

Awareness, Barriers, and Opportunities for Green Building Adoption from a Sustainability Perspective Among Construction Professionals in Plateau State, Nigeria

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Abstract- *Efforts to achieve environmental sustainability in the construction industry have gained global attention. However, in developing countries such as Nigeria, the adoption of sustainable building practices remains slow. This study examined the level of awareness, the major barriers, and the emerging opportunities for green building adoption among construction professionals in Plateau State. A structured questionnaire was administered to 200 professionals, including architects, builders, engineers, and quantity surveyors. Data were analyzed using the Relative Importance Index (RII) to rank awareness indicators, barriers, and opportunities. Results revealed that while awareness of sustainability concepts was moderately high, implementation was constrained by high costs of green materials, inadequate policy support, and lack of technical knowledge. The study highlights the need for government incentives, training programs, and institutional partnership to foster sustainable building practices in the region.*

Keywords: *Awareness, Barriers, Construction Industry, Green Building, Opportunities, Plateau State, Sustainability.*

I. INTRODUCTION

The built environment plays an important role in global energy consumption and carbon emissions, making sustainability a central concern in modern construction. Green building practices promote the efficient use of resources and minimize negative environmental impacts while enhancing user comfort and economic value (Hwang & Tan, 2012).

In Nigeria, the growth of the construction industry has not been matched with a corresponding emphasis on sustainability. While the concept of green building is gaining recognition, its actual adoption remains limited due to economic, institutional, and technical constraints (Akinola et al., 2019). Previous studies have shown that despite rising awareness among professionals, barriers such as the high cost of green

materials, lack of incentives, and limited expertise continue to impede progress (Adewuyi & Odesola, 2021).

This study focuses on Plateau State - a state experiencing steady construction growth but with minimal integration of sustainability standards. The paper explores how construction professionals understand green building principles, the barriers they face, and the opportunities that could encourage sustainable construction practices in the region.

II. LITERATURE REVIEW

Concept of Green Building and Sustainability

Green building refers to the planning, design, construction, and operation of buildings in ways that reduce environmental impact and enhance occupant well-being. According to Hwang and Tan (2012), sustainable construction emphasizes resource efficiency, waste reduction, and environmental protection throughout a building's life cycle. The integration of green principles not only minimizes carbon emissions but also enhances long-term economic and social value.

The World Green Building Council (2021) defines a sustainable building as one that uses energy and water efficiently, employs renewable resources, and ensures healthy indoor environments. Despite international momentum, the implementation of such practices in developing countries remains uneven due to contextual constraints.

Awareness of Green Building Practices

Awareness among construction professionals is a key determinant of adoption. Studies in Nigeria indicate that although many practitioners understand the concept of sustainability, few translate it into practice. Akinola et al. (2019) observed that

professionals' awareness of energy efficiency and material conservation is increasing, yet application is minimal due to poor technical capacity. Similarly, Oluwunmi et al. (2020) emphasized that awareness is often theoretical rather than practical.

In Plateau State, most practitioners recognize the environmental implications of construction but lack structured training and institutional platforms for sustainability education. This limits their ability to apply green principles in daily professional practice.

Barriers to Green Building Adoption

Numerous studies have identified financial, institutional, and technical challenges as the most significant barriers to green building adoption. Adewuyi and Odesola (2021) reported that high costs of green materials, coupled with lack of government incentives, remain the primary deterrents. Olatunji (2018) noted that inadequate policy enforcement and shortage of skilled professionals hinder implementation.

Other constraints include limited availability of eco-friendly materials, weak stakeholder collaboration, and clients' preference for conventional construction methods (Okolie et al., 2022). In Plateau State, where many projects are publicly funded or small-scale, the perception that green construction is expensive discourages experimentation with sustainable methods.

Opportunities for Sustainable Construction

Despite barriers, opportunities for promoting sustainable construction are emerging. Ogunsemi and Jagboro (2006) argued that efficient project management could make green construction more affordable. Increasing public awareness and global commitment to climate action present opportunities for local professionals to align with international best practices.

The Nigerian Building and Road Research Institute (NBRRI, 2023) recently highlighted the potential of locally sourced materials such as stabilized earth blocks and bamboo as low-cost, sustainable alternatives. These innovations can make green

construction more viable in Plateau State if properly promoted and supported through training and incentives.

Summary of Literature Gaps

Existing literature focuses mainly on major cities like Lagos and Abuja, leaving a gap in understanding sustainability practices in semi-urban contexts like Plateau State. This study contributes to bridging that gap by assessing awareness levels, identifying key barriers, and exploring opportunities for sustainable construction within the state.

III. METHODOLOGY

A quantitative survey design was adopted to collect data from construction professionals in Plateau State. A total of 200 valid responses were obtained from architects, builders, engineers, and quantity surveyors. The questionnaire comprised sections on demographic information, awareness of green building concepts, perceived barriers, and potential opportunities for adoption.

The Relative Importance Index (RII) was used to rank each factor according to its perceived significance, calculated using:

$$R.I.I = \frac{\sum W/A \times N}{\sum W/A \times N}$$

Where:

W represents the weighting assigned by respondents (1-5 scale),

A is the highest possible weight (5), and N is the total number of respondents (200).

IV. RESULTS AND DISCUSSION

The analysis revealed that barriers were rated highest, particularly high material cost (RII = 0.86), inadequate policy support (RII = 0.82), and lack of professional knowledge (RII = 0.81). Awareness indicators showed moderate rankings (RII = 0.72 - 0.75), implying that professionals are familiar with green concepts but struggle with practical application. Opportunities such as growing client demand (RII = 0.70) and increasing training availability (RII = 0.68) reflect emerging readiness for sustainability integration.

Variable	R.I.I	Interpretation	Rank
High cost of materials	0.86	Very High	1
Inadequate policy support	0.82	Very High	2
Lack of professional knowledge	0.81	Very High	3

Awareness of green concepts	0.75	High	4
Awareness of energy-efficient materials	0.72	High	5
Client demand for sustainable buildings	0.70	High	6
Availability of training programs	0.68	High	7
Adoption level in projects	0.53	Moderate	8

These results indicate that while awareness exists, it does not necessarily translate into implementation. Cost, knowledge gaps, and policy weakness remain the strongest impediments.

V. CONCLUSION AND RECOMMENDATIONS

The findings revealed that although awareness levels are improving, several barriers - particularly high material costs, policy gaps, and insufficient technical skills - continue to hinder progress.

To encourage broader adoption of sustainable construction practices, the study recommends:

1. Strengthening policy and enforcement of green building guidelines.
2. Providing financial incentives and tax relief for sustainable projects.
3. Incorporating sustainability into educational and professional curricula.
4. Organizing regular capacity-building programs for construction professionals.
5. Promoting the use of locally sourced, sustainable building materials.

Plateau State can emerge as a model for sustainable construction and contribute to Nigeria's realization of the Sustainable Development Goals (SDG 11 - Sustainable Cities and Communities) by addressing these issues,

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