

Traditional Building – Construction Problems: Need for Espousal of Sustainable Construction in Nigeria

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DOI: 10.29322/IJSRP.8.12.2018.p8427

<http://dx.doi.org/10.29322/IJSRP.8.12.2018.p8427>

Abstract- Sustainable building or construction has become one of the major global practices of the 21st century. It has been observed that some of the developing countries in the west Africa such as Nigeria are yet to practice sustainable building. As the developed countries battles with measures of maintaining and improving the quality of life for its citizens and harmonize within the local climate, tradition, culture, also the environment in the region, this study examines the level of awareness of sustainable construction among the key stakeholders in the Nigerian construction industry. A descriptive survey design using data collection instrument such as questionnaire was adopted. One hundred and forty-three (143) respondents were selected based on years of experience in practice in Lagos state. Structured questionnaires were used in eliciting information from the key stakeholders on their knowledge of sustainable building, and how it can be achieved in Nigeria. The frequency counts and item analysis method were used to analyse the data collected. The result of the findings shows that about 32.2% of the respondents responded with full knowledge about sustainable building, while the remaining 67.9% of the respondents were not fully equipped with the knowledge of sustainable building and what it entails. Of the 100% that heard about sustainable building/construction, 67.9% do not fully know what sustainable building is all about and its benefits. Based on the research findings, recommendations were made in order to overcome most of the construction problems facing the industry and as well improve the livelihood of the citizenry.

Index Terms- Awareness, Construction Problems, Nigeria, Sustainable Construction, Traditional Building.

I. INTRODUCTION

The construction industry in Nigeria and other parts of the world faces problems and challenges. In the developing countries such as Nigeria, these problems and challenges are obviously present together with economic depression and corruption. The industry ineffective in managing crucial issues affecting the production of building projects is also a factor. Presently in Nigeria, there is an evidence that the problems have become a reoccurring incident even greater in degree and severity, such problems include construction delay due to inadequate production information and fund, building failures and collapse, etc. Choosing suitable method of project delivery system is an important issue concern to major stakeholders in the construction industry. And for construction procurement to meet the need of delivering necessary structure for economic development and inherent issues within the national environment, have to be handled by relevant stakeholders (Ogunsanya et al., 2016). The decision on the choice of project delivery method affects the project execution, completion time, cost, quality and safety which are the key objectives of any construction project.

The traditional system of project delivery is still being widely used in Nigeria. This method of project delivery is being referred to as “traditional” because it has been in existence for a very long time and has been the only alternative available for most clients in the construction industry for past years. This system involves the appointment of an architect by the client, who then recommends, sets up and leads the design team. Other members of the design team are the structural, mechanical and electrical engineers. These team will come up with design solution based on the client’s brief and objectives and it is this design solution that will be used to prepare the contract documents. After this stage, building contractors are invited to tender for the construction aspect. Their tenders are examined, compared and the successful contractor will be awarded the contract to execute the construction phase. This means that the client is under two different contractual arrangements, that is the design team and the building contractor.

The Sustainable Development Goals identified critical areas of need that demands urgent attention if millions of people are to live above the poverty line and have enhanced quality of life and most of these areas identified are directly related to infrastructure delivery (Ogunsanya et al., 2016). In Nigeria, the adoption and practice of sustainable construction has not been given attention in the construction industry. Buildings are still been constructed as usual without sustainability consideration and because of the disintegration of design and construction phase in traditional system of building project delivery, construction problems and issues are still in the increase. There is need for the country to actually improve its environs by introducing and practicing sustainable building. A city like Lagos in Nigeria is fast developing in the area of infrastructure without a thought of sustainable building thereby making the city hot for its dwellers to live in. Hence, sustainable building stands a better chance to enhance the quality of life of people.

This study examines the level of awareness of sustainable construction among the key stakeholders in the Nigerian construction industry. The study also aimed at highlighting some of the issues associated with traditional building and raising awareness to engage and practice sustainable construction among the key stakeholders in the industry so as to promote and strengthen the livelihood of the citizenry.

II. RESEARCH ELABORATIONS

2.1 Issues with Traditional Building

The traditional method of project delivery imposes a contractual and organisational separation between design and construction whereas in the integrated method, the design and construction are under the same contractual and organisational umbrella thus contractual arrangement and organisational deployment of project participants for the realisation of the building project are important processes (Dada, 2012). According to Bima et al. (2015) projects are affected by the procurement method adopted for project delivery and that performance of projects could be improved using alternative or hybrid procurement methods. The traditional system does not create a unified team in which experience, feedback, and new ideas are shared, resulting to client's needs not fully achieved, caused by the separation of design and construction (Kong and Gray, 2006). The alternatives of project delivery methods that are available today resulted from the need to improve construction project delivery (Babatunde et al., 2010).

Traditional method of project delivery has been widely criticized as an ineffective procurement method yet is the most often used by the stakeholders (Bima et al., 2015). The major criticism of the traditional contract was that, construction activities were getting more complex and hence there was need to integrate design and construction for a better solution. And this separation of design and construction phase of building projects created more rooms for ineffective management of building projects, which often result in conflict between the design team and the building contractors. The traditional system generally, has also been continuously identified as the slowest method of procuring building projects. According to Kong and Gray (2006) the major criticisms of the traditional system identified in the literature include, time consuming aspects of the development processes, the effect of cost uncertainty, the effect on buildability, and fragmentation of organisational interfaces.

2.2 Sustainable Building

Sustainable building has been defined on the web as an outcome of a design philosophy which focuses on increasing the efficiency in the use of resources such as energy, water, and materials while reducing building impacts on human health and the environment during the building's lifecycle, through better siting, design, construction, operation, maintenance and its removal. Sustainable building or sustainable construction brings sustainable development as well enhances the economic development of a nation. Ogunsanya and Aigbavboa (2016) opined that in developing a sustainable procurement model, stakeholders' perspective is important. According to the World Commission on Environment and Development, sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs. Ayman (2013) state that in order to support developing countries to achieve their sustainable development objectives and overcome the challenges that hinders the project development, that the challenges have to be identified first. Overcash (2005) outlined the modern construction problems as follows; complex construction, diffused design, time limitations and "fast track" construction, budget limitations, designer compensation, owner input, the need for flexibility, distrust of the adversary system and a new look at disputes.

According to Akadiri et al. (2012) sustainability involves enhancing the quality of life, allowing people to live in a healthy environment with improved social, economic and environmental conditions and these can be achieved by the implementation of sustainability objectives at the design stage of a building project. As stated by Kurt (2001) early implementation of sustainable planning can improve the overall economic efficiency of buildings such as costs of construction, operation, use, environment, health as well as non-monetary values. Sustainable building project works best when the sustainability ideas and efforts are considered very early in the planning process (Anuar et al., 2014). According to Growbold (2017) the common misconception that sustainable building practices are high-priced is often an obstacle to implementation. Arijit et al. (2013) to achieve sustainability, the objectives such as minimize consumption of matter and energy; reusability and recyclability of the material; human satisfaction; and minimum environmental impacts and embodied energy must be met.

According to Kurt (2001) sustainable building strives to minimize the consumption of energy and resources for all phases of the lifecycle of buildings - from their planning and construction through their use, renovation and to their eventual demolition. "The building industry is a vital element of any economy but has a significant impact on the environment; by virtue of its size, construction is one of the largest users of energy, material resources, and water, and it is a formidable polluter" (Akadiri et al., 2012). Sustainable building also aims to minimize any possible damage to the natural environment and this can be achieved by applying the following principles during the entire building process: lowering the energy demand and the consumption of operating materials; utilisation of re-useable or recyclable building products and materials; extension of the lifetime of products and buildings; risk-free return of materials to the natural cycle; comprehensive protection of natural areas and use of all possibilities for space-saving construction (Kurt, 2001).

According to Jong-Jin (1998) the ultimate goal of sustainable design is to find architectural solutions that guarantee the well-being and coexistence of inorganic elements, living organisms, and humans; and is increasingly becoming a key consideration of building practitioners with the goal of increasing economic efficiency (Arijit et al., 2013).

III. MATERIALS AND METHODS

The research adopted field survey methodology to discover the level of awareness on sustainable construction among the key stakeholders in the Nigerian construction industry. Survey through the use of questionnaires was adopted to elicit information from the key stakeholders in the Nigerian construction industry on their level of awareness of sustainable building. The research was carried out in Lagos state, which is economically an important city in Nigeria. Lagos state has the highest number of building construction activities as well as a large concentration of building and engineering professionals and contractors of various categories and sizes. The population of this study includes clients, architects, builders, engineers, quantity surveyor and contractors. Samples were selected based on the number of years of experience in practice in the country. Hence, stakeholders in construction industry that are in practice at least five (5) years are qualified as respondents for the survey. Out of the 185 copies of research questionnaire distributed to the various key stakeholders in construction industry, 143 were adequately completed and returned representing an 77.3% response rate. The frequency counts and item analysis method were used to analyse the data collected. The number and percentage of respondent's response was computed after which the respondent's response were tallied and a comparison was made of individual items of high and low response. Tables were used in data presentation.

IV. RESULTS AND DISCUSSION

4.1 Result Presentation

The result of the findings shows that all the key stakeholders in construction industry such as architects, builders, engineers, quantity surveyors, clients and contractors have heard about sustainable building or construction which represents 100% (Table II).

Table I: Professional Background.

S/No	Respondent Response	Frequency	Percentage
1	Architect	18	12.6
2	Builder	42	29.4
3	Engineer	28	19.6
4	Quantity Surveyor	12	8.4
5	Client	19	13.3
6	Contractor	24	16.8
	Total	143	100

Table II: Have you ever heard about Sustainable Building/Construction?

S/No	Respondent Response	Frequency	Percentage
1	Yes	143	100
2	No	0	0
	Total	143	100

Table III: What do you know about sustainable Building?

S/No	Respondent Response	Frequency	Percentage
1	A building that can maintain or improve the quality of life and harmonize within the local climate, tradition, culture, also maintain/improve the environment in the region	26	18.2
2	A building that can conserve energy, resources and recycling materials	36	25.2
3	A building that can reduce the amount hazardous substances to which human and other organisms are (or may be) exposed	15	10.5
4	A building that can maintain or improve the local and global ecosystem throughout the entire building life-cycle	20	14.0
5	Not sure	0	0
6	Serial Number 1,2,3 and 4	46	32.2
	Total	143	100

When asked what they know about sustainable building, about 32.2% of the respondents responded with full knowledge about sustainable building by responding that sustainable building is one that can maintain or improve the quality of life and harmonize

within the local climate, tradition, culture, also maintain/improve the environment in the region, conserve energy, resources and recycling materials, reduce the amount hazardous substances to which human and other organisms are (or may be) exposed, and can maintain or improve the local and global ecosystem throughout the entire building life-cycle; while the remaining 67.9% of the respondents were not fully equipped with the knowledge of sustainable building and what it entails based on their responses (Table III). Of the 100% that heard about sustainable building or construction, 67.9% do not fully know what sustainable building is all about and its benefits.

Table IV: Do you believed that most of the construction problems can be solved with Sustainable Construction?

S/No	Respondent Response	Frequency	Percentage
1	Yes	106	74.1
2	No	37	25.9
	Total	143	100

Some respondents, because of the gap in the knowledge of sustainable building do not fully know most of the advantages in practicing sustainable construction. Hence, when asked whether they believed that most of the construction problems can be solved with sustainable construction, 74.1% responded in affirmation, while the remaining 25.9% responded negative (Table IV).

Table V: How can Sustainable Building be achieved in Nigeria?

S/No	Respondent Response	Frequency	Percentage
1	By improving the economy	8	5.6
2	By intensive research	27	18.9
3	By effective multi-stakeholder partnerships that bring together all major players in the development process, including governments, bilateral and multilateral development agencies, national and international development finance institutions, the private sector, civil society, and even academia	108	75.5
4	Not sure	0	0
	Total	143	100

Some of the respondents could not help their ignorant concerning sustainable building and the way to go about it. This was clearly demonstrated/confirmed by their response to the question that seek to know how sustainable building can be achieved in Nigeria. They gave different shades of opinion. 5.6% of the respondent believed that sustainable building can only be achieved if the economy is improved, 18.9% of the respondents believed that it can only be achieved by intensive research, whereas 75.5% of the respondents responded that sustainable building can be achieved by effective multi-stakeholder partnerships that bring together all major players in the development process, including governments, bilateral and multilateral development agencies, national and international development finance institutions, the private sector, civil society, and even academia (Table V). When asked if they believed that sustainable building will promote and strengthen livelihood of the citizenry, about 90.2% of the respondents responded in affirmation, while the remaining 9.8% of the respondents responded negative (Table VI).

Table VI: Do you believed that Sustainable Building will promote and strengthen livelihood of the citizenry?

S/No	Respondent Response	Frequency	Percentage
1	Yes	129	90.2
2	No	14	9.8
	Total	143	100

4.2 Discussion of Findings

Sustainable building/construction awareness is a synthesis of the stakeholders in the building industry conception, interpretation and perceptions of sustainable building related issues that promote and strengthen livelihood of the citizenry, and the quality of responses and reactions to the issues. The result of the findings shows a low level of awareness and knowledge about sustainable building among the key stakeholders in Nigerian construction industry. The low level of knowledge and awareness about the concept of sustainable building and its benefits has a lot to lose in maintaining/retaining friendly environment in the study area. Sustainable construction awareness is a necessary ingredient for a successful espousal and practice of sustainable construction in the state and nation as a whole.

The gap in the knowledge of sustainable building among the stakeholder in building construction industry in Nigeria shows that sustainable building is not being taken seriously. According to Growbold (2017) the common misconception that sustainable building practices are high-priced is often an obstacle to implementation. Improving building construction, raising awareness of sustainable building and sharing/discussing useful information on sustainable construction and evidence of its value to the citizenry are essential

to nation building. Effective multi-stakeholder partnerships that bring together all major players in the development process, including governments, bilateral and multilateral development agencies, national and international development finance institutions, the private sector, civil society, and even academia has to be involved. The most important is to educate the clients on the numerous benefits on sustainable building and the importance of adapting to it.

V. CONCLUSION AND RECOMMENDATION

The findings of this study clearly show that there is a low level of sustainable building/construction awareness among the key stakeholders in the Nigerian construction industry in the study area. It is therefore important we take the sustainable building/construction awareness campaign to all and sundry by encouraging the setting up of sustainable building/construction awareness organization. Such organization can be challenged to identify means of practicing sustainable building/construction to overcome most of the construction problems facing the industry and as well improve the livelihood of the citizenry and harmonize within the local climate, tradition, culture, also maintain/improve the environment in the region.

This study recommends the need to establish sustainable construction awareness organization in the state of Lagos and the nation at large so as to identify means of practicing sustainable building to overcome most of the construction problems facing the industry and as well improve the livelihood of the citizenry and harmonize within the local climate, tradition, culture, also maintain/improve the environment in the region. Secondly, the federal governments are encouraged to kick start the process by creating an effective multi-stakeholder partnership that bring together all major players in the development process, including governments, bilateral and multilateral development agencies, national and international development finance institutions, the private sector, civil society, and even academia.

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