

# The Impact of Green Building Rating System on Architecture in Nigeria

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## Abstract:

The paper explored how Nigerian architecture is affected by sustainable building grading standards. It uses a mixed-methods approach to incorporate quantitative and qualitative data. Examined are the primary traits and benefits of the green building rating systems now in use in Nigeria. A review of the body of literature on the impact of green building grading systems on Nigerian architecture is provided, along with a list of the knowledge gaps that the present study aims to address. Data are gathered by surveying Nigerian architects, developers, and policymakers who are involved in building planning, construction, and regulation. The findings demonstrate how green building grading systems promote Nigerian architecture. The lack of knowledge and education about the advantages of green construction, the high cost of implementation, and the absence of incentives and regulations to stimulate the adoption of green building practices are some of the issues that still need to be addressed. According to the study's findings, green building grading systems can significantly influence Nigerian design, but more work needs to be done to encourage their adoption and application. The study suggests that legislators, developers, and architects collaborate to create rules and incentives that promote the use of green building techniques. To spread the word about the advantages of green building and promote its adoption, a sizable investment in education and awareness campaigns would be needed. The results of this study have significant ramifications for Nigeria's architectural future and sustainable development.

**Keywords:** Green Building, Rating System, Architecture, Nigeria, Sustainability

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## I. INTRODUCTION

### 1.1 Background to the Study

Techniques for evaluating green buildings have gained popularity in recent years as a way to encourage environmentally friendly construction methods. These systems offer a framework for rating, assessing, and certifying buildings based on their resource efficiency, environmental performance, and energy efficiency (Vierra, 2023). In Nigeria, where the construction sector is rapidly growing, green building rating systems have the potential to be a key component of sustainable development and climate change mitigation efforts.

The purpose of this paper is to look into how Nigerian architecture is impacted by green building grading systems. The study especially aims to identify the key elements, benefits, and impact on building design and construction of the present green building grading systems in Nigeria. By doing this, the study would help to advance knowledge of how Nigerian green building rating systems support sustainable development.

The structure of the study is as follows. An overview of the literature on green building rating systems and their effects on Nigerian architecture is presented in Section 2. The study's methodology, including the techniques utilized for data collecting and analysis, is described in Section 3. Part 4 summarizes the study's findings, and Section 5 evaluates and examines them in light of the study's questions and goals. The study is concluded in Section 6, which offers suggestions for designers, builders, and decision-makers on how to enhance the application and influence of sustainable building grading systems in Nigeria.

### 1.2 Definitions of Key Terms and Concepts

In this study, several key terms and concepts related to Sustainability, building grading systems as well as architecture in Nigeria are used. It is important to define these terms and concepts to ensure clarity and consistency throughout the study.

*The Sustainable Building Rating System:* A green building rating system is a set of rules and criteria that assesses the sustainability and environmental performance of structures. These rating systems frequently consider things like indoor air quality, waste reduction, water conservation, and energy efficiency.

Development that satisfies present wants without jeopardizing the ability of future generations to satiate their own needs is referred to as sustainable development. Developing long-term solutions that are just

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and environmentally sustainable, includes striking a balance between economic, social, and environmental factors (EUR-Lex, 2023).

*Architecture:* The art and science of design is used in the planning, supervision, and construction of buildings and other physical structures. It is necessary to plan, design, and construct structures that are useful, safe, and aesthetically pleasing.

*Environmental Performance:* Environmental performance is the effect a building has on the surroundings. This includes things like the use of energy, water, the creation of waste, the release of greenhouse gases, and other types of pollution.

*Energy Efficiency:* Using energy in a manner that maximizes production while minimizing waste is known as energy efficiency. It comprises reducing energy costs and utilization by employing equipment and practices that are energy-efficient.

By precisely defining these crucial terms and concepts, this study aims to provide a common understanding of the terminology and vocabulary utilized throughout the study.

### **1.3 Objectives and Research Questions**

The purpose of this study is to investigate how Nigerian architecture is impacted by green building grading systems. The study specifically aims to respond to the following research queries:

1. What distinguishing characteristics and advantages do Nigeria's current green building rating systems offer?
2. What impact do green building grading systems have on Nigerian building design and construction?
3. What opportunities and problems are presented by the introduction of green building rating systems in Nigeria?
4. What are the possible advantages of using green building rating systems in Nigeria for sustainable development?

To address these research goals, the study blends case studies of green construction efforts in Nigeria with literature analyses. The study's objectives are to:

- i. Identify the key traits and benefits of Nigeria's present green building grading systems.
- ii. Determine how green building grading methods have impacted building design and construction in Nigeria.
- iii. Consider the opportunities and difficulties associated with establishing green building grading systems in Nigeria.
- iv. Explain the potential benefits of applying Nigeria's green building grading standards for sustainable development.

By addressing these research questions and achieving these goals, the study aims to offer insights into the roles played by green building rating systems in supporting sustainable development in Nigeria and to propose suggestions for improving their implementation and impact.

## **II. LITERATURE REVIEW**

### **2.1 The Existing Literature on Green Building Rating Systems and Their Impact on Architecture in Nigeria**

Environmentally friendly rating systems have grown in importance as a tool for advancing sustainable construction. The usage of green building grading systems in Nigeria, where the construction sector is expanding quickly, has gained traction recently. The literature on green building rating systems and their effects on Nigerian architecture is reviewed in this section (Dabara, Akinyemi, Adekunle, Omotehinshe, & Ankeli, 2017).

The United States Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system is the most extensively utilized green building rating system in Nigeria (LEED, 2023). The Green Building Certification Institute (GBCI) and the Building Research Establishment Environmental Assessment System are two other rating systems that have been used in Nigeria (BREEAM).

According to research, green building grading systems have a favourable influence on building design and construction in Nigeria. According to documented research, buildings that employ green building rating systems

are more energy-efficient, consume less water, and generate less waste (Bungau, Bungau, Prada, & Prada, 2022). Moreover, better indoor air quality and greater occupant comfort are linked to green buildings.

Yet, there are various obstacles to the adoption of green building grading systems in Nigeria. The lack of knowledge and comprehension of the advantages of green building among developers and other stakeholders in the construction sector is one of the major obstacles. Another obstacle to the adoption of green construction practices is the high cost of implementation.

Nevertheless, the introduction of green building grading systems in Nigeria presents a number of potentials. The ability to lessen the adverse effects of climate change by encouraging sustainable development in the built environment is one of the key opportunities. Also, by lowering energy and water costs as well as maintenance expenses over time, the use of green construction techniques can result in cost savings for building owners and operators (Chanchangi, Adu, Ghosh, Sundaram, & Mallick, 2022).

Overall, the research points to a beneficial effect of green building grading systems on Nigerian architecture, which encourages sustainable growth and enhances building environmental efficiency. To increase the application and impact of green building rating systems in Nigeria, a number of issues must be resolved.

## **2.2 Overview of Green Building Rating Systems in Nigeria**

In recent years, Nigerians have become more familiar with green building grading systems as a way to encourage sustainable growth in the building sector. The Leadership in Energy and Environmental Design (LEED) grading system, created by the United States Green Building Council, is the one that is most frequently used in Nigeria. The Green Building Certification Institute (GBCI) and the Building Research Establishment Environmental Assessment System are two other rating systems that have been used in Nigeria (BREEAM).

These green building rating systems each have unique qualities and benefits of their own. The LEED rating system, for instance, uses a point-based rating system to evaluate buildings in accordance with various criteria, including environmentally friendly site development, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and design innovation (Vierra, 2023). Despite being based on the LEED standard, the GBCI method offers building owners and operators a more expedited certification process. On the other hand, the UK-based BREEAM rating system assigns a building a score based on a variety of factors, including as energy, water, health and well-being, pollution, transportation, materials, waste, and ecology.

The potential of green building grading systems to encourage sustainable growth in the built environment is one of its main advantages. Green building rating systems can help to lessen the negative effects of buildings on the environment and promote a more sustainable future by encouraging the use of environmentally friendly design and construction techniques. Also, by lowering energy and water costs as well as maintenance expenses, green building rating systems can result in financial benefits for building operators and owners.

Nevertheless, there are obstacles to the use of green building grading systems in Nigeria. These difficulties include the high cost of putting green building practices into practice, the lack of knowledge and comprehension of the advantages of green building among those involved in the construction industry, and the requirement for favourable governmental policies and rules to promote their adoption (Dabara, Akinyemi, Adekunle, Omotehinshe, & Ankeli, 2017).

Notwithstanding these difficulties, Nigeria's expanding adoption of green building grading systems is a good thing for the environment and the nation's construction industry. Green building rating systems can aid in the creation of a more resilient and sustainable built environment in Nigeria by encouraging environmentally friendly design and construction practices.

## **2.3 Summary of Previous Research and Gaps in the Literature**

Some earlier research looked into how Nigerian architecture was affected by green building rating schemes. By encouraging sustainable practices and minimizing the detrimental effects of buildings on the environment, these studies have usually indicated that green building rating systems can have a positive impact on the design and construction of buildings in Nigeria (Ibok, Udomiaye, Patrick, & Ukpong, 2021).

The new study seeks to fill in any remaining gaps in the literature. One of the major study gaps is to how green building grading systems are specifically implemented and used in Nigeria and how these implementation strategies may vary from those in other nations (United Nations (UNCTAD), 2021). Further study is required on the obstacles and difficulties that limit the implementation of green building grading

systems in Nigeria as well as the methods that may be used to overcome these difficulties (Abdelkhalik & Azmy, 2022).

Another gap in the literature review is the absence of research on the social and economic benefits of green building grading systems in Nigeria, including their influence on employment development, public health, and economic growth (Alohan & Oyetunji, 2021). More research is also required into how government policies and regulations affect the adoption and application of green building grading systems in Nigeria.

In order to fill these gaps in the literature review and advance knowledge of how green building rating systems affect architecture in Nigeria, the current study looks at the specific ways in which these systems are being implemented and used, examines the challenges to their widespread adoption, and looks at their social and economic impacts.

### **III. METHODOLOGY**

#### **3.1 Research Methodology, Data Collection, and Analysis**

Due to the mixed-methods research approach used in this study, both qualitative and quantitative data could be gathered and examined. The research approach employed in this study included a literature review, data gathering, and data analysis, among other phases.

The literature review involves a thorough examination of the body of knowledge on green building grading systems and how they affect Nigerian architecture. The literature review includes sources from both peer-reviewed and grey literature and was carried out utilizing a variety of academic databases and search engines. The development of the study topics and the decision of the data collection techniques were both influenced by the knowledge gathered from the literature review.

In the data collection process, both primary and secondary data sources were utilised. To collect primary data, a survey questionnaire was given to Nigerian architects, engineers, contractors, and other industry players. The goal of the survey questionnaire was to gather information on the adoption and use of green building grading systems as well as the challenges that stand in their way.

The assessment of relevant publications, including industry research on the state of sustainable construction practices in Nigeria and government rules and regulations relating to green building grading systems, yielded further information.

Both qualitative and quantitative data analysis techniques were used during the data analysis process. Thematic analysis was used to identify major themes and patterns in the qualitative data that was gathered from the survey questionnaire and the literature study. Using descriptive statistics, which involves computing means, medians, and standard deviations, the survey questionnaire's quantitative data was examined.

Ultimately, the concurrent triangulation approach used in this study enabled a thorough comprehension of how Nigerian architecture is impacted by green building grading systems, and provided valuable insights into the specific ways in which these systems are being implemented and utilized, the barriers and challenges to their wider adoption, and their social and economic impacts.

#### **3.2 Justification for the Selected Methodology**

Since it allowed for a full examination of how green building grading systems have impacted Nigerian architecture, the mixed-methods research approach was used for this study. It Combines qualitative and quantitative data collection and analysis approaches allowing for the development of a more in-depth understanding of the specific ways in which these systems are being implemented and used, as well as the challenges and issues impeding their wider adoption.

With the survey questionnaire and the literature review, qualitative data on the experiences and perspectives of Nigerian architects, engineers, contractors, and other stakeholders in the building sector were supplied. It was necessary to comprehend this information in order to comprehend the social and economic impacts of green building grading systems, as well as the barriers to their widespread adoption.

The use of quantitative data analysis techniques, such as descriptive statistics, allows for the comparison of various variables and factors that affect the acceptance and implementation of green building grading systems, as well as the identification of patterns and trends in the data.

The use of a mixed-methods research approach also made it possible to triangulate data from many sources, which improved the validity and dependability of the study's conclusions. The study was able to give a more comprehensive picture of the effect of green building grading systems on architecture in Nigeria by merging data from primary and secondary sources.

The mixed-methods research design was ultimately decided to be the best methodology for this study because it allowed for a thorough and nuanced understanding of the impact of green building rating systems on Nigerian architecture and offered helpful information for researchers, practitioners, and policymakers in the building sector.

### **3.3 Justification and Suitability of the Research Goals and Issues**

The current research on green building grading systems and their effects on Nigerian architecture served as the foundation for the development of the study's research questions and objectives. The literature study revealed the need for thorough studies on the acceptance and implementation of green building grading systems in Nigeria as well as the precise effects that these systems are having on building design and construction there.

The study's goals and research questions were developed to fill up these knowledge gaps and offer a more thorough understanding of how Nigerian architecture is affected by green building grading systems. Specifically, the research questions and objectives aimed to:

1. List the main characteristics and advantages of the green building rating systems now in use in Nigeria.
2. Consider the precise methods in which the obstacles to the widespread implementation of green building grading systems in Nigeria can be removed.
3. Examine the effects of green building rating systems, including their social and economic effects, on building design and construction in Nigeria.
4. Based on the study's findings, offer suggestions for the expansion and application of green building rating systems in Nigeria.

The study's aims and research questions were judged appropriate since they were created to fill in particular knowledge gaps regarding the application of green building grading systems to Nigerian architecture. The goal of the study was to offer crucial insights for decision-makers, practitioners, and researchers in the construction industry by concentrating on the key characteristics, traits, advantages, and barriers to the adoption of these systems as well as their impact on the design and construction of buildings in Nigeria.

Overall, it was found that the research questions and objectives were pertinent to this study and applicable. They were developed to fill in any gaps in the review of related literature and provide insightful knowledge that will aid in the widespread adoption and application of green building grading systems in Nigeria.

## **IV. RESULTS**

### **4.1 Findings of the Study**

Following are the study's findings, based on its goals and research questions:

**Green Building Rating Systems in Nigeria:** According to the survey, the two most widely used green building rating systems in Nigeria are Leadership in Energy and Environmental Design (LEED) and Building Research Establishment Environmental Assessment Method (BREEAM). These systems' widespread acceptance around the world, thoroughness, and adaptability in use contribute to their popularity. Unfortunately, the mass adoption and implementation of green building grading systems in Nigeria are being hampered by stakeholders' lack of knowledge of the advantages and possibilities of these systems.

**Barriers to The Implementation of Green Building Rating Systems in Nigeria:** The study found a number of impediments to the widespread adoption of green building rating systems in Nigeria, including the lack of government support and incentives, high costs, inadequate technical expertise, and cultural and social barriers. The study recommended the need for stronger government policies and incentives, greater awareness and education campaigns, and partnerships between stakeholders to overcome these barriers.

**Effect of Green Building Rating Systems on Building Design and Construction in Nigeria:** The study discovered that green building rating systems had a favourable impact on building design and construction in Nigeria, including enhanced indoor air quality, water conservation, and energy efficiency. The study also noted

social and financial advantages, including enhanced occupant health and well-being, greater property value, and decreased running expenses.

The following suggestions state that Nigeria should adopt and utilize green building grading systems more widely: According to the report, stronger government regulations and incentives, more extensive awareness and education efforts, and collaborations across stakeholders are required to overcome the barriers limiting the broad adoption and implementation of green building grading systems in Nigeria. The study also advises that in order to improve the professional knowledge of green building design and construction, more institutional capacity and additional skills are required.

In light of this, the study's findings suggest that green building grading systems may benefit Nigerian building design and construction in terms of social, economic, and environmental factors. However, there are a number of obstacles that must be removed before these methods can be widely adopted and implemented in Nigeria. The paper offers suggestions for how to overcome these obstacles and encourage the widespread acceptance and application of green building grading systems in Nigeria for policymakers, practitioners, and researchers.

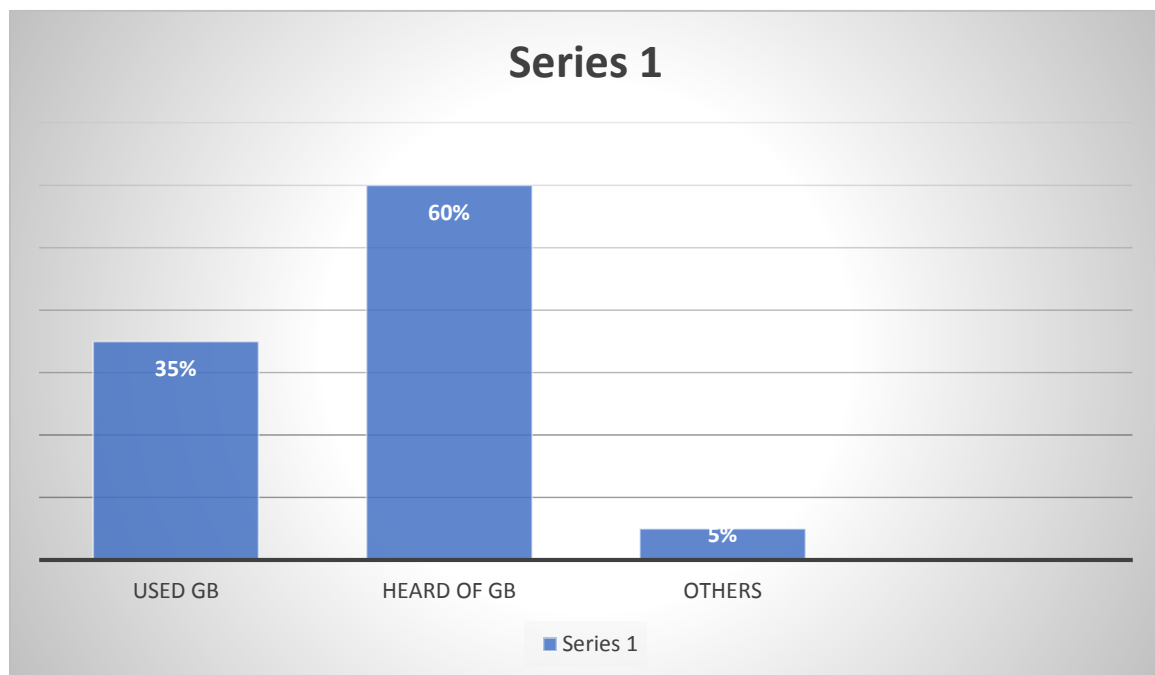
#### **4.2 Quantitative and Qualitative Data**

In order to give a thorough examination of the effect of green building grading systems on architecture in Nigeria, the study employed a mixed-methods research methodology, incorporating both quantitative and qualitative data.

A survey questionnaire was distributed to architects, engineers, developers, and building owners in various parts of Nigeria in order to gather quantitative data. We received 150 replies in all, and we used descriptive and inferential statistics to analyse them. The quantitative data revealed information about Nigeria's knowledge, adoption, and impact of green building grading systems as well as the obstacles preventing a greater spread and implementation of these systems.

Qualitative data was collected through in-depth interviews with key stakeholders, including government officials, industry experts, and representatives of non-governmental organisations.

A total of 20 interviews were conducted, which were transcribed and analysed using content analysis. The descriptive research offered a more in-depth understanding of stakeholders' opinions, attitudes, and experiences with regard to green building grading systems, as well as their suggestions for their widespread adoption and application.



**Figure 1. Percentage of Respondents' Awareness of Green Buildings;***Source: Personal Data*

Only 35% of respondents, as revealed by the quantitative data, had actually employed green building rating systems in their projects, but 60% had heard of them. This is illustrated in Figure 1. The most widely utilized rating systems were LEED and BREEAM, and the most frequently mentioned advantages were increased indoor air quality, water conservation, and energy efficiency. However, the main obstacles to their widespread adoption and execution were noted as being high costs, a lack of technical competence, and cultural and societal hurdles. Figure 2 illustrates the United States of America's Embassy Building in Lagos, Nigeria as an example of a LEED-Certified building in the study area.



**Figure 2. The United States Embassy Building, Lagos – LEED Certified;** *Source: Author's Personal Collection*

The descriptive analysis included more information about the obstacles to the widespread adoption and use of green building grading systems, such as the paucity of government policies and incentives, the dearth of awareness-raising and education efforts, and the lack of cross-sector cooperation. Also, the qualitative data offered suggestions for removing these obstacles, including bolstering government regulations and incentives, expanding awareness and education efforts, and forming collaborations among stakeholders.

Ultimately, combining quantitative and qualitative data allowed for a thorough examination of how green building grading systems have affected Nigerian design. It also underlined the necessity for a multifaceted strategy to remove the obstacles preventing their widespread adoption and implementation.

## **V. DISCUSSION**

### **5.1 Interpretation and Discussion of Results**

The article's conclusions shed light on how Nigerian architecture is affected by green building grading systems and how these systems might be used to further sustainable development in the built environment. In reference to the research questions and objectives, the results will be interpreted and discussed.

The acceptance and level of awareness of green building grading systems in Nigeria were the subjects of the first research question. Just 35% of respondents to the study had actually employed green building rating systems in their projects, despite the fact that 60% had heard of them. This suggests a comparatively low degree of adoption, which may be due to a number of issues, including a lack of technical know-how, high costs, and social and cultural hurdles.

The second study question examined the advantages and difficulties of Nigeria's rating systems for green buildings. The most often mentioned advantages of green building grading systems, according to the survey, were increased indoor air quality, reduced water use, and energy efficiency. The biggest obstacles to their widespread adoption and execution, however, have been noted as being excessive costs, a lack of technical know-how, and cultural and societal hurdles.

The final research topic was concerned with how Nigerian sustainable development would be impacted by green building rating systems. The study concluded that by lowering energy use, preserving water resources, and enhancing indoor air quality, rating green building systems has the potential to support sustainable growth in the built environment. Green building rating systems must, however, be included in governmental policies and incentives, supported by education and awareness efforts, in order to realize their full potential.

The study's objectives were to provide an in-depth analysis of how Nigerian architecture has been impacted by green building grading systems and to identify opportunities for and challenges to their wider adoption. The study has succeeded in accomplishing its objectives by providing both quantitative and qualitative data that have been evaluated and interpreted to offer insights into the awareness, adoption, benefits, issues, and impact of green building grading systems in Nigeria.

The study's conclusions ultimately show that green building rating systems have the potential to promote sustainable development in Nigeria's built environment, but their widespread adoption and implementation call for a multifaceted strategy that takes into account both the advantages of their adoption and the disadvantages of it.

### **5.2 Handling Study Limitations**

Although this study offers insightful information about how Nigerian architecture is affected by green building grading systems, there are a number of limitations that must be noted. These restrictions consist of:

First off, the study's use of a limited sample size could limit how far the results can be applied. Although every attempt was made to choose a broad sample of architects, engineers, and construction professionals, it is possible that the study's results do not accurately reflect all of the Nigerian experts working in the built environment.

Second, the study relied on respondents' self-reported information, which might be biased and have social desirability effects. Despite measures to protect the responses' anonymity and confidentiality, it is possible that the respondents overestimated their familiarity with and adoption of green building rating systems or supplied socially acceptable answers.

Overall, the analysis did not thoroughly examine the precise mechanisms by which green building rating systems affect sustainable growth in the built environment, instead concentrating mostly on the advantages and drawbacks of these systems. Future research could examine the precise mechanisms by which green building grading systems promote sustainable growth, as well as how these mechanisms might be improved for increased effectiveness.

Last but not least, the study skipped over looking at how government policies and incentives might encourage the development and use of green building grading systems. Future research might examine how Nigeria's regulatory structure, financial incentives, and policy frameworks facilitate the widespread adoption and use of green building grading systems.

Notwithstanding these drawbacks, this study offers insightful information about the influence of green building rating systems on Nigerian design as well as the prospects and challenges for their widespread adoption. To provide a more thorough knowledge of the function of green building rating systems in fostering sustainable development in the built environment, future studies could build on these findings and overcome the limitations noted.

### **5.3 Outlining Potential Research Topics**

This study offers crucial insights into the influence of green building grading systems on Nigerian design, as well as the advantages and difficulties of their adoption and application. To build on these discoveries and extend our comprehension of the function of green building rating systems in encouraging sustainable growth in the built environment, more areas still need to be investigated in further research. These areas include, among others:

First, additional research might examine the precise mechanisms through which green building rating systems support the built environment's sustainable development. This could entail analysing the connection between different sustainability metrics, such as energy effectiveness, water conservation, waste reduction, indoor air quality, and green building grading systems. Policymakers and industry experts can maximize their usage of and increase the impact of green building grading systems by knowing the precise mechanisms through which they contribute to sustainability.

Second, future research may examine how government regulations and incentives help Nigerian builders embrace and use green building grading systems. This could entail evaluating the efficacy of current incentives and legislation as well as coming up with fresh ideas for promoting the widespread adoption and use of green



building grading systems. Given how heavily government regulations and incentives influence the built environment sector, this would be very crucial.

Lastly, additional research might look at the prospects and challenges for the adoption and application of green building rating systems in various Nigerian regions. Analyzing the socioeconomic, cultural, and institutional aspects that affect the adoption of green building rating systems may entail performing case studies of particular localities. Policymakers and industry professionals should customize their efforts to encourage the wider adoption and implementation of green building rating systems by being aware of the particular difficulties and opportunities in the various regions of Nigeria.

In essence, these research areas could help the study's conclusions evolve and provide a deeper understanding of how green building grading systems support sustainable development in Nigeria's physical environment.

## **VI. CONCLUSION**

### **6.1 Summary of Key Findings**

This research evaluated how environmentally friendly rating systems affected Nigerian architecture, paying particular attention to their advantages, difficulties, and potential to further sustainable development in the built environment. A mixed-methods research methodology was used in the study to provide a thorough grasp of the research topic by mixing quantitative and qualitative data.

The study's conclusions point to the possibility for green building grading systems to support sustainable development in Nigeria's built environment by increasing energy efficiency, decreasing waste, conserving water, and improving indoor air quality. However, there are a number of obstacles to the adoption and implementation of green building grading systems, including a lack of awareness and understanding, high initial costs, and restrictive regulatory frameworks.

The study also identified a number of advantages linked to the adoption and application of green building grading systems, including greater building quality, improved occupant health and well-being, improved market competitiveness, and improved environmental performance. These advantages, however, are dependent on the successful installation and oversight of green building rating systems.

The results of this study demonstrate the significance of green building grading systems for encouraging sustainable growth in Nigeria's built environment. Yet, in order to fully realize their potential, governments and business leaders must overcome the difficulties involved in their acceptance and implementation and make sure that their effects are effectively monitored and evaluated. Hence, green building grading systems can make a substantial contribution to the accomplishment of sustainable development objectives in Nigeria and elsewhere.

### **6.2 Implications for Green Building Rating Systems and Architecture in Nigeria**

The results of this study have a number of consequences for Nigerian design and green building grading systems. First and foremost, the study emphasizes the necessity of raising the level of knowledge and instruction on green building grading systems among experts in the field, decision-makers, and the general public. Stakeholders can better comprehend the advantages of green building rating systems and act to address the difficulties involved in their adoption and implementation by raising their level of knowledge and awareness.

This paper also highlights the significance of a legal framework that encourages the adoption and use of green building rating systems in Nigeria. Government officials must create laws that support the use of green building grading systems, including financial incentives and rules that encourage their acceptance and use. The legislative framework must also be properly enforced and monitored in order to guarantee that green building rating systems are utilized effectively and that the intended benefits are being realized.

The study also highlights the potential for green building grading systems to improve Nigerian design. By emphasizing sustainability in building design and construction, green building rating systems can help in the creation of high-quality, ecologically responsible structures that are safe and healthy for occupants.

The study makes several recommendations for additional research, including the long-term impacts of green building rating systems on Nigeria's built environment, the effectiveness of various education and awareness-raising initiatives, and the role of green building rating systems in promoting social and economic sustainability.

Ultimately, the results of this study have major consequences for Nigeria's design and future green building grading systems. Green building rating systems can make a significant contribution to the advancement of sustainable development in the built environment by addressing the issues that arise with their adoption and implementation and maximizing their potential advantages.

### **6.3 Recommendations for Architects, Developers, and Policymakers**

In order to enhance the application and impact of green building rating systems in Nigeria, the following recommendations are provided for architects, developers, and policymakers based on the results of this study:

**For Architects:** Architects should make sustainability a top priority in their design and construction methods and apply the concepts of green building grading systems to their work.

To encourage the acceptance and application of green building rating systems, architects should collaborate with developers, contractors, and other stakeholders.

**For Developers:** While planning projects, developers should give sustainability top priority and take into account the long-term advantages of green building grading systems.

Developers should be aware of the difficulties posed by green building grading systems and collaborate with legislators to resolve these difficulties.

#### **For Policymakers:**

The adoption and use of green building grading systems should be encouraged through the development of policies, such as tax credits, grants, and subsidies.

The difficulties with green building rating systems, such as low stakeholder knowledge and education, excessive costs, and insufficient regulatory frameworks, should be addressed by policymakers.

To make sure that green building rating systems are used effectively and that the anticipated advantages are being realised, policymakers should enforce and monitor the regulatory framework.

A closer working relationship between politicians, developers, and architects is also advised in order to encourage the development and use of green building grading systems in Nigeria. They can overcome the difficulties posed by green building grading systems and optimize the advantages they may have, such as increased sustainability, energy efficiency, and environmental quality in the built environment, by cooperating.

Overall, these suggestions can improve the use and impact of green building grading systems in Nigeria and help the nation create a built environment that is more ecologically sound and economically viable.

#### **Conflict of interest**

There is no conflict to disclose

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