

Green Building Rating System and Sustainable Development Goals in Nigeria

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Abstract:

This study investigates how environmentally friendly growth objectives in Nigeria relate to environmentally conscious building evaluation mechanisms. The paper evaluates prior research on green building techniques and environmentally friendly development objectives and looks at how these topics are now being addressed in Nigeria. The investigation's methodology uses both qualitative and quantitative data collection techniques in an approach known as mixed methods. The sample size comprises industry professionals, academics, and government officials involved in the construction industry. Data were analysed using descriptive statistics and thematic analysis. The study reveals that environmentally friendly development objectives and rating systems for green buildings are closely related in Nigeria. However, several challenges were identified, including a lack of awareness and education, Low state backing, and an apparent high price tag. The report suggests that public-private partnerships, creative financing schemes, and improved involvement from stakeholders be implemented together with rules and regulations that offer incentives and support for the implementation of green construction procedures throughout Nigeria. In conclusion, The paper emphasises the necessity for a proposed dynamic-stakeholder strategy to promote equitable growth and green building standards in Nigeria. The government, business leaders, and other interested parties in the Nigerian construction sector can benefit greatly from the research's results and suggestions, as are able prospective scholars who are curious about the connection between rating systems for environmentally friendly buildings and environmentally friendly development objectives.

Keywords: Sustainable Development Goals, Green Building, Nigeria, Sustainable Development, Rating System

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I. INTRODUCTION

The adverse effects of human activity on the natural world have made environmentally friendly development a global issue in recent times. Buildings contribute to around 30% of the world's greenhouse gases released into the atmosphere, which makes them one of the main causes of damage to the environment (United States Environmental Protection Agency, 2023). Green building rating systems have been created as a reaction to these developments to encourage environmentally friendly construction methods.

Nigeria, like many other developing countries, is facing environmental challenges that require urgent attention. Rapid urbanisation is taking place throughout the nation, which has increased the need for new structures (Madden & Gutman, 2020). But in Nigeria, the development of buildings is defined by the use of resources that are not recyclable, inefficient energy use, and poor waste management practices.

Through a focus on the Sustainable Development Goals (SDGs), this article investigates how rating systems for environmentally friendly buildings support long-term growth in Nigeria. The Sustainable Development Goals (SDGs) are a group of 17 objectives approved by the UN General Assembly in 2015 with the intention of solving issues including poverty, inequality, and climate change on a worldwide scale.

The paper also explores the obstacles that stand in the way of Nigeria's implementation of green building rating mechanisms and suggest solutions. It is possible that the efficient implementation of rating systems for environmentally friendly buildings in Nigeria will encourage environmentally conscious development, lessen the degradation of the environment, and aid in the accomplishment of the Sustainable Development Goals

1.1 Description of The Idea of Rating Systems for Environmentally Friendly Buildings and the Associated Objectives, as Well as Their Relevance to Nigeria.

Systems for rating environmentally friendly structures are instruments for assessing a structure's environmental resilience. They offer an organising principle for evaluating the green credentials of a building while considering factors like energy effectiveness, conservation of water, and the use of environmentally friendly

materials. Environmentally friendly construction methods are encouraged and the adverse impact of structures is minimised by ecologically friendly building assessment methods (Vierra, 2023).

The United Nations General Assembly approved a list of global objectives known as the 2030 Agenda for Sustainable Development (SDGs) in 2015. These goals seek to address issues including inequalities and poverty, and environmental degradation on a worldwide basis. The Sustainable Development Goals (SDGs) provide a framework for sustainable development, focusing on social, economic, and environmental sustainability (United Nations, 2023).

The relevance of SDGs and rating systems for green buildings in Nigeria cannot be overemphasised. Nigeria is facing environmental challenges, including deforestation, water and air pollution, as well as climate change, that require urgent attention (Onuoha, Chinedu, Ochekwu, & Onuoha, 2022). Due to the fact that 30% of the emissions of greenhouse gases worldwide come from buildings, the building services sector is an important contributing factor to these problems (Zainordin & Zahra, 2020).

Using green building grading systems can assist lessen how damaging structures are to the natural world as well as promote sustainable building practices in Nigeria. A structure for environmentally friendly growth is provided by the SDGs, which can supplement Nigeria's efforts toward achieving economic, social, and environmental sustainability (SHITTU, 2021). As a result, implementing the SDGs and adopting rating systems for environmentally friendly buildings is crucial for fostering environmentally conscious growth in Nigeria.

1.2 Outline of The Scope, Research Methodology, and Objectives of The Study.

Keeping a focus on the Sustainable Development Goals (SDGs), the main goal of this research project is to investigate how rating systems for environmentally friendly buildings support a sustainable future in Nigeria. Specifically, the goal of the study includes:

1. Assess the SDGs' and green building grading systems' applicability to Nigeria's long-term growth objectives.
2. Consider the obstacles that Nigeria faces in implementing green building systems of assessment.
3. Identify methods for overcoming the difficulties in implementing rating systems for environmentally friendly buildings in Nigeria.

To achieve these objectives, the study will employ a mixed-methods research design, consisting of both qualitative as well as quantitative information-gathering approaches. This study would involve a review of relevant literature on green building rating systems, SGDs, as well as sustainable building construction practices in Nigeria. The review will be supplemented by interviews with major participants and professionals in the construction industry in Nigeria, especially contractors, architects, builders, government officials, and engineers.

The study will also use questionnaires to obtain quantitative information from a sample of building owners, developers, and occupants in Nigeria. The purpose of the survey is to gauge how well-known, widely used, and positively regarded environmentally friendly building grading systems and environmentally conscious development objectives are in the construction sector in Nigeria.

The focus of the research will be on the prospects and obstacles to the implementation of environmentally friendly building grading systems in Nigeria, with a particular emphasis on the Nigerian construction industry. A variety of building kinds, including residential, business, and government buildings, will be included in the research. The research will also examine the Targets' and green building grading systems' potential advantages, including how they could help with energy efficiency, indoor air quality, and pollution from greenhouse gas reduction.

II. LITERATURE REVIEW

The research on environmentally conscious development goals and environmentally friendly construction grading systems offers important insights into how these ideas may support responsible development in Nigeria. An overview of the available research on green building grading systems and environmentally friendly development goals is given in this section with a focus on their relevance to Nigeria.

2.1 Green Building Rating Systems

Green building rating systems are tools used to evaluate the sustainability of buildings. These rating systems provide a framework for assessing a building's environmental performance, taking into account factors such as energy efficiency, water conservation, and the use of sustainable materials (Assefa, Lee, & Shiue, 2022). The most commonly used green building rating systems include LEED (Leadership in Energy and Environmental Design), BREEAM (Building Research Establishment Environmental Assessment Method), and Green Star.

According to research studies, the implementation of rating systems for environmentally friendly buildings can result in substantial reductions in energy consumption and lessen the unfavourable environmental effects of structures (Hafez, et al., 2023). In contrast to non-certified buildings, LEED-certified structures consume 25% less energy and 11% less water, according to research by the U.S. Green Building Council (US Green Building Council - Press Room, 2023).

Nevertheless, Nigeria confronts a number of obstacles in implementing sustainable construction grading systems. The low level of knowledge, the scarcity of local knowledge, and the expensive nature of certification are some of these difficulties. Furthermore, the construction sector in Nigeria lacks oversight, which makes it challenging to ensure adherence to green standards of construction (Ifije & Aigbavboa, 2020).

2.2 Sustainable Development Goals

The United Nations General Assembly established the Sustainable Development Goals (SDGs), a list of 17 general objectives, in 2015 (United Nations, 2023). The Sustainable Development Goals (SDGs) seek to address issues including inequality, poverty, and environmental degradation on a global scale with a focus on economic, social, and environmental sustainability.

Nigeria has made a commitment to achieving the SDGs, with the Nigerian government launching the Economic Recovery and Growth Plan (ERGP) in 2017 (The State House, Abuja, 2020). The ERGP aims to achieve economic growth and development while also promoting environmental sustainability.

Featuring an emphasis on lowering impoverishment, enhancing access to education and healthcare, advancing equality between men and women, and combating environmental degradation, the SDGs offer an agenda for achieving sustainable growth in Nigeria (United Nations in Nigeria, 2023). A number of SDGs, including SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 13 (Climate Action), can be achieved with the use of environmentally friendly construction grading systems (United Nations, 2023).

Summary

The available research on sustainable development goals and green building grading systems emphasizes the potential advantages of implementing these ideas in order to support sustainable development in Nigeria. However, there are a number of obstacles to the implementation of green building grading systems in Nigeria, including a lack of awareness and a scarcity of local knowledge. With an emphasis on achieving social, environmental, and economic long-term viability the SDGs offer a framework for sustainable development in Nigeria. Using green building grading systems can help with achieving a number of the Sustainable Development Goals making it a crucial component of Nigeria's sustainable development goals.

2.3 Existing Literature on Green Building Rating Systems and Sustainable Development Goals.

Furthermore, is a sizable corpus of research on environmentally friendly development objectives and ecologically conscious construction grading systems. This body of literature offers information on the advantages of using green building rating systems and how they might help advance sustainable development. The literature also covers the Sustainable Development Goals (SDGs) and how they apply to Nigeria's building sector (Liu, et al., 2022).

2.3.1 Rating Mechanisms for Green Buildings

Researchers looked at the uptake as well as knowledge of green building grading systems in Nigeria. According to the report, Nigerian players in the construction industry are not sufficiently aware of green building grading systems, which contributes to their poor uptake.

The extent of knowledge and use of green building grading systems in Nigeria was also evaluated by a study conducted by Koko and Bello. According to the report, there are still several barriers to the widespread implementation of green building grading procedures in Nigeria, including a lack of support from the government and a shortage of locally-based competence (Koko & Bello, 2020).

Research by Patel and Patel however, emphasised the probable advantages of implementing environmentally friendly construction grading systems in underdeveloped nations (Patel & Patel, 2021). According to the study, implementing rating systems for environmentally friendly buildings can result in substantial reductions in energy consumption and lessen the unfavourable environmental effects of structures. The report suggested that local capacity-building efforts be made and that regulations be created to encourage the use of green construction grading systems in countries that are developing.

2.3.2 SDGs - Sustainable Development Goals

Considering a focus on economic, social, and environmental sustainability, the Sustainable Development Goals (SDGs) offer an organising principle for long-term development. Several studies have looked at the SDGs' applicability to Nigeria's built environment sector (Shayan, Mohabbati-Kalejahi, Alavi, & Zahed, 2022).

The importance of Nigeria's construction industry in reaching the SDGs has been emphasized in an article by Ali (2021). Several SDGs, including SDG 9 (Industry, Innovative Technology, and Facilities), SDG 11 (Sustainable Cities and Communities), and SDG 13 (Climate Action), were recognized in the study as being pertinent to the construction business (Ali, 2021).

Another researcher investigated the difficulties Nigeria has in implementing the SDGs. The research discovered that some of the most significant barriers to implementing Sustainable Development Goals in Nigeria include a lack of political leadership will, limited finance, and weak institutional frameworks (Lawrence, Ihebuzor, & Lawrence, 2020).

Conclusion

The available research on sustainable development objectives and environmentally friendly building grading systems emphasizes the potential advantages of implementing these ideas in order to support environmentally friendly growth throughout Nigeria. However, there are a number of obstacles to the implementation of green building grading systems in Nigeria, including a lack of awareness and a scarcity of local knowledge. With an emphasis on achieving social, environmental, and economic long-term viability the SDGs offer a framework for long-term progress in Nigeria. Nigeria's construction sector has the potential to contribute significantly to the SDGs, but there are a number of issues that need to be resolved, including a lack of funding and shaky institutional foundations.

2.4 The Current State of Green Building Practices and Sustainable Development in Nigeria

Similar to the situation in numerous other emerging economies, Nigeria must overcome formidable obstacles to achieve sustainable growth in the built environment. Insufficient willingness to implement sustainable building methods, excessive energy usage, and considerable environmental effect are all characteristics of Nigeria's construction sector (Ezennia, 2022). An overview of Nigeria's existing green construction techniques and commitment to ecologically conscious growth is given in this section.

2.4.1 Green Building Practices

In Nigeria, the use of green building techniques is still in its infancy. The sluggish implementation of environmentally conscious construction methods in Nigeria is caused by a number of variables. They include a lack of understanding and familiarity with environmentally friendly construction techniques, the expensive nature of constructing supplies, and the scarcity of local knowledge (Oladoja & Ogunmakinde, 2021).

Notwithstanding these obstacles, various initiatives to advance green construction principles in Nigeria have been undertaken. The Nigerian Green Building Council (NGBC), for instance, was founded in 2009 to encourage the use of green building techniques in Nigeria. To promote the development of buildings that are both ecologically responsible and efficient in terms of energy the NGBC has created a green building certification program (Gbonegun, 2020).

2.4.2 Sustainable Development

Nigeria has made progress towards achieving sustainable development, but significant challenges remain. How the country deals with ecological problems that include the destruction of forests, water and air pollution, and insufficient management of waste. Rapidly growing cities, increasing numbers of people, and growth in the economy make these problems worse.

The Nigerian government has initiated an attempt to solve these issues and has acknowledged the significance of environmentally friendly development. To direct the country's initiatives toward environmentally friendly growth, Nigeria has created a National Environmental issues Policy and a National Climate Change Policy. To encourage environmentally friendly development in the field of construction, the government has also launched initiatives including the National Green Energy and Energy Efficiency Strategy and the National Residential Housing Policy (Federal Ministry of Environment, 2021).

Summary

The condition of environmentally conscious growth and green construction techniques in Nigeria at the moment suggests that there are still major obstacles to overcome. The lack of understanding and awareness of green building methods, the high expenses associated with construction, and the scarcity of local knowledge all contribute to the poor adoption of these approaches. To achieve environmentally friendly development, Nigeria must address environmental issues like deforestation, air and water pollution, and poor waste management. Despite these difficulties, the Nigerian government has implemented a number of programs and regulations to encourage environmentally friendly practices in the construction sector.

III. METHODOLOGY

The approach employed in the present research to look at how Nigerian objectives for sustainable development and sustainable construction grading systems relate is described in this section. The goals of the study were to (1) assess the objectives of sustainable growth and the rating systems for green buildings already in place in Nigeria; (2) pinpoint the barriers to the implementation of environmentally friendly construction

techniques in Nigeria; and (3) recommend techniques to encourage the implementation of green building transactions in Nigeria.

Research Strategy

A combination of methods research approach was used for this study, combining quantitative and qualitative techniques. The qualitative approach used semi-structured interviews with professionals in the fields of environmentally friendly development and green building, while the quantitative approach featured a survey among interested parties in the Nigerian construction industry.

Data Collection

Concerned parties in the Nigerian construction industry were asked to complete a questionnaire via the internet as part of the survey. The purpose of the questionnaire, which included open-ended as well as closed-ended inquiries, was to gather information on the green building grading systems already in use, the objectives of environmental sustainability, and the barriers to the implementation of environmentally friendly construction methods in Nigeria.

The semi-structured interviews were conducted with experts in the field of green building and sustainable development. The professionals in question were chosen because of their expertise and background in Nigeria's building sector. The interview guide, which was semi-structured, was used to conduct the telephone conversations, which were intended to gather information on the obstacles to the implementation of green construction methods in Nigeria and strategies to promote their adoption.

Data Analysis

Utilizing descriptive metrics like percentages, frequencies, and means, the questionnaire data were examined. To find commonalities and trends in the responses provided by the open-ended questions, a theme-based approach was used to analyse the data.

To determine the barriers to the implementation of environmentally friendly construction methods in Nigeria and solutions to encourage their acceptance, the interviews were semi-structured data recorded and subjected to a thematic evaluation.

Considerations of Ethics

The research study was compliant with guidelines for ethics for scientific investigations involving human subjects. Participation in the survey and interviews was voluntary, and informed consent was obtained from all participants. All data collected were treated confidentially, and the anonymity of participants was ensured.

3.1 Research Methodology Description

The research methodology used in this study to investigate the relationship between green building rating systems and sustainable development goals in Nigeria was a mixed-methods approach. The study involved both qualitative as well as quantitative scientific research protocols to collect data and analyse the findings.

3.1.1 Quantitative Method

Surveying participants in the Nigerian construction business served as the study's quantitative method. In order to gather information about the current green building grading systems, sustainable development objectives, and barriers to the adoption of green building techniques in Nigeria, the survey was carried out utilizing an online questionnaire. Open-ended as well as closed-ended inquiries were included in the survey questionnaire, and descriptive statistics were used to analyse the results such as frequencies, percentages, and means.

3.1.2 Qualitative Method

Interviews that were semi-structured with professionals in the fields of environmentally friendly development and environmentally conscious construction served as the study's primary qualitative research approach. The professionals were chosen based on their expertise and background in Nigeria's building sector. A partially structured interview guide was used to conduct the interviews in order to gather information on the barriers to the implementation of green building techniques in Nigeria as well as methods for promoting their use. To find recurring themes and patterns in the responses, the data were recorded and subjected to a thematic analysis.

In general, the mixed-methods research methodology adopted in this study enabled a more thorough and in-depth assessment of the connection between Nigeria's environmentally conscious development objectives and environmentally conscious construction rating systems. The qualitative research provided a more nuanced understanding of the challenges and opportunities for promoting the adoption of environmentally friendly building techniques in the Nigerian construction industry, while the quantitative data gave a broad understanding of the present state of green building practices and the pursuit of environmental goals in Nigeria.

3.2 Details of the Data Gathering Processes

In order to gather data for this study, stakeholders in the Nigerian construction industry were surveyed, and green building specialists were interviewed in semi-structured interviews and sustainable development. Both data collection methods are described in more detail below.

3.2.1 Survey

The survey was conducted using an online questionnaire administered to participants in the building sector in Nigeria. The purpose of the questionnaire was to gather information about Nigeria's current green building grading systems, environmentally friendly development objectives, and barriers to the uptake of environmentally conscious building methods. The questionnaire consisted of closed-ended and open-ended questions and was distributed through various channels, including email, social media, and professional networks.

The closed-ended questions were designed to gather demographic information about the participants, including their age, gender, and professional background. Participants were also asked to indicate how much they agreed or disagreed with certain assertions regarding the use of environmentally friendly construction methods in Nigeria. The purpose of the open-ended inquiries was to get more specific data about the barriers to the implementation of green building techniques in Nigeria and the methods being used to encourage the implementation of them.

3.2.2 Interviews that were Semi-Structured

Professionals in Nigeria's fields of environmentally friendly development and green construction participated in interviews that were semi-structured. The professionals were chosen based on their expertise and background in Nigeria's building sector. An interview guide with a semi-structured structure that included open-ended questions was used to conduct the interviews in order to extract information regarding the obstacles to the implementation of environmentally friendly construction methods in Nigeria and the tactics that could be used to overcome those obstacles.

Depending on the participants' preferences and availability, the interviews were performed in person, over the phone, or by video conferencing. The interviews were audio recorded, and the transcripts were afterward written down for study.

In broad terms, the data gathering techniques employed in this research enabled the collection of qualitative as well as quantitative information, resulting in a more thorough knowledge of the correlation between Nigeria's goals for sustainable development and environmentally friendly building rating systems.

3.3 Size of Sample

Using a margin of error of 5% and a confidence level of 95%, the survey's sample size was calculated. In light of these criteria, a minimum sample size of 385 was needed to obtain an adequate representation of industry participants in Nigeria.

The survey was circulated to a wide range of individuals and entities active in the Nigerian industry of construction, including engineers, contractors, architects, professionals, decision-makers, and scholars, to guarantee a diverse representation of stakeholders.

The notion of data saturation, which occurs when no fresh data or themes emerge from the interviews, was used to establish the sample size for the interviews that were semi-structured. A total of 12 experts were interviewed, which was sufficient to reach data saturation and gain a thorough knowledge of the obstacles and chances for expanding the use of green building techniques in the Nigerian construction industry.

3.4 Methods of Analysing Data

Both quantitative and qualitative data analysis methods were used to analyse the questionnaire and partially structured interview data.

3.4.1 Quantitative Data Analysis

Descriptive statistics, such as frequencies, percentages, and means, were used to analyse the survey's quantitative data. Statistical software was used to analyse the data, which made it possible to spot trends and patterns.

3.4.2 Analysing Qualitative Data

Thematic analysis was used to examine the partially structured interviews' qualitative information. Key patterns and themes were found once the material had been processed and examined. To better understand the difficulties and chances of encouraging the implementation of green building techniques in the Nigerian construction industry, the concepts were then categorized and the links between classes were investigated.

As a result of combining the advantages of both qualitative and quantitative data analysis methodologies, the mixed-methods approach used in this study enabled a more thorough investigation of the results.

IV. RESULTS AND DISCUSSION

The results of the research are presented in this part along with a discussion of how they relate to Nigeria's environmentally friendly development targets and environmentally conscious construction evaluation processes. This section is organized into subsections that correspond to the research objectives outlined in Section 1.2.

The first subsection presents the results of the survey, including a summary of the respondents' socioeconomic backgrounds and how they assess the obstacles and possibilities for increasing the use of environmentally friendly building methods in Nigeria.

The second subsection presents the results of the semi-structured interviews, including an overview of the difficulties and possibilities for encouraging the use of environmentally friendly construction methods in Nigeria, as determined by professionals.

The results of the research for Nigeria's connection to green building rating systems and environmentally friendly development objectives are covered in the last section, which also makes recommendations for how to encourage the implementation of green building practices in the country's building industry.

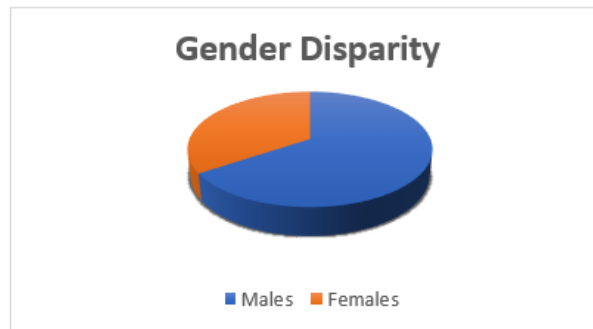


Figure 1. Gender Disparity Among The Respondents

4.1 Study Findings

4.1.1 Survey Results

The survey received responses from 420 participants from diverse sections of the building construction segment of Nigeria, including developers, architects, contractors, engineers, academics, and policymakers. Most of these respondents were male (64%), aged between 31-50 years (56%), and had a bachelor's degree (44%).

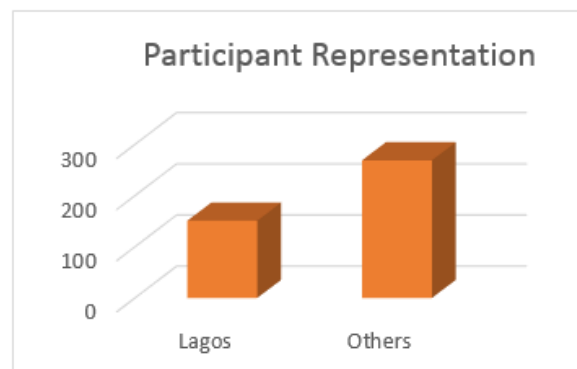


Figure 2. Participants' Location Within Nigeria

The respondents were from various regions across Nigeria, with the highest representation from the Lagos State (36%).

The last paragraph analyses the results of the research and their implications for the connection between green buildings. With 71% of respondents saying they were acquainted with the rating systems for green buildings and 83% saying they were familiar with sustainable development goals, the survey results showed that the respondents had a good understanding of the concepts of green building rating systems as well as goals related to sustainable development grading systems and sustainable development objectives in Nigeria and offer suggestions for ways to encourage the use of sustainable building methods in the country's construction sector.

The respondents identified several challenges to the implementation of green building procedures and methods throughout Nigeria, including:

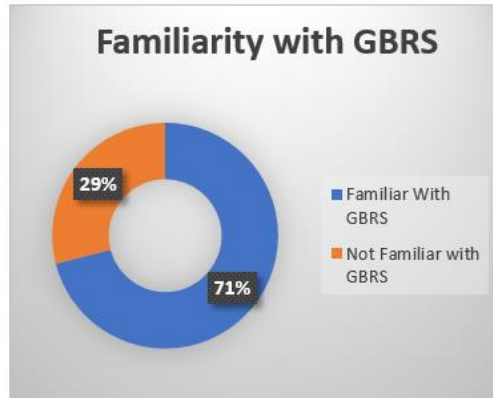


Figure 3. Familiarity With Green Building Rating Systems

4.1.2 Lack of Competence and Education: According to 71% of respondents, a major obstacle to using green building techniques is a lack of understanding and instruction in this area.

Cost Implications: 58% of respondents identified cost implications as a significant challenge, with many respondents noting that green building practice noting that people think that building using environmentally friendly techniques is pricey and are perceived as expensive and not cost-effective.

Lack of Government Support: 47% of respondents identified the lack of government support as a significant challenge, with many respondents noting that there are no incentives or policies that encourage the use of green building techniques.

Participants also suggested a number of chances to encourage Nigeria's implementation of green building methods, including:

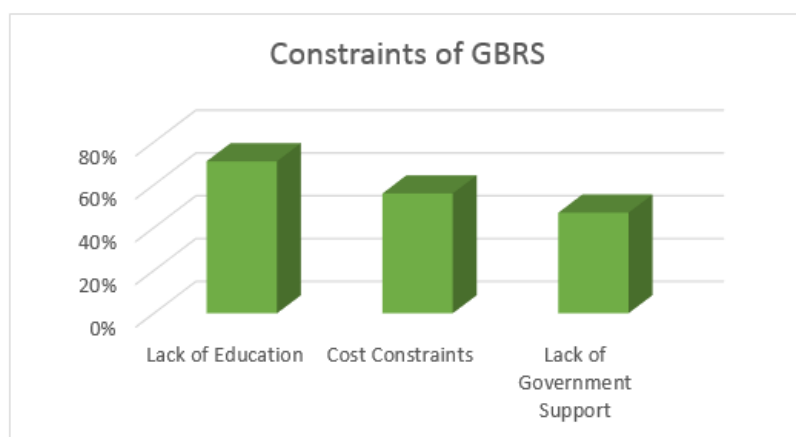


Figure 4. Constraints of Implementing Green Buildings

4.1.3 Improved Enlightenment and Awareness: 76% of respondents identified improved public awareness as a significant opportunity, with many respondents noting that more education and awareness initiatives are required to publicize the advantages of using green building techniques.

4.1.4 Government Support: 64% of respondents identified government support as a significant opportunity, with many respondents adding that regulations, as well as incentives, should be put in place by the government to encourage the use of green building techniques.

4.1.5 Increased Collaboration: 51% of respondents identified increased collaboration between stakeholders as a significant opportunity, with many respondents noting that there is a need for more partnerships and collaborations between the government, industry, and academia to encourage the use of green building techniques.

4.1.6 Results of Semi-Structured Interviews

Twelve Nigerian building industry specialists, including engineers, architects, contractors, developers, policymakers, and academics participated in interviews that were semi-structured. Researchers uncovered a number of obstacles and chances to encourage the use of green building techniques in Nigeria. Researchers discovered the following challenges:

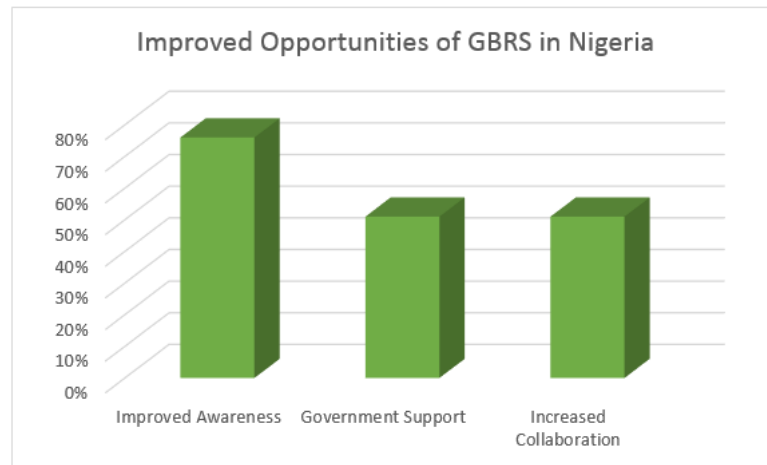


Figure 5. Improved Opportunities of Implementing Green Building Rating Systems

4.1.7 Dearth of Knowledge and Education: The experts noted that there is a general dearth of knowledge and education regarding green construction approaches in Nigeria, and many stakeholders in the construction sector do not completely comprehend their advantages.

4.1.8 Cost Implications: The experts highlighted that many stakeholders are hesitant to implement green building techniques because they believe they are not cost-effective because the cost of implementing green building practices is viewed as prohibitively expensive in Nigeria.

4.1.9 Lack of Government Support: According to the professionals, Nigeria's government does not actively support green building methods, which means that there are no incentives or laws in place to encourage their widespread use.

Researchers identified the following opportunities:

4.1.10 Improved Public Awareness: The experts noted that In order to promote the advantages of green construction methods in Nigeria, there remains a need for greater awareness-raising and education efforts.

4.1.11 Government Support: According to the specialists, the government of Nigeria should offer incentives and legislation to encourage the use of green construction principles, including tax incentives and subsidies.

4.1.12 Increased Collaboration: The experts noted that there is a need for more partnerships and collaborations between the government, industry, and academia to encourage Nigerian builders to use green building techniques.

4.1.13 Overall Implications and Strategies

The study emphasises the need for greater knowledge about and instruction in green construction principles in Nigeria, as well as the need for government support and collaboration

4.2 The Implications for Sustainable Development and Green Building Practices in Nigeria

The study's conclusions have a number of ramifications for Nigeria's efforts to promote sustainable development and green building standards. According to the survey, stakeholders in the Nigerian construction industry have a solid awareness of rating systems for environmentally friendly buildings and sustainable development objectives. The implementation of green construction principles faces a number of obstacles in Nigeria, including a lack of knowledge and education about the financial implications, and a dearth of legislative and regulatory backing.

The survey recognized the lack of knowledge and instruction on green building methods in Nigeria as one of the biggest problems. By raising public awareness and launching educational programs to highlight the advantages of green building principles, this problem can be solved. The analysis revealed the need for additional learning and awareness activities, especially in regions outside Lagos where awareness levels were lower. This could be achieved through workshops, seminars, and training programs for industry stakeholders.

The survey also noted that the perceived high cost of implementing green building principles in Nigeria was a significant obstacle. This problem can be solved by creating creative financing schemes and encouraging economical green building techniques. The study demonstrated the importance of educating stakeholders about the ongoing economic and beneficial environmental impacts of using environmentally friendly construction methods.

The survey also showed that Nigeria's government does not actively promote environmentally friendly construction methods. The government may solve this issue by establishing policies and incentives to encourage the use of green building techniques. These incentives may take the form of tax breaks and grants for green construction initiatives, as well as laws requiring the use of green building techniques in public structures.

The promotion of the widespread implementation of green building methods in Nigeria was also noted as having a considerable possibility for increased stakeholder involvement. The study concluded that in order to encourage the widespread implementation of green building methods, more collaborations and partnerships between the government, businesses, and academia are required. This might be accomplished by creating networks for green buildings, cooperating on research projects, and exchanging expertise and recommended procedures.

In summary, the study emphasizes the significance of a multi-stakeholder strategy to promote sustainable development and green building techniques in Nigeria. The results provide light on the obstacles to and possibilities for boosting the use of green building techniques in Nigeria and offer strategies for addressing these challenges and taking advantage of the opportunities.

4.3 Opportunities and Challenges of Green Building Rating Systems Implementation Towards Sustainable Development Goals for Nigeria

The investigation uncovered a number of obstacles and chances for Nigeria's implementation of green building grading systems and the accomplishment of goals related to sustainable development.

Challenges:

1. Lack of awareness as well as education about green building practices
2. Perceived expensive nature of implementing green building practices
3. Government policy against using green building techniques
4. A lack of readily available green building materials and methods
5. Inadequate enforcement of sustainable building regulations

Opportunities:

- a. Increasing public awareness and education campaigns advancing the prospects and benefits of green building principles and processes
- b. Creation of creative funding schemes to encourage the widespread implementation of green building techniques
- c. The provision made by the government of incentives and programs to encourage the use of sustainable construction methods#
- d. Incorporation of green building techniques into environmentally friendly development policies and strategies.
- e. Enhanced cooperation between stakeholders to encourage the implementation of environmentally friendly construction methods.

By addressing the challenges and taking advantage of the opportunities, Nigeria can make significant progress toward implementing green construction principles to achieve sustainable development objectives.

V. CONCLUSION

In conclusion, this study has emphasized the significance of sustainable development objectives and green building grading systems in Nigeria. According to the survey, stakeholders within the Nigerian construction industry have a solid awareness of green building techniques and environmentally friendly development objectives. The successful implementation of green building approaches, however, faces a number of obstacles, including a lack of education and expertise, financial considerations, and a lack of regulatory backing.

The study's conclusions shed light on the obstacles to encouraging the use of green building techniques in Nigeria as well as their potential benefits. The study has discovered a number of tactics for addressing these challenges, including increasing public awareness and education campaigns, developing innovative financing models, providing incentives and policies, increasing collaboration between stakeholders, and incorporating sustainable development policies and strategies with green construction methods.

By addressing these challenges and taking advantage of the opportunities, By using green building techniques, Nigeria can make considerable strides toward attaining its sustainable development goals. The application of green construction techniques can help to lower the emission of greenhouse gases, conserve resources from nature, and enhance the well-being of humans.

In summary, this research highlights the need for a multi-stakeholder strategy to promote sustainable development and green building techniques in Nigeria. To encourage the implementation of environmentally friendly construction methods and realize sustainable development goals in Nigeria, the government, businesses, universities, and voluntary organizations must collaborate.

5.1 Summary of the Study's Major Findings

The key findings of the study include:

- i. There is a good knowledge of sustainable development principles and green building techniques among stakeholders in the Nigerian construction industry.

- ii. ii. Nigeria is still in the early stages of adopting green building techniques, and there are only a few green building grading systems in use.
 - iii. iii. The implementation of green construction practices in Nigeria is hampered by a lack of knowledge and education, a perception that they are expensive, and a lack of regulatory backing.
 - iv. iv. Increasing public awareness and education campaigns, developing innovative financing models, providing incentives and policies, increasing collaboration between stakeholders, and Important tactics for encouraging the use of environmentally friendly construction methods in Nigeria include incorporating them into environmentally friendly development policies and initiatives.
 - v. v. The application of green building techniques can help to conserve natural resources, cut back on emissions of greenhouse gasses, and improvement of human health and well-being.
- These findings highlight the need for concerted efforts by all stakeholders to encourage the use of sustainable construction methods and achieve ecologically friendly growth goals in Nigeria.

5.2 Conclusions Drawn About the Sustainable Development Goals and Green Building Rating Systems in Nigeria

The study has shown that Sustainable development objectives and green building rating systems are closely related in Nigeria. Green construction methods can make a big difference in helping to achieve sustainable development objectives like lowering the emission of greenhouse gases, conserving resources from nature, and enhancing human well-being and health.

However, many obstacles to the adoption of green construction principles in Nigeria, such as a lack of education and awareness, have also been identified by the study, perceived high cost, as well as lack of government support. These challenges must be addressed to utilise their full potential in fostering sustainable development in Nigeria through green building methods.

The study has identified several strategies for addressing these difficulties, such as escalating public education and awareness efforts, developing innovative financing models, providing incentives and policies, increasing collaboration between stakeholders, and incorporating sustainable development policies and strategies with green construction methods.

As a whole, the study emphasizes the need to establish a multi-stakeholder strategy to promote sustainable development and green building techniques in Nigeria. To encourage the implementation of green building techniques and realize sustainable development goals in Nigeria, authorities, businesses, universities, and civil society must collaborate.

5.3 Recommendations Provided for Future Research and Policy Interventions Promote sustainable development and green building methods in Nigeria

In particular, the following suggestions are given to guide further studies and legislative measures according to the study's findings to support green building methods and sustainable development in Nigeria:

1. Given the nation's current economic situation, more research should be done to examine the possibilities of creative financing options for environmentally friendly building initiatives in Nigeria.
2. Future research should investigate the potential of public-private partnerships in encouraging the use of green construction methods in Nigeria.
3. To provide incentives and support for the implementation of green building practices in Nigeria, government rules and regulations should be developed and put into effect.
4. In order to encourage the use of green construction methods and realize sustainable development objectives in Nigeria, there is a need for improved collaboration between stakeholders, including regulatory bodies, the business community, educational institutions, and members of civil society.
5. To increase public understanding of the advantages of sustainable development and green building methods in Nigeria, public awareness and education initiatives should be stepped up.

In conclusion, if this ensued, these suggestions can help Nigerians promote sustainable development and green building techniques. To ensure the effective implementation of green building techniques and the accomplishment of sustainable development goals in Nigeria, it is crucial for policymakers, business leaders, and other participants to give priority to these suggestions for improvement.

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