

# ISSUES ON THE PRACTICE OF SUSTAINABILITY: CONTEMPORARY PERSPECTIVES OF ARCHITECTS IN EDO STATE.

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## ABSTRACT

Due to the requirements of environmental conservation, renewable energy and climate change, there has been a gradual shift towards sustainable buildings over the years, but it is an observation, that within the Nigerian context, despite a theoretical fascination with the idea, the praxis of this concept is dismal. The aim of this study is to encourage sustainability in professional practice of architecture in Nigeria, by assessing the issues and specifying the problems in an attempt at finding a solution. Hence, in order to identify the factors militating against the adoption of sustainable building design practices by professional architects; a survey with the aid of a structured questionnaire, and face-to-face interviews was conducted among professionals in architecture in Edo state. Using purposive sampling, 35 respondents were selected, and their views on the practice of sustainability were evaluated by means of frequency counts and percentages.

The findings of this study indicate that the fundamental issues underpinning the problem are: Lack of proper sensitization of Architects; local constraints on material availability, cost, equipment and human resources; architectural education; insufficient architectural detailing; non-enforcement and supervision of sustainable practices. The study concludes by recommending sensitization on current sustainable practices and incorporation of sustainability standards into the academia and professional practice

**KEYWORDS:** Sustainability, Architects, Sustainable Development. Edo State.

## 1.0 INTRODUCTION

Nigeria has an active building industry like many developing countries (Arif et al, 2009) with the attendant demand for architectural resources such as land, buildings, building products, energy, and other resources (Kim, 1998) having an adverse effect on the environment. Therefore, at the design stage, it is important that professionals in architecture give due consideration to the impact of such demands on the global ecosystem,

which has necessitated the requirement of sustainability in building. According to the Brundtland Report (Brundtland, 1987), Sustainability is defined as that which meets the needs of the present generation without compromising the ability of future generations to meet their own needs, hence it has been recommended that the future design of houses need to be sustainable (Zubairu, 2012). Sustainability in buildings therefore require both the building structure and the processes in the

building to be environmentally responsible and resource efficient over its life cycle by the efficient use of energy, water and other resources, protecting occupants' health, increasing their productivity while reducing waste, pollution and environmental degradation.

There are many definitions of what makes a building sustainable with respect to social, economic and environmental issues. Essentially, a sustainably designed building improves the quality of lives of people, while economically enhancing wealth within an environmentally conservative approach that minimizes its impact on the natural environment (Grierson, 2011). Aspects of sustainability include material and energy conservation; waste prevention during construction; avoidance of pollution (Adedapo et al., 2014); reduction of energy need in buildings by passive and active techniques and the increase of buildings' ability to capture and generate their own energy.

However, the building and construction sector in Nigeria is not at the speed it should be, in the shift towards sustainability (Allu, 2014) and this is a cause for concern, for in order to achieve global sustainable development, it is necessary that sustainable practices be adopted in the local context of any country or region.

In trying to solve the Nigerian problem, it is a premise that the problem and its solution lies in the hands of practitioners in the built environment such as the architect. Hence, this paper intends to evaluate the issues, awareness and attitude of this group towards sustainable practices, as their perspective will be seminal in addressing the problem of the non-adoption and practice of sustainable strategies in the building and construction sector.

## 2.0 LITERATURE REVIEW

Given the modern demands of energy and material conservation, sustainable development has become a global imperative, which has necessitated calls that sustainability be included in architectural history/theory, technology, studio, and professional practice (Ibrahim, 2008), as traditionally sustainability was not an active part of architectural design. Therefore, architectural professional bodies and societies of architectural educators are now paying attention to the issue of sustainable designs as a means of reducing the impact of the built environment on the ecosystem (Adedapo et al., 2014; Stevenson et al., 2009).

Sustainable development in sub-Saharan Africa has been a research issue in current times. Emuzie et al, (2013) cast doubts on the ability of design practitioners in the Sub-Saharan African region to effectively integrate and apply the principles of sustainable development. And this fact may be reflected in the paucity of research in this direction within this geographical context.

With special emphasis on the Nigerian case, a few attempts can be identified in the literature below approaching the problem of sustainability and the constraints of climatic, energy and environmental factors on the built environment.

Ogunsote et al., (2007) examined the impacts of extreme weather and climatic events on urban planning, architecture and tourism infrastructure in Nigeria. The study proposed a framework that would entail design guidelines for the various climatic zones in the country, as well as a systems approach suitable for architecture in developing countries. The

authors in the study, presented several computer software programs for design with climates by practicing architects in Nigeria.

Agboola, (2011) focused on the need for architects/designers to design in relation to climate, in order to achieve pleasant, comfortable and conducive structures that ensure physiological and psychological comfort of the occupants.

Allu, (2014) evaluated the need for a design guide for sustainability in Nigeria, by carrying out a survey to provide insights into the design practices and the perceptions of architects in regards to their roles in providing sustainable buildings and their willingness to use a design guide to improve their design output. Findings indicated that the lack of adequate knowledge of the principles of sustainability and the inability of design professionals to apply design principles were the principal factors responsible for the poor sustainability practice in Nigeria.

Allu and Ochedi, (2015) examined how the sustainability of the urban built environment in Nigeria can be enhanced through the use of a proposed sector-based sustainable design framework in the face of a changing climate. The framework had seven operational levels: context, background, assessment/identification, informed decisions, policy actions, collaborations and output. The views of built professionals were sought based on operationalizing the different levels, and the results showed that the framework has potentials that would significantly improve sustainable practices within the built environment sector. Akande et al., (2015), recommended sustainable approaches such as energy efficient building envelope, use of active and passive measures, developing and adopting an energy use

index (EUI) and behavioral changes for developing and improving energy efficiency of residential buildings in Nigeria.

Other authors who have equally spoken on sustainability are Ceridwen et al, (2008) who opined that the practice of sustainable architecture is often described as one of trying to serve two masters within the field of art and science respectively stating that these are overlapping fields where the practice of sustainable architecture is like playing two games on the same field. To play it effectively requires a feel for both games and the integrated ideal is to score both goals simultaneously. However the desire for integration is not easily realized and part of the struggle is the over definition of architecture and sustainability.

This representative sampling of research work on sustainability as can be observed, indicates a tendency towards the framework-approach solution; but as already stated, the problem is not a lack of theory but a deficiency in its practice in Nigeria. Hence this study builds on previous studies and proceeds towards identifying the root causes of the non-adoption of strategies /framework on sustainability as already advanced, by sampling and analyzing the perspectives of Architects.

### **3.0 METHODOLOGY**

This study is based on a questionnaire survey and face-to-face interviews conducted among professionals in architecture in Edo State. It was carried out by use of representative and purposive sampling. There were no exclusion criteria, such that the architects should have a specialized background in sustainability before they can participate

in the survey, since the aim of the study was to evaluate the underlying problems including the awareness level of architects. Purposive sampling was conducted given the nature of the research which was to evaluate the views of Architects who had some level of practical architectural experience in architectural practice, academics or the public service. At the end of the survey that lasted for six weeks, 29 validly completed questionnaires were returned, which corresponds to a response rate of about 83 % of the 35 questionnaires administered (some respondents did not return their questionnaires)..

The questionnaire was divided into

three sections: A, B and C. The demographic characters of the participants which are presented in Tables 1 and 2 are captured in Section A. While Section B, assesses the awareness of these professionals on sustainable practices and Section C evaluates sustainable practices among architects. For the questionnaire survey, the use of “Yes” or “No” options was mostly adopted, and this was to simplify and reduce the time spent answering the questionnaires. The result was analyzed using frequency counts and percentages. The face-to-face interviews were carried out amongst ten (10) Architects at different locations separately.

### Section A

**Table 1:** Gender of the respondents

	Male		Female	
Sex	24	82.76%	5	17.24%

**Table 2:** Practice of respondents (Some of the categories overlapped, as some lecturers also engage in private practice)

Practice	Freq(n)
Academic	16
Private	23
Public	1

### Section B

**Table 3.** Questions and responses on awareness

N	Questions	Yes		No	
		Freq(n)	%	Freq(n)	%
Q1	Are you fully aware of the applications of the sustainable development principles	24	82.76	5	17.24
Q2	Do you think architects in Nigeria have the responsibility to promote sustainable development through sustainable design practices?	29	100	-	0
Q3	Are you aware of sustainable design frameworks/studies for Nigerian architects?	13	44.83	16	55.17
Q4	Do you think the non-adoption of sustainability is a serious problem in Nigeria	28	96.55	1	3.45

**Section C**

**Table 4:** Questions on architectural practice

N	Questions	Yes		No	
		Freq(n)	%	Freq(n)	%
Q1	Are you conscious to integrate sustainable design features in all your design projects?	4	13.79	25	86.20
Q2	Would you say that sustainable development has been mainstreamed into the architectural design practice in Nigeria?	13	44.83	16	55.17
Q3	Do you think sustainable designs are more time consuming?	28	96.55	1	3.45
Q4	Do you think/Are sustainable designs more expensive?	14	48.28	15	51.72
Q5	Have you done sustainable designs before?	10	34.48	19	65.52

**Table 5:** Question on the frequency of applying sustainable designs

Question	Less often	Often	Always	Rarely	Never
If yes, What is the frequency?	-	64%	-	36%	-

**Table 6:** Questions on the perceived causes of the non-adoption of sustainable practices in Nigeria

N	Questions	Yes		No	
		Freq(n)	%	Freq(n)	%
Q1	Do you agree with studies that cast doubts on the ability of design practitioners in sub-Saharan African region to effectively apply the principles of sustainable development?	28	96.55	1	3.45
Q2	Are sustainable practices more suited for western climes	26	89.66	3	10.34
Q3	Do you think, a reason for the non-adoption of sustainable practice can be related to architectural education	28	96.55	1	3.45
Q4	Do you think if clients are sensitized on the benefits of sustainability that they will demand for sustainable designs?	29	100	-	-
Q5	Do you think sustainable designs are aesthetically constrained?	14	50	14	50
Q6	Do you think construction materials needed to achieve sustainable designs are readily available?	14	48.28	15	51.72
Q7	Do you also think such materials are costly?	13	44.83	16	55.17

To broaden the scope of the responses so as to add depth to the insights gained from the quantitative survey (using the questionnaire), 10 built environment professionals were interviewed in separate locations. Some of the views and opinions are presented below:

**1.) Do you agree with studies that cast doubt on the ability of design practitioners in the sub-Saharan African region to effectively integrate and apply the principles of sustainable development?**

All the respondents agreed that with the studies' suggestion, but were divided on the reason for it. Their opinions fell into two categories, represented by the following responses: *"The reason is that most of the equipment, manpower tools and building materials to actualise sustainable designs are not available in this part of the world"* While another's response was: *"Inadequate exposure to design techniques"* adduced the problem to probably a lack of sensitization or education.

**2.) What are the real issues/problems sustainable development can solve in Nigeria?**

All the respondents were of the opinion that sustainability would help in reducing environmental pollution, and also aid in conserving local ecologies. One of the verbatim responses was: *"It can reduce the problem of greenhouse effect, high energy consumption of buildings and preservation of our culture and traditions."*

**3.) What are the constraints to sustainable design in Nigeria?**

Three of the responses were very interesting, and very well highlighted the issues: firstly was *"Lack of easy access to current teachings/ seminars/ conferences and capacity building on a one on one basis on sustainability matters"* another was

*"Manpower (human resources), equipment and material are the major constraints here"* and lastly was *"Insufficient detailing of architectural drawings and detailed specifications by architects, ignorance and neglect; and ineffective education curriculum at early stage of Architects education"*.

**4.) What do you think are the cost impacts or implication of sustainable designs on client and architect?**

Three of the respondents concurred that the cost impacts will be great which will have a prohibitive effect on the appeal of sustainable designs to clients especially in these prevailing conditions of economic recession. A sampler from one of the respondents is: *"financial cost implication will double itself in estimated cost of construction and deprive them of quality designs"*. Another group of four (4) of the respondent opined that though the cost implication could be great initially, but that in the long run it will be cost effective to adopt sustainable designs. An example of the response: *"I think it will have a long term affordable cost"*, while the rest of them were of the opinion that the cost implications are negligible.

**5.) Do you think that the technicality of sustainable development impacts positively/negatively on the adoption of the practice of sustainability by architects?**

*Majority of the interviewees felt that the technicality of sustainable designs was not an issue; only one of the respondents said it was an issue.*

**6.) Do you feel that with the prevailing conditions of economic recession, the idea of sustainability will be attractive to clients?**

On this question the respondents were equally divided, as half of them said that it

will not be attractive, and the other half said it will be attractive in a period of recession.

## **4.2 DISCUSSION**

It is evident from the results in table 3 that the non-adoption of sustainability in building design and construction is a serious problem in Nigeria, as 96.55% of the respondents recognized it as such, and all (100%) agree that it is the architects' responsibility to promote the mainstreaming of this concept in buildings design practice in Nigeria. The problem is portrayed by the fact that only 14% of the respondents were conscious to integrate sustainable design features in all their design projects, with just 34% having done sustainable designs at all in the past. (Table 4)

It is clear that there is a real problem. The issues or factors underpinning this problem as identified by the respondents and from the analysis of their responses, via questionnaire and interview may be briefly summarized as follows:

### **I. Lack of Sensitization**

From the varied and sometimes conflicting views on the several aspects of sustainability as it relates to applicability in the local environment (for example it is evident that these professional hold different opinions on the availability and cost of materials needed to execute sustainable designs and also on the cost implications of sustainability) which cast in the background that only a few of them actually have practiced sustainable designs (34%), puts in very clear relief, the fact that these opinions are a direct result of pre-conceived notions and not practicalities garnered from actual experience. Therefore, it becomes a problem of sensitization to actual current sustainable design practice, as indicated in one of the responses to the question of 'What are the constraints to sustainable design in

Nigeria?': *"Lack of easy access to current teachings/seminars /conferences and capacity building on a one-one basis on sustainability matters"*

### **II. Local constraints on the factors of production**

From table 6, 89% of the respondents think that sustainable practices are not suited to the Nigerian climate; and most of them attribute this to local constraints on material availability, cost, equipment and human resources.

### **III. Deficient Architectural Education**

Most of the respondent from table 3 in the findings of this study are not ignorant of the concept of sustainability, neither are they hampered by the technicality involved in sustainable architecture; but 98% of the respondents indicated a relationship between architectural education and the non-adoption of sustainability, therefore suggesting (as implied in the interview responses) that early exposure to sustainable architecture in the academic curricula, would create the consciousness required to drive sustainable development in building practice, in the face of conventional and traditional architecture

### **IV. Insufficient architectural detailing, supervision and non-enforcement of sustainable practice**

From one of the responses: *"Insufficient detailing of architectural drawings and detailed specifications by architects, ignorance and neglect . . ."* a view also shared by some others, it is reasonable to presume that if drawings and specifications produced by architects show in details how sustainable processes and materials have been integrated into the designs and drawings then it will be easier for building contractor and artisan to implement at the construction stage. It is

also reasonable to suggest that non-supervision and enforcement by professional architects, the architecture regulating bodies, enlightened prospective clients and the building development control unit of the government might be another issue affecting the non-adoption of sustainable practice. For instance, picture a situation where architects are required to have a given number of sustainable design projects that have been implemented prior to every licences renewal. It will go a long way in encouraging sustainable practice within the country even though currently in Nigeria the issuance of architectural licences are one-off and never really needing periodic renewal.

### 5.0 CONCLUSION

It is clear from the foregoing that the non-adoption of sustainability in building design and construction is a serious problem in Nigeria, which necessitates the adoption of this practice, if we must keep pace with the changes and adaptation required in an evolving world. The findings of this study indicate that the fundamental issues underpinning the problem are: Lack of proper sensitization of the built environment professionals on current sustainable practices, local and environmental constraints on the factors of production, deficient architectural education, insufficient architectural detailing, non-enforcement and supervision of sustainable practices. These issues as highlighted can be remedied if all stakeholders concerned: built environment professionals, government bodies, professional bodies etc. take adequate and timely steps in a combined effort.

### 6.0 RECOMMENDATIONS

It is therefore recommended from the results of this study that professional bodies and non-governmental organiza-

tions organise seminars, conferences and capacity building workshops to help sensitize and update the built environment professionals on modern sustainable strategies and that architectural curricula at the undergraduate level be reviewed, in meeting the challenges of architectural education in the 21<sup>st</sup> century, in the direction of emphasizing sustainable architecture. Also Professional bodies in the built environment should set standards of sustainability, and see that they are enforced and supervised.

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