square-foot custom home in Playa Del Rey sued the builder after the ceiling caved in as a result of roof leaks that occurred before they moved in. Stachybotrys was found in many locations in the house. The case settled for $900,000. (Confidential Report for Attorneys, CRA No. 10272, 1998 Issue, at pg. 12-54; Doe Homeowners vs. Roe Builder.)

This present study is set primarily to examine the impact of maintaining public universities on occupants of public university buildings; the legal consequences to management of the universities. Hence, in these two public universities studied, there might exist some occupants whose inadequate maintenance due to lack of essential policies or lay down strategy might

have suffered negative impact with no define consequences on the management of the universities.

RESEARCH METHODOLOGY

INTRODUCTION

3.1 Research Design: This research paper based on its magnitude adopt qualitative and quantitative research design with a case study research approach due to the large group of respondents and the ease of collecting qualitative data from respondents.

3.2 Data Collection Method and Instrument

To achieve the objective of study, data were collected from the population using both primary and secondary sources of data collection.

3.2.1 Primary Sources of Data Collection:

Physical observation of the buildings, photographs of some of the buildings sampled were taken. Questionnaires were administered to occupants of the 2 public universities within the study area which includes;

i.) A Federal university (University of Calabar,) and

ii.) A State owned university(Cross River State University of Science and Technology) both schools comprising of; Academic, non-academics staff students,

Hence due to the relative nature of the study and the challenges of obtaining data for achieving the study objective, respondent were selected using proportional

stratified random sampling technique to determine the sampled population upon which the questionnaire were administration piloted by the author.

3.2.2 Secondary Source Data Collection

Data from this source were obtained from the internet which comprises;

(i) Published research materials, seminar papers and Journals from previous researchers.

(ii) Text books.

(iii) Government legislatures.

(iv) Persona experience in practice.

3.3 Population of Study

The population of the two public universities in Calabar, Cross River State covered in the study was made up of student and staff total 56,251 comprising of; University of Calabar 39,612 and Cross River State university of science and technology 16, 639.

The status of respondent who were identified for the survey includes; under-graduates students, post-graduate students, Junior and senior staff of the two public universities. See figure below in table 1:

Table 1: Determination of Population Size For The Study

Study Area	Student population	Staffs population	Total population
University of Calabar (Unical)	33,334(59%)	6278(11%)	39,612(70%)
Cross River State University of Science and Technology (Crutech)	15,614(28%)	1020(1,8%)	16,639(30%)

Total	48948(87%)	7298(13%)	**56,251**

Source: Author field work. 2019

3.5 Determination of Sample Size/ Proportion

The sample size of this research is derived from a total population of 56,251 respondents using Krejcei and Morgan (1970) see appendix for table.

Table 2: Determining the Proportion Of Sample Size For The Study

S/NO	SAMPLED INSTITUTIONS	% PROPOTIION STUDENT	% PROPOTION STAFF	SAMPLE SIZE
1	University of Calabar	59(225)	11(42)	(70)267
2	Cross River State University of science and technology	28 (107)	2(8)	30 (115)
	Prop, of sample size	**87% (332)**	**13%(50)**	**100(382)**

Source: Author field work. 2019

3.3 Data Collection Procedure

Data collection for this study was engendered through administration of copies of questionnaires to three hundred and eighty two (382)respondents and out of the 382 in the two (2) public universities covered in Calabar, Cross River State, Nigeria based on their understanding of the subject matter. Out of the 382 copies of questionnaire that were distributed to the respondents, 268 copies were returned, yielding a response rate of 70 per cent . See fig, 1

3.4 Sampling

This study makes use of the combination of probability and non-probability sampling techniques. The probability sampling method adopted in this study is the stratified random sampling method and the researcher adopted the proportional stratified random method to determine the proportion of the occupant of each public university to represent the sample population which is

commonly used in sampling heterogeneous population just as this study population where members do not possess the same characteristics.

3.6 Reliability Analysis

Reliability Coefficient was computed for the composite scale and each of the subscales, and the results are reported in table 2. As we can see, the value of the Alpha coefficient for the composite scale and the subscales are all above the threshold ($\alpha \geq 0.70$); hence, they are all reliable. Table 3 shows the reliability assessment of the predictor variables using Cronbach's alpha. It indicates how the items for each factor were internally related in the manner expected.

Table 3 Test of Reliability (n=202)

Scale	Dimension	Items	Reliability
COB	Condition of Building	5	0.761
RM	Regular Maintenance	5	0.732
PM	Poor Maintenance	5	0.712
OOC	Occupants of Building	5	0.774
Overall Reliability Scale		15	0.912

Source: SPSS 22.0 Window output (based on 2021field survey data).

Table 3.3 summarizes the reliability result of impact of poorly maintained public university building on the occupants and the legal consequences on owners of the universities, which also include the individual item reliability test).

3.8 Methods of Data Analysis

This research adopted both descriptive statistics in the form of mean, standard deviation, frequencies regression analysis to measure the strength and association that exist between the impacts of maintaining public universities on occupants of

public universities buildings, legal consequences on the management in Cross Rivers State. Data generated from primary sources were used to carry out several statistical analyses descriptive statistics was used for analysis of the collected data. All analysis was carried out using statistical packages for the social science (SPSS) version 22.0.

DATA ANALYSIS

Data for this study were engendered through questionnaires administered and collected from sample of students and staff of two public universities in Cross Rivers State of Nigeria

4.1, Determination of condition of building and other physical Facilities.

Table 4: Frequencies showing condition of building and other facilities in University of Calabar(n=165)

S/N	Building Conditions	Very Conducive	Conducive	Fair	Not Conducive	Very Unconducive
1	Roof	15(10%)	35(21%)	20(12%)	35(21%)	45(27%)
2	Ceiling	20(12%)	25(15%)	15(9.1%)	50(30%)	55(33%)
3	Walls	-	11(5%)	15(19%)	70(42%)	60(36%)
4	Doors	-	-	-	35(21%)	130(79%)
5	Floor	15(10%)	55(33%)	20(12%)	25(15%)	50(39%)
6	Paintings	25(15%)	10(7%)	50(30%)	55(33%)	25(15%)

Source: SPSS 22.0 Window output (based on 2021 field survey data).

Table 4 indicates that responses on roof in the University of Calabar was 45(27%) for not very conducive. This indicates that roof as an aspect of the building in the University of Calabar was not encouraging due to its poor state of affairs. Ceiling recorded 55(33%) as not very conducive. This implies that the building in the University of Calabar has dilapidated ceilings.

Responses on the walls of the building yielded no response for very conducive, 60(36%) for very unconducive.

Responses on the doors of the buildings presented no responses for 130(79%) as not very conducive. Responses on the floors of the building yielded 55(33%) for conducive,. This indicates that the floors of the buildings of the University of Calaber have utterly gone bad beyond the acceptable standard befitting a university.


Plate 1: Showing condition of external/internal walls of university of Calabar library building.

The item on paintings presented respectively. 55(33%).These results implies that state of the building element in University of Calabar as seen in Table 3, clarifies the implication of poorly maintained public universities buildings considering this outcome for decision making on occupants of buildings.

Table 5: Frequencies showing condition of building and other facilities in Cross Rivers State University of Science and Technology (n=103)

S/N	Building Conditions	Very Conducive	Conducive	Fair	Not Conducive	Very Unconducive
1	Roof	5(5%)	3(3%)	19(20%)	35(34%)	40(39%)
2	Ceiling	-	8(8%)	30(29%)	25(24%)	40(39%)
3	Walls	-	13(5%)	25(24%)	30(29%)	35(33%)
4	Doors	25(24%)	30(29%)	-	15(15%)	33(32%)
5	Floor	6(3%)	13(6%)	15(14%	26(13%)	42(41%)

				)	
6	Paintings	-	-	-	48(47%) 55(53%)

Table 5 indicates that responses on roof in Cross Rivers State University of Science and Technology was not 40(39%) for not very conducive. This indicates that roof as an aspect of the building in Cross Rivers State University was not encouraging, due to its poor state of affairs. Ceiling recorded no response for very conducive, 40(39%) as not very conducive. This implies that the buildings in Cross Rivers State University of Science and Technology have dilapidated ceilings. Responses on walls of building in Cross Rivers State University recorded no response for 35(33%)as not very conducive. This implies that the walls of buildings in Cross Rivers State University of Science and Technology have unfavourable condition.

Plate 2: Showing condition of building in Crutech

Table 6: Frequencies showing condition of other elements of building in University of Calabar (n=165)

1.	Broken Sockets 80(48%)	Pull Off Sockets 20(12%)	Not Functioning Sockets Switches 50(30%)	No Idea 15(10%)
2.	Broken Switches 20(12%)	Pull Off Sockets 35(21%)	Not Functioning Switches 50(30%)	No Idea 60(36%)
3.	Broken Wall Brackets 70(42%)	Pull Off Wall Brackets 15(10%)	Not Functioning Wall Brackets 20(12%)	No Idea 60(36%)

4.	Unguided Cables -	Pull Off Cables 35(21%)	Not functioning Cables 130(79%)	No Idea -

Source: SPSS 22.0 Window output (based on 2021 field survey data).

Table 6 shows defects on each of the elements of the facilities in University of Calabar. It shows that, for broken sockets, the responses are: 80(48%) for pull off sockets, 20(12%) for not functioning sockets, 50(30%) and for no idea 15(10%). The item on broken switches witnessed 20(12%), pull off sockets had 35(21%), not functioning switches 50(30%), and No Idea had 60(36%). The item on broken walls witnessed 70(42%), pull off wall brackets 15(10%), not functioning wall brackets 20(12%), and No Idea 60(36%).Finally, on unguided cables witnessed no response, pull off cables had 35(21%), not functioning cables 130(79%) while No Idea had no response. This result shows the poor state of affair other element in university of calabar.

Table 7: Frequencies showing defects on each of the elements of the facilities in Cross Rivers State University of Science and Technology (n=103)

1.	Broken Sockets 25(24%)	Pull Off Sockets 30(29%)	Not Functioning Sockets Switches 15(15%)	No Idea 33(32%)
2.	Broken Switches 48(47%)	Pull Off Sockets -	Not Functioning Switches 55(53%)	No Idea -
3.	Broken Wall Brackets 30(29%)	Pull Off Wall Brackets 25(24%)	Not Functioning Wall Brackets 40(39%)	No Idea 8(8%)
4.	Unguided Cables 25(24%)	Pull Off Cables 13(12%)	Not functioning Cables	No Idea 35(34%)

30(29%)

Source: SPSS 22.0 Window output (based on 2021 field survey data).

Table 7 shows defects on each of the elements of the facilities in Cross Rivers State University of Science and Technology. It shows that, for broken sockets, the responses are: 25(24%)for pull off sockets30(29%), for not functioning sockets, 15(15%), and for no idea 33(32%).The item on broken switches witnessed 48(47%), pull off sockets had no response, not functioning switches 55(53%), and No Idea had had no response. The item on broken walls witnessed 30(29%), pull off wall brackets 25(24%), not functioning wall brackets 40(39%), and No Idea 8(8%). Finally, on unguided cables witnessed 25(24%), pull off cables had 13(12%), not functioning cables 30(29%), and No Idea had 35(34%). This statistical result shows that building element in the public university studied have not received adequate attention which has remain a major setback in the productive of the Nigerian public universities.

Table 8: Frequencies showing defects on each of the elements of the facilities in University of Calabar(n=165)

1.	Sanitary Wares	Broken Toilets 70(42%)	Cistern not functioning 15(10%)	Dismantle 20(12%)	Broken Flushing Handle 60(36%)
2.	Water Taps	Leaking Pipes 50(28%)	Faulty taps 25(15%)	Pull Off Taps/showers 55(33%)	Disconnected water supply 35(21%)
3.	Sewage System	Leaking Pipes 45(27%)	Broken toilet sheets/cistern 20(12%)	Un dislodged soak away pit 35(21%)	Uncovered inspection chambers/pits 65(39%)

Source: SPSS 22.0 Window output (based n 2021 field survey data).

Table 8 shows defects on each of the elements of the facilities in University of Calabar. It shows that, for plumbing/sanitary wares/fittings, the responses are: 70(42%) for broken toilet seat, 15(10%) for cistern not functioning, 20(12%) for dismantle and 60(36%) for broken flushing handles. The item on water taps witnessed 50(28%) for leaking pipes, 25(15%) for faulty taps, 55(33%) for pull off taps/showers, and 35(21%) for disconnected water supply. Finally, the item on sewage system recorded 45(3%) for leaking pipes, 20(12%) for broken toilet seat/cistern, 35(21%) for un-dislodged soak away pit, and 65(39%) for uncovered inspection chamber/pits.

Plate 3: showing condition of Hostel Building, Cross River State University of Technology

Table 9: Frequency showing whether poor maintenance has any health impact on occupant of public universities buildings (n=268). (UNICAL and CRUTECH)

S/N	ITEMS	SD	D	A	SA	(x)	STD	Remark
1.	Broken Floor.	(4.50)	7 (3.50)	75 (28)	85 (32)	3.14	.85	Agree
2.	Leaking Roofs.	8 (4.00)	7 (3.50)	35 (17.3)	152 (75.2)	2.14	0.99	Agree

3.	Plumbing Wares.	6 (3.0)	7 (3.5)	16 (7.9)	116 (57.4)	3.41	0.85	Agree
4.	Wetness/Crack on Walls.	- -	47 (23.3)	- -	155 (76.7)	3.54	065	Agreed
5.	Electrical Installations.	-		75 (37.1)	127 (62.9)	3.43	0.63	Agreed
6.	Other Facilities.	-	11 (5.40)	74 (36.6)	117 (57	1.47	0.65	Agreed

Source: (Statistical Data, 2021). (Percentage in parenthesis).

Table 9 indicates that responses on broken floor tiles presents 9(4.50%) as strongly disagree, 7 (3.50%) as disagree and 74 (36.6%) as agree, the response on leaking roofs was given as 112 (55.4). Plumbing warespresented 8(4.00%), Strongly Disagree, 7(3.50%) as Disagree then 35(17.3%) as Agree and Strongly Agree presented 152(75.20%) respectively. Responses on plumbing wares yielded 6 (3.00%) for strongly disagree, 7 (3.50%) for disagree, 16(7.90%) for Agree; 116(57.4%) for Strongly Agree. Wetness/crack on walls and electrical installations, portray that responses on disagree and strongly disagree yielded 47 (23.3%) and 155 (76.7%) respectively. The item on other facilities presented 75 (37.1%) and 127 (62.9%) for agree and strongly agree respectively. This implies that poorly maintained building elements and other physical facilities have direct consequence on users which clarifies the implication of public universities

management considering this outcome for decision making taking the occupants of buildings into consideration.

4.3.8 Evaluation of the Socio-economic impact of poor maintenance on the occupants of public university buildings

Table 10: Frequencies showing socio-economic impact poor maintenance on occupants of buildings (n=268)

1.	Health wise	Cold/cough/ headaches 70(30.2%)	Expiratory infections 67(26%)	Skin itching/burning and watery eyes 81(30%)	Blood pressure 50(19%)
2.	Academically	Poor Concentration 79(29%)	Poor Performance 81(30%)	Loss of Interest 58(22%)	Poor Reputation 50(19%)
3.	Socially	Low Self Esteem 75(28%)	Fatigue 85(32%)	Poor Grading 69(25%)	Reduce Interest 39(15%)
4.	Economically	High cost of Maintenance 50(19%)	Litigation Cost 79(29%)	Increased Stress Level 81(30%)	Poor Output 58(22%)

Table 11 shows that, health wise recorded 70(30.2%)for Cold/cough/headaches, 67(26%) for expiratory infections, 81(30%) for, Skin itching/burning and watery eyes and 50(19%for Blood pressure 15(7.4%). For academically, Poor Concentration has 58(22%),Poor Performance has 81(30%), Loss of Interest58(22%) and Poor Reputation 50(19%). For Socially, Low Self Esteem recorded 75(28%)

Fatigue has 85(32%) Poor Grading 69(25%) and Reduce Interest 39(15%). Economically, responses were: High cost of Maintenance 50(19%), Litigation

Cost 79(29%) Increased Stress Level 81(30%) and Poor Output 58(22%). Physical Environment presents Exposure to Hazard 79(29%), Poor Aesthetics 58(22%))Negative Image 79(29%)and Wear and Tear of Physical Structures 50(19%)***.the statistic outcome of this result reveals how severe the negative impact of poor maintenance is to the occupants.***

Table 11: showing whether Owners of Public Universities are held accountable for consequences of negative impact of poorly maintained universities buildings (n=268) (UNICAL AND CRUTECH)

SN	Variable	Freq.	%
1	Yes	100	37
2	No	128	48.
5	No Idea	40	15
	Total	**268**	**100.00**

Source: field survey 2021

As Table 11 shows, the responses on NO. are the highest, representing approximately 48 percent, closely followed by responses on Yes, representing approximately 37 percent. Responses on Not All represent approximately 15 percent. The outcome of this result signifies that owners of universities have not been fully made to be accountable for the potential negative impact of poor maintenance on the occupants of their universities.

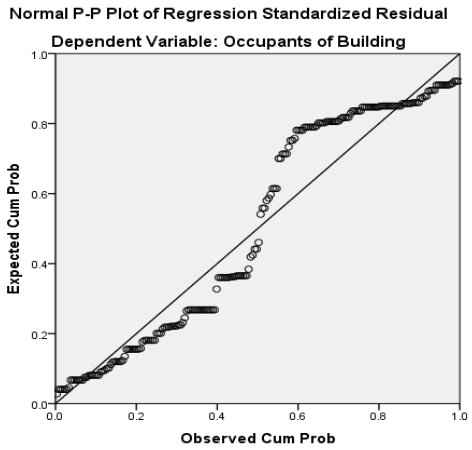

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Figure 2: f-ratio table

INTERPRETATION AN DISCUSSION OF FINDINGS

The results of the model condition of building on occupant of building provide insights into the dynamic relationship between poorly maintained public university building and occupants of building

Influence of Condition of Building on Occupants of Building

As observed from the statistical result, condition of building has significant influence on occupants of building. This implies that the predictor variable (condition of building) explains 55.2% of the variables in occupants of buildings in public universities in Cross Rivers State.

The findings indicate that a relationship exists between condition of building and the occupants of building. These problems persist as a result of poor maintenance policy, poor funding of the universities and corruption in government. The result of this finding agrees with the result of Cobbinah J. s(2010) Yahaya Ibrahim

(2017) who reveals that the deplorable condition of public university buildings potential impacts negatively on the lives of the occupants of such buildings.

Influence of Regular Maintenance on Occupants of Building

The estimated regular maintenance model reveals that regular maintenance have significant positive impact on occupants of building. This finding is indicative that regular maintenance in public universities in Nigeria is an important source of improving prolonged existence amongst the university population. This positive impact of regular maintenance corroborates with the findings of Lateef (2010) that, other than the human resources, buildings are the second most significant asset of a university institution.

Influence of Poor Maintenance on Occupants of Building: The dynamic relationship between poor maintenance and occupants of building reveals that poor maintenance has significant effect on occupants of building. In this present study for instance, impact of poor maintenance, health wise recorded 108(54%) for Cold/cough/headaches, and Expiratory infections in University of Calabar, and 94(46) for Cross Rivers State University of Science and Technology. Thus, poor maintained buildings diminish the competence and performance of enclosed spaces in university buildings. (Claudio et al., 2016; Gou & Lau, 2012; Tanner, 2000; Vafaeenasah et al., 2015; Wong & Jan, 2003). Putus (2012) and have linked health problems experienced in buildings with low functionality of building facilities. The implication of this finding is that the available government involvement in maintenance activities in public universities is inadequate to reduce to income gap amongst the occupants of the buildings. Given the outcomes of the statistical tests, one can state that these conditions

appear to be a leaning that has been deeply rooted into the system in this manner originating incalculable adversity on the occupants, the university management and the built environment in general.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

This study deepened the understanding of the influence of maintenance of building on the occupants of public universities buildings in Nigeria. The indicators of the independent variable include condition of building, regular maintenance and poor maintenance. These indicators offered insights into the various components of maintenance that affects the occupants of building. As observed from the results, maintenance index contracts the occupants of the building. This attests to the pervasiveness of poor maintenance culture in public

universities in Nigeria which has remained a major threat to the development process. Based on the statistical tests, the following findings were made:

i) Poor condition of building in public universities in Nigerian has remained a major constraint to the growth of the universities which has course several strike action by academic and nonacademic union of the universities.(ASSU, NASSU)

ii) It becomes apparent that condition of building enhance negative or positive performance of building occupants and when adequately engaged upon, makes building occupants achieve their goals and consequently capable of delivering faithful result that will usher in sustainable growth in the university system.

iii) The finding reveals that prevalent and pervasiveness of poor maintenance culture in public universities affects its occupants based on the statistical result showing the relationship that exist between occupant of building and condition of building.

6.2 Conclusion

This study is motivated by the theoretical and empirical views that poorly maintained building engenders rapid and sustained injuries to occupants of building, In view of the findings, it is concluded that existing governments have not played an appreciable role in fostering the maintenance culture in public universities in Nigeria.

6.3 Recommendations

In accordance with the findings, the following recommendations are proffered:

1. Policy makers should initiate proactive measures capable of addressing the pervasive and systemic nature of poor maintenance culture in order to keep the Nigerian public universities on the path of rapid and sustained development with improve educational expectancy for the Nigerian population.
2. The physical planning units of all public universities should be strengthened with more innovative policies while allowed to operate independently in order to proactively curb negligence and keep the Nigerian public universities on the path of productive growth.
3. Policy makers should promote strong and quality public universities with high potentials of promoting longevity and improved educational attainments amongst the population.

6.4 Suggestion for Further Studies

Further studies should organize input-output assessment studies in order to gain more insights into it specific roles in driving the process of quality management in public universities.

6.5 Contribution to Knowledge

This study has demonstrated the pervasiveness and systemic nature of maintaining public university buildings as it remained a major key to productive development of the Nigerian public universities. Again, this study has revealed

that public universities have remained important hallmark in driving the process of educational attainment in Nigeria.

REFERENCES

Abisuga A. O., Famakin I. O. & Oshodi S. O. (2016). Educational building conditions and the health of users. Construction Economics and Building, 16(4), 19-34. DOI: 10.5130/AJCEB.v16i4.4979

Agyekum, K.I., Salgin, B. & Danso, A.K. (2017): The health impact of damp housing conditions: lessons for inhabitants living in damp tropical buildings.6 *international conference on infrastructure Development in Africa*;

Clark, C. (2002). Texas state support for school facilities, 1971 to 2001. *Journal of Education Finance, 27*(2), 683-700.

Cobbinah, J. (2010): Maintenance of buildings of public institutions in ghana. case study of selected institutions in the ashanti region of ghana. A Thesis Submitted to the Department of Planning, Kwame Nkrumah University of Science and Technology, Kumasi.

Claudio, L. Rivera, G.A., & Ramirez, O.F. (2016) Association between markers of classroom environmental conditions and teachers' respiratory health. *Journal of School Health*, 86(6), 444-451.

Darwson, C. & Parker D. (1998): A descriptive Analysis of the perspective of Neville High schools Teachers regarding the school renovation.

Druķis, P., Gaile, L., & Pakrastiņš, L. (2017). Inspection of public buildings based on risk assessment. Procedia Engineering, 172, 247–255.

Earthman Glen I. (2002): School facility condition and student academic achievement. Los Angeles, CA: UCLA's Institute for Democracy, Education, & Access.

Erin McIntyre (2016): Decaying school buildings have physical, psychological consequences.

Gou, Z. & Lau S. S. Y. (2012): Sick building syndrome in open-plan offices. *Journal of Facilities Management*, 10(4), 256-265.

Lair, Susan Brooks (2003): A study of the effect school facility condition have on student achievement

McCall, H. C. (1997). School Facilities Condition, Problems and Solutions, New York State Office of the Comptroller, U.S.A.

National Center for Education Statistics. U.S. Department of Education The Condition of Education 2003, NCES 2003–067. Washington, DC: 2003. HHP/nes/ed.gov/pub2014/2014022

Putus T., Haverien, U., Jari M-shaughessy, Mari T., Jari P., Jerek K., Richard S. (2012): Sixth Grade Pupils' Health and Performance and Indoor

Environmental Quality in Finnish School Buildings, *Journal of Education, Society and Behavioural Science*, 20-41.

Tanner, C. K. (2000) The influence of school architecture on academic achievement. *Journal of Educational Administration*, 38(4), 309-330. doi: https://doi.org/10.1108/09578230010373598

Wong, N. H. & Jan, W. L. S. (2003) Total building performance evaluation of academic institution in Singapore. Building and Environment, 38, 161-176. doi:

Maxwell, L. E. (2015): The condition of school building and the effect on Children. (children in Deficit School Buildings Cornel ttps://research.cornell.edu/news-features/children-deficient-school-buildings)

Olanrewaju, A. A. (2012) Quantitative analysis of defects in university buildings: user perspective. *Built Environment Project and Asset Management*, 2(2) 167-181. doi: https://doi.org/10.1108/20441241211280909

Seth Emmanuel Allotey (2014) An Evaluation of the Impact of Defects in Public Residential Buildings in Ghana. Civil and Environmental Research www.iiste.org. ISSN 2224-5790 (Paper) ISSN 2225-0514 (Online +) Vol.6, No.11

Uline, C. & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration, 6* (1), 55-73.

Yusof H., Keith A., & David B.(2010):The cause and effects of deferred maintenance on higher education buildings. Research Institute for the Built and Human Environment Salford, M5 4WT, UK.

National Center for Education Statistics (NCES 2014): Condition of America public school facilities. HHP/nes/ed.gov/pub2014/2014022,

Needs Assessment in the Nigeria Educational sector, international organization for migration Abuja, Nigeria, 2014.

Poidevin, J. & Perry, P. (2004), Complying with Health and Safety Law in Booty Frank, P.(Ed.), Facilities Management Handbook, Lexis Nexis, UK.

Tanner, C. K. (2000) The influence of school architecture on academic achievement. *Journal of Educational Administration*, 38(4), 309-330. doi: https://doi.org/10.1108/09578230010373598

Vafaeenasab, M. R, Morowatisharifabad, M. A, Ghaneian, M.T, Hajhosseini, M., & Ehrampoush, M.H. (2015) Assessment of sick building syndrome and its associating factors among nurses in the educational hospitals of Shahid Sadoughi University of Medical Sciences, Yazd, Iran. *Glob J Health Sci*. 7(2),247–253. doi: https://doi.org/10.5539/gjhs.v7n2p247

Krejcie, R.V. & Morgan, D.W., (1970): Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610.

Confidential report for Attorney CRA 10272, 1998 page 12-54, DOE Homeowner Vs Roe Builders

Cross River State Building Regulation 1984: cross river state ministry of lands town planning department.

Facilities Vol. 6/No.9/Sept. 1988 D&F Estate limited Vs church commissioner for England and others. Tri- service reference No. S99-09-19 Jan. hackem bottom Vs Raquit club Villa HOA, VCSC Case SC 020 526.

Webstroke Law: Anns v Merton London Borough Council (1978): A.C. 728 https://webstroke.co.uk/law/cases/anns-v-merton-london-borough-council-

World Bank (2019) World development report on the future of work