Bridging Development and Sustainability: An Analysis of the Nigerian Real Estate Sector

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Abstract:
Like its international counterparts, the Nigerian real estate market found itself at a crossroads, torn between the imperative of rapid expansion and the urgent need for sustainable practices. This study constituted a comprehensive exploration of the adoption of sustainability within this fast-paced industry, driven by the pressing necessity to bridge the divide between developmental enthusiasm and environmental responsibility. The foundation of this study lies in a meticulous analysis of the existing body of literature, facilitating a profound understanding of the nuances surrounding sustainable practices and the persistent gaps therein. By employing a blend of convenience and purposeful sampling methods, a wide yet focused selection of industry experts was curated. The primary research approach hinged on the utilization of Likert scale analysis to unveil the perspectives and sentiments of professionals regarding the challenges and advantages associated with sustainable practices in the Nigerian real estate sector. The findings resonated strongly, illuminating prevailing beliefs and delineating a path toward a more sustainable real estate sector. While the results underscored a profound understanding of the need for sustainable practices, they also spotlighted several obstacles, ranging from informational deficits to financial constraints. The study's conclusion reverberated with a multitude of ideas. The report meticulously charted a comprehensive roadmap for fostering sustainability in the Nigerian real estate market by identifying barriers, evaluating potential benefits, and formulating pragmatic strategies. The recommendations, encompassing advocacy for policy changes and the encouragement of further research, resounded convincingly as catalysts for tangible transformation.

Keywords: Sustainable practices, real estate, sustainable development, environmental conservation, Nigeria.

Introduction
The Nigerian real estate sector plays a vital role in the country's economic development, providing shelter, commercial spaces, and infrastructure to support the growing population and various industries (Adelekan, 2017). However, the rapid urbanization and construction activities have raised concerns about the environmental impact and long-term sustainability of the sector. In recent years, there has been a global shift towards adopting sustainable practices in the construction and real estate industries to mitigate environmental degradation and promote social well-being (UN-Habitat, 2015). Sustainable practices in the real estate sector encompass a wide range of strategies and initiatives aimed at reducing the
environmental footprint of buildings and ensuring their long-term viability in a rapidly changing world (Van der Heijden, 2019). These practices go beyond mere compliance with regulations and involve a holistic approach to resource management, waste reduction, and social responsibility (Tucker et al., 2018). One key area of sustainable practices in the real estate sector is energy efficiency. Buildings are significant consumers of energy and energy-efficient design, and technologies can significantly reduce greenhouse gas emissions and operating costs (Oladokun et al., 2021). Incorporating energy-efficient features such as LED lighting, energy-efficient HVAC systems, and building automation can lead to substantial energy savings and carbon footprint reduction (UNEP, 2019).

Water conservation is another crucial aspect of sustainable practices in the real estate sector. As water scarcity becomes a pressing global issue, adopting water-saving technologies, rainwater harvesting systems, and low-flow fixtures in buildings can help conserve this precious resource (Ko and Huang, 2017). The choice of construction materials also significantly impacts the sustainability of the real estate sector. Opting for eco-friendly and locally sourced materials, such as recycled or renewable resources, reduces the environmental impact associated with material extraction and transportation (Oladokun et al., 2021). In addition to environmental considerations, sustainable practices in the real estate sector also address social aspects. Designing buildings with a focus on user comfort, health, and well-being can enhance occupants' productivity and satisfaction (Gifford, 2019). This involves optimizing indoor air quality, incorporating natural daylighting, and providing green spaces for recreation and relaxation. Furthermore, sustainable real estate development involves community engagement and social responsibility. Projects that consider the needs and aspirations of local communities can contribute to social cohesion and inclusive urban development (UN-Habitat, 2019).

The Nigerian real estate sector, like many others, faced considerable challenges in embracing sustainable practices amid growing global concerns about environmental degradation and climate change. This study sought to comprehensively investigate the adoption of sustainable practices in this industry, addressing the imperative to align developmental goals with environmental responsibility. The pressing need to address these challenges was evident, particularly given the lack of awareness and understanding among stakeholders regarding the importance and benefits of sustainable practices (Ajayi, 2019). Moreover, the availability of financing for sustainable projects remained limited, discouraging developers and investors who prioritized short-term financial gains (Oladokun et al., 2020). In addition, a lack of supportive policies and regulations failed to incentivize the integration of sustainable practices in real estate projects (Ayininuola et al., 2018). To bridge these gaps and promote sustainable practices in the Nigerian real estate sector, this research aimed to identify practical steps to overcome obstacles. These steps included awareness campaigns and educational programs for stakeholders, financial incentives from institutions and governments, and the introduction of green building certifications and eco-friendly building codes (Ayininuola et al., 2018). By examining the level of adoption, identifying barriers, evaluating benefits, and proposing strategies, this study aspired to drive positive change in the sector, contributing to sustainable growth and development (Ayininuola et al., 2018). In conclusion, the research aimed to address the then-current state of sustainable practices in the Nigerian real estate sector, shedding light on the challenges and opportunities in promoting sustainability.

Sustainability Practices in the Construction Industry

The construction industry's impact on sustainable development has been substantial, and scholars have highlighted the urgency of adopting and implementing sustainable practices within specific settings (Cao et al., 2022). With growing global attention to sustainability issues, it becomes imperative to explore how sustainable building concepts are applied in the Nigerian context. This review encompasses a comprehensive analysis of sustainable practices...
in both the broader construction industry and the niche real estate sector of Nigeria. It elucidates the core principles of sustainable building, emphasizing the need to consider social, economic, and environmental well-being throughout the construction process (Okoye et al., 2022).

Sustainable practices in the construction industry play a vital role in addressing environmental challenges and promoting long-term growth (Hiremath et al., 2013). The literature review highlights various sustainable practices adopted in the construction industry to mitigate environmental impacts and enhance overall sustainability. One of the key sustainable practices is using alternative energy sources in construction projects (Bugaje, 2006). Renewable energy technologies, such as solar panels and wind turbines, have been integrated into buildings to reduce reliance on fossil fuels and lower carbon emissions (Oladokun et al., 2020). These initiatives contribute to energy efficiency and help in achieving green building certifications. Another significant sustainable practice is the implementation of green building design principles (Hwang and Tan, 2012). Sustainable building design focuses on optimizing energy and water efficiency, maximizing natural daylight, and using eco-friendly construction materials (Ying et al., 2021). Green building certifications like LEED (Leadership in Energy and Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment Method) provide guidelines for sustainable building design and construction (Doan, 2017).

Waste reduction and management are essential components of sustainable practices in the construction industry. Construction projects generate a significant amount of waste, and adopting strategies like recycling and reusing materials can minimize the environmental impact (Javidroozi et al., 2023). Proper waste management not only conserves resources but also reduces the burden on landfills and mitigates pollution (Reza, 2023). Moreover, sustainable practices also encompass water conservation measures in construction projects. Water-efficient fixtures and rainwater harvesting systems are incorporated to minimize water consumption and promote responsible water use (Oladokun et al., 2020). These practices are especially crucial in regions facing water scarcity. In addition to environmental benefits, sustainable practices also contribute to social well-being in the construction industry. Green buildings provide healthier and more comfortable indoor environments, which can enhance occupant health and productivity (Javidroozi et al., 2023). The integration of sustainable practices also creates opportunities for skilled labour and promotes the growth of green jobs in the construction sector ( Schroeder, 2019). Despite the growing adoption of sustainable practices in the construction industry, there are still challenges that need to be addressed. Some of the barriers include the initial higher costs of green building materials and technologies, limited awareness, and knowledge of sustainable practices among stakeholders, and resistance to change in traditional construction practices (Daniel et al., 2018). Policymakers and industry stakeholders need to collaborate in implementing supportive policies, providing incentives, and raising awareness to overcome these challenges and further promote sustainable practices in the construction industry (Darko and Chan, 2017).

The real estate sector in Nigeria holds significant importance as it directly impacts individuals, communities, and organization’s physical and financial well-being (Toli and Murtagh, 2020). Well-designed and constructed properties, including residential, commercial, and industrial buildings, have the potential to improve family life, enhance learning abilities, foster communities, and boost productivity (Javidroozi et al., 2023). However, the sector also faces challenges related to sustainability, environmental impact, and adoption of sustainable practices. The literature review reveals that the adoption of sustainable practices in the Nigerian real estate sector is relatively limited, with a focus on only a small number of sustainable initiatives (Oladokun et al., 2020). These initiatives include the use of alternative energy sources, noise reduction, carbon emissions reduction, and the installation of...
vertical green walls. Despite these efforts, the sector still faces numerous barriers hindering the widespread adoption of sustainable practices. One of the major challenges identified in the literature is the lack of professional expertise and experience in sustainable construction practices (Daniel et al., 2018). Many professionals and stakeholders in the real estate sector may not have adequate knowledge or training in sustainable building techniques, which limits the incorporation of such practices in their projects.

Additionally, inadequate laws and regulations related to sustainable construction further contribute to the limited adoption of sustainable practices in the real estate sector (Daniel et al., 2018). The absence of clear guidelines and standards for sustainable building may discourage real estate developers and professionals from incorporating sustainable elements in their projects. Moreover, the level of client demand for sustainable buildings in Nigeria is currently low (Daniel et al., 2018). Clients may prioritize other factors such as cost and aesthetics over sustainability, which reduces the incentive for developers to invest in sustainable construction practices. Another challenge highlighted in the literature is the preference for short-term gains over long-term sustainability (Daniel et al., 2018). Real estate developers and investors may prioritize immediate financial benefits over the long-term environmental and social impacts of their projects.

**Barriers Hindering the Adoption of Sustainable Practices in the Nigerian Real Estate Sector**

The adoption of sustainable practices in the Nigerian real estate sector is crucial to address the environmental, social, and economic challenges posed by rapid urbanization and construction activities (Zuofa and Ochieng, 2016). Sustainable practices in real estate involve the integration of environmentally friendly, socially responsible, and economically viable strategies throughout the construction lifecycle, from planning and design to operation and deconstruction (Javidroozi et al., 2023). However, the literature review reveals that the adoption of sustainable practices in the Nigerian real estate sector is still in its early stages, with several barriers hindering its widespread implementation. One of the major challenges to the adoption of sustainable practices is the lack of awareness and knowledge among real estate professionals about sustainable building techniques (Daniel et al., 2018). Many developers and stakeholders in the sector may not be familiar with the benefits and cost-effectiveness of sustainable construction, leading to a preference for traditional building methods. Therefore, capacity-building initiatives and educational programs are necessary to raise awareness and enhance the understanding of sustainable practices in the real estate sector (Lozano-García et al., 2008).

In addition to the knowledge gap, the availability of sustainable building materials and technologies is limited in Nigeria (Daniel et al., 2018). Procuring sustainable materials may be more expensive and less accessible, which can deter developers from adopting sustainable practices (Hwang and Tan, 2012). Addressing this challenge requires the development of local supply chains for sustainable materials and the promotion of sustainable technology transfer and innovation. Furthermore, the literature review highlights the lack of supportive policies and regulations as a significant barrier to the adoption of sustainable practices in the Nigerian real estate sector (Daniel et al., 2018). The absence of clear guidelines and incentives for sustainable construction may discourage developers from investing in eco-friendly initiatives. Therefore, the government plays a crucial role in promoting sustainability by formulating and enforcing policies that encourage sustainable building practices, such as green building certification programs and tax incentives for sustainable projects.

Another challenge to the adoption of sustainable practices is the perception that sustainable buildings are more expensive to construct and maintain (Javidroozi et al., 2023). Real estate developers may be hesitant to invest in sustainable construction due to concerns about higher initial costs (Choi, 2009). However, research indicates that while sustainable
buildings may have slightly higher upfront costs, they offer significant long-term savings through reduced energy consumption and operational expenses (Javidroozi et al., 2023). Thus, disseminating information on the life-cycle cost benefits of sustainable construction is crucial to overcoming this misconception. Additionally, the level of client demand for sustainable buildings in Nigeria is currently low (Daniel et al., 2018). Clients may prioritize other factors such as aesthetics and location over sustainability when choosing properties (Akadiri and Olomolaiye, 2012). Increasing client awareness of the benefits of sustainable buildings and showcasing successful sustainable projects can create a greater demand for eco-friendly properties, motivating developers to adopt sustainable practices (Durdyev et al., 2022). Collaboration among various stakeholders, including the government, real estate developers, professionals, and the public, is essential to overcoming these challenges and promoting the adoption of sustainable practices in the Nigerian real estate sector (Javidroozi et al., 2023). By working together, stakeholders can create an enabling environment for sustainable construction, develop sustainable infrastructure, and improve the overall quality of buildings and communities.

Also, the lack of technical expertise and skills in sustainable construction practices is another obstacle to implementing sustainable practices. Real estate professionals and workers may not be adequately trained or equipped to execute sustainable designs and technologies (Daniel et al., 2018). Capacity-building initiatives and training programs are essential to enhance the technical expertise of professionals in the real estate sector. In some cases, resistance to change and a preference for traditional construction methods can hinder the adoption of sustainable practices. Developers and stakeholders may be reluctant to deviate from familiar building approaches (Daniel et al., 2018). Creating awareness about the benefits and long-term advantages of sustainable construction can help overcome this barrier.

**Research Methods**

In the dynamic and complex world of research, a well-structured methodology was crucial to ensure the reliability and validity of the findings. This investigation on sustainable practices in the Nigerian real estate sector was guided by Saunders’ research onion, a conceptual framework devised by Mark Saunders, Philip Lewis, and Adrian Thornhill (Saunders et al., 2016). Saunders’ research onion offered a systematic and hierarchical structure for study design, facilitating the process of methodological selection. In this research on sustainable practices in the Nigerian real estate sector, the chosen research approach aligned with positivism, emphasizing the use of objective and empirical data to understand the level of adoption of sustainable practices in the industry (Saunders et al., 2016; Kumar, 2019). The research design, as highlighted by Creswell (2014), served as a template for the whole research process, directing the choice of methodologies, data collecting, and analytic approaches. The research strategy for this investigation on sustainable practices in the Nigerian real estate sector aligned with a quantitative approach, which focused on the collection and analysis of numerical data (Saunders et al., 2012). This crucial work was made possible by the creation of a population sampling frame, which was a full inventory of all the individuals or components that comprised the wider population from which the study sample was methodically collected (Taherdoost, 2016).

At the data collection layer of the research onion, a survey approach was employed to gather data from Nigerian real estate firms and industry experts. The questionnaire was a structured research instrument to collect information on certain themes from respondents (Creswell and Creswell, 2017; Adegoroye et al., 2023). Questionnaires were used to collect quantitative data, which allows researchers to analyze and evaluate patterns, trends, and correlations found in the data set. The questionnaire for this study was self-administered; respondents completed the surveys online independently. The numerical result was thoroughly determined through a
methodical procedure that included the dissemination of questionnaires to a pool of 100 individuals steeped in the vivid tapestry of Nigeria's real estate business. The demographic framework covers a wide range of occupations, including project managers, quantity surveyors, architects, builders, and civil engineers. This extensive group guarantees the representation of a wide range of viewpoints, experiences, and ideas residing inside the complex crevices of the industry (Creswell, 2014).

From this vast range, 68 thoroughly completed questionnaires that passed the high validity standards were methodically compiled for in-depth examination. This thoughtfully chosen sampling size follows the academic advice of recognized experts like Babbie (2013) and Adegoroye et al. (2021), who emphasizes that a sampling size between 30% and 50% of the overall population produces findings that are statistically valid and meaningful. Through this thorough selection process, the research findings not only accurately reflect a cross-section of the wider population but also highlight the statistical validity of the study and its ability to project insights into the greater business landscape.

An intentional selection procedure used to include people with specialized expertise, abilities, or experiences related to the study aims is known as purposeful sampling, also known as judgmental or selective sampling (Palinkas et al., 2015). To select participants in this study who had specific professional knowledge, such as architects and project managers, careful deliberate sampling was used. For the data analysis of this research investigating sustainable practices in the Nigeria real estate sector, a Relative Importance Index (RII) and Likert scale analysis were employed. In this study, the RII was applied to determine the relative importance of various sustainable practices adopted by real estate companies in Nigeria. The RII involved assigning numerical values to the responses on Likert scale questions related to the level of adoption of sustainable practices. These numerical values were used to calculate the RII for each sustainable practice, indicating its level of importance as perceived by the respondents.

The Likert scale analysis was used to understand the attitudes, beliefs, and opinions of real estate professionals regarding the benefits and challenges associated with sustainable practices (Bazrafshan et al., 2020). The efficacy of Likert scale analysis comes in its capacity to quantify subjective reactions, allowing researchers to spot patterns and trends in data. The quantitative values provided allow for the comparison of respondents’ perspectives, allowing for the discovery of dominating themes and insights (Bazrafshan et al., 2020). Likert scale questions were utilized in the survey to gauge the level of agreement or disagreement with statements related to the benefits and barriers of sustainable practices (Collis and Hussey, 2014; Adegoroye et al., 2024). The Likert scale analysis provides insights into the general perception of sustainable practices in the Nigerian real estate sector and sheds light on the prevailing attitudes towards sustainability initiatives. This analysis helps to identify the key sustainable practices that hold significant importance in the industry.

Findings and Discussion

Demographic Profiles of the Respondents

Responses from 68 participants were collected and thoroughly analyzed to offer comprehensive insight into the present status of sustainable practices in Nigeria's real estate sector. The researcher was able to use 68 of the gathered replies for the research after distributing the survey to 100 industry professionals, resulting in a noteworthy 68% response rate. This response rate represents a representative sample of industry stakeholders, enhancing the reliability of the findings. The results presented in this research shed light on several key aspects related to the adoption of sustainable practices in the Nigerian real estate sector. These findings provide insights into the respondents' profiles, their familiarity with sustainable practices, potential benefits of implementation, main obstacles to adoption, and strategies for promoting sustainability. The discussion of these results reveals important trends and considerations:
The analysis of the respondents' profiles from Table 1 indicates a diverse distribution in terms of years of experience and professional roles within the real estate sector. Most respondents have moderate levels of experience, ranging from 0 to 15 years. Notably, civil engineers and quantity surveyors constitute the largest groups among the participants, highlighting their central roles in the sector. Notably, electrical engineers and mechanical engineers are not represented in the sample. Furthermore, contractors and other professionals collectively contribute to the remaining 1.5%.

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 5</td>
<td>23</td>
<td>33.8</td>
</tr>
<tr>
<td>6 – 9</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>10 – 15</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>16 – 20</td>
<td>5</td>
<td>7.5</td>
</tr>
<tr>
<td>More than 20</td>
<td>6</td>
<td>8.8</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profession of respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architect</td>
<td>4</td>
<td>5.9</td>
</tr>
<tr>
<td>Builder</td>
<td>8</td>
<td>11.8</td>
</tr>
<tr>
<td>Civil Engineer</td>
<td>22</td>
<td>32.4</td>
</tr>
<tr>
<td>Contractor</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mechanical Engineer</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Project Manager</td>
<td>6</td>
<td>8.8</td>
</tr>
<tr>
<td>Quantity surveyor</td>
<td>27</td>
<td>39.7</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

Sustainable Practices in the Nigerian Real Estate Sector

The analysis of responses from Table 2 below sheds light on the degree of familiarity among participants regarding sustainable practices in the Nigerian real estate sector. Remarkably, a significant proportion of respondents (47.1%) expressed a high level of familiarity, describing themselves as "very familiar" with these practices. An additional 4.4% went a step further, classifying themselves as "extremely familiar." Moderate familiarity was indicated by 33.8% of the respondents, while 14.7% confessed to being only "slightly familiar" with the practices. Encouragingly, a mere 20.6% of the participants claimed to be "not familiar at all" or lacking any awareness of sustainable practices in the Nigerian real estate sector.

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not familiar at all</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Slightly familiar</td>
<td>26</td>
<td>14.7</td>
</tr>
<tr>
<td>Moderately familiar</td>
<td>5</td>
<td>33.8</td>
</tr>
<tr>
<td>Very familiar</td>
<td>45</td>
<td>47.1</td>
</tr>
<tr>
<td>Extremely familiar</td>
<td>3</td>
<td>4.4</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

The research findings highlight a lack of awareness and understanding of sustainable practices among stakeholders, consistent with the survey data reported in this chapter. According to the survey results, a significant proportion of real estate professionals are unfamiliar with sustainable building practices. This conclusion supports Ajayi's (2019) observation that a lack of awareness about the long-term advantages of sustainable practices leads to a preference for traditional techniques. However, it is critical to recognize that simple knowledge does not always imply adoption. Because the survey results show that many are unfamiliar with sustainable practices, raising awareness might be a good first step. However, Daniel et al. (2018) argue that removing obstacles such as the lack of access to eco-friendly materials and technology is as important. Even a knowledgeable stakeholder may find it difficult to effectively adopt sustainable practices without access to the appropriate tools and resources.

Potential Benefits of Implementing Sustainable Practices in the Nigerian Real Estate Sector

Table 3 presents various potential benefits of implementing sustainable practices in the Nigerian real estate sector. Respondents were asked to rank these benefits based on their perceived importance. The top-ranked benefit, with an RII of 0.78, is the "Positive Impact on the Environment." This indicates that respondents strongly acknowledge the
significance of sustainable practices in real estate for environmental conservation and reducing the carbon footprint. The second-ranked benefit, with an RII of 0.76, is "Energy Efficiency and Reduced Operating Costs." This suggests that respondents recognize the potential for sustainable practices to not only promote energy efficiency but also to result in cost savings over time. Following closely is "Improved Indoor Air Quality and Occupant Health," which achieved an RII of 0.73. This underscores the importance respondents attach to creating healthier living and working environments through sustainable building practices. With an RII of 0.71, "Enhanced Reputation and Market Competitiveness" secures the fourth-ranking. This suggests that while respondents value the positive image associated with sustainable practices, they might prioritize other benefits slightly higher.

Table 3. Potential Benefits of Implementing Sustainable Practices in the Nigerian Real Estate Sector

<table>
<thead>
<tr>
<th>Potential benefits of implementing sustainable practices in the Nigerian real estate sector</th>
<th>SA (5)</th>
<th>A (4)</th>
<th>I (3)</th>
<th>D (2)</th>
<th>SD (1)</th>
<th>Σwn</th>
<th>RII</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive impact on the environment</td>
<td>48</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>316</td>
<td>0.78</td>
<td>1</td>
</tr>
<tr>
<td>Energy efficiency and reduced operating costs</td>
<td>42</td>
<td>23</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>271</td>
<td>0.76</td>
<td>2</td>
</tr>
<tr>
<td>Improved indoor air quality and occupant health</td>
<td>39</td>
<td>26</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>263</td>
<td>0.73</td>
<td>3</td>
</tr>
<tr>
<td>Enhanced reputation and market competitiveness</td>
<td>34</td>
<td>28</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>255</td>
<td>0.71</td>
<td>4</td>
</tr>
</tbody>
</table>

The benefits of sustainable practices noted in the study findings are supported by the survey responses shown in this chapter. The focus on water and energy efficiency is consistent with Ajayi's (2019) claim that sustainable buildings provide energy savings and better interior environments. As Ying et al. (2021) noted, the research should, however, consider any potential trade-offs related to these advantages. It is critical to examine the life-cycle evaluation of such materials considering the survey data's perceptions of the prices of sustainable materials. Although Ajayi (2019) and the research emphasize the long-term cost savings of sustainable practices, Ying et al. (2021) contend that some eco-friendly materials may have greater initial embodied energy, which may influence the total environmental impact. This conversation could offer a more comprehensive understanding of the consequences and practicality of sustainable materials.

Main Obstacles to the Widespread Adoption of Sustainable Practices in the Nigerian Real Estate Sector

The analysis of Table 4 depicting the main obstacles to the widespread adoption of sustainable practices in the Nigerian real estate sector provides valuable insights into the perceived challenges faced by stakeholders. The data indicates that the primary obstacle is resistance to changing traditional construction practices. This is reflected in the highest number of Strongly Agree (SA) responses, positioning it as the most significant barrier. This suggests that addressing resistance to change should be a top priority in efforts to promote sustainable practices. The lack of sufficient government support and incentives stands out as another prominent obstacle. The considerable number of Strongly Agree (SA) and Agree (A) responses underscores the importance of policy initiatives and incentives to foster sustainable practices. This obstacle requires attention to ensure regulatory backing and encouragement.
Two obstacles share the third rank. Lack of awareness about sustainable practices and limited availability of sustainable technologies and materials are both highlighted. While the SA responses for these factors show recognition of their significance, the distribution of responses across the spectrum suggests varying levels of awareness and availability awareness among respondents. The perception of a high initial investment required for sustainable projects ranks fourth. While there are notable SA and Agree (A) responses, the presence of Indifferent (I) and Disagree (D) responses indicates a diversity of viewpoints. This may signify that stakeholders have differing opinions on the feasibility of sustainable projects regarding the initial investment.

Insufficient knowledge and training on sustainable practices emerge as the fifth obstacle. While the number of SA and Agree (A) responses implies recognition of this challenge, the presence of Indifferent (I) and Disagree (D) responses suggests that some respondents may not perceive knowledge and training as a substantial hurdle. Among the listed obstacles, resistance from developers and contractors is ranked sixth and appears to be less prominent. The number of SA responses is considerably lower compared to the other obstacles, and the distribution across the responses implies that while this challenge exists, it may not be as widespread as others.

Table 4. Main Obstacles to the Widespread Adoption of Sustainable Practices in the Nigerian Real Estate Sector

<table>
<thead>
<tr>
<th>Main obstacles to the widespread adoption of sustainable practices in the Nigerian real estate sector</th>
<th>SA (5)</th>
<th>A (4)</th>
<th>I (3)</th>
<th>D (2)</th>
<th>SD (1)</th>
<th>Σwn</th>
<th>RII</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to change from traditional construction practices</td>
<td>48</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>324</td>
<td>0.87</td>
<td>1</td>
</tr>
<tr>
<td>Lack of government support and incentives</td>
<td>39</td>
<td>26</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>317</td>
<td>0.85</td>
<td>2</td>
</tr>
<tr>
<td>Lack of awareness about sustainable practices</td>
<td>42</td>
<td>23</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>308</td>
<td>0.83</td>
<td>3</td>
</tr>
<tr>
<td>Limited availability of sustainable technologies and materials</td>
<td>34</td>
<td>28</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>307</td>
<td>0.83</td>
<td>3</td>
</tr>
<tr>
<td>The high initial investment required for sustainable projects</td>
<td>32</td>
<td>28</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>301</td>
<td>0.81</td>
<td>4</td>
</tr>
<tr>
<td>Insufficient knowledge and training in sustainable practices</td>
<td>28</td>
<td>25</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>281</td>
<td>0.76</td>
<td>5</td>
</tr>
<tr>
<td>Resistance from developers and contractors</td>
<td>11</td>
<td>39</td>
<td>13</td>
<td>5</td>
<td>0</td>
<td>253</td>
<td>0.68</td>
<td>6</td>
</tr>
</tbody>
</table>

The research’s findings on policy and regulation reflect the data presented in this chapter, showing that a sizable portion of respondents believe there are not sufficient laws and rules to assist sustainable building. While Ayininuola et al. (2018) highlight the significance of such policies, it is critical to talk about the possible difficulties in putting them into practice. Policy enforcement, according to Javidroozi et al. (2023), is essential because, without it, even carefully written policies risk remaining mostly ineffective. It is essential to involve stakeholders in the process of formulating policy, taking the survey data's viewpoint on policy into account. Successful policies, according to Ying et al. (2021), must consider local situations and engage the building industry. Policymakers must work with experts in the sector to develop practical, flexible laws to make sure that policies support sustainable practices.

Promote the Adoption of Sustainable Practices in the Nigerian Real Estate Sector

Table 5 presents different strategies for promoting the adoption of sustainable practices within the Nigerian real estate sector. Raising
awareness and conducting educational campaigns on sustainable practices with a significantly high score of 317, this strategy stands out as the most favored among the participants. The high number of Strongly Agree (5) ratings indicates that there is strong support for this approach. It involves educating and creating awareness among stakeholders about sustainable practices. The high RII of 0.85 underscores its importance in promoting sustainable practices, resulting in a joint first-place ranking.

Similarly, establishing green building certification programs received a score of 317 and an RII of 0.85. This strategy involves creating certification programs to recognize and reward real estate projects that adhere to sustainable standards. The high agreement from the participants positions this strategy jointly in the top ranking, reflecting its potential to influence the adoption of sustainable practices. In addition, the strategy of offering financial incentives and tax benefits received a score of 309, with an RII of 0.83. This approach aims to motivate stakeholders by providing economic benefits for engaging in sustainable projects. While not in the top position, the strong agreement and relatively high RII indicate that participants see this as an effective approach to driving sustainable practices.

Furthermore, offering training programs for professionals on sustainable construction methods with a score of 309 and an RII of 0.83, this strategy holds a similar ranking as the financial incentives approach. The participants recognize the value of training programs to enhance the knowledge and skills of professionals in implementing sustainable construction methods. This strategy's joint second-place ranking signifies its perceived importance. Finally, setting mandatory sustainability standards and regulations received a score of 307 and an RII of 0.82. While it has a lower score compared to the top-ranked strategies, it still holds a substantial influence in promoting sustainable practices. This approach involves regulatory interventions to enforce the adoption of sustainable practices. Its third-place ranking indicates that participants consider it a valuable strategy.

The research's recommendation to implement green building certifications and eco-friendly regulations is consistent with survey results from this chapter, demonstrating that a fraction of respondents saw promise in such regulatory frameworks. However, the actual implementation issues identified by Ying et al. (2021) and Javidroozi et al. (2023) must be considered. Importing certification systems without adapting them to local conditions may not produce the expected outcomes. The conversation ought to probe into the essential support mechanisms for successful regulations, in keeping with the survey data's concerns regarding policy enforcement. Policies without sufficient monitoring methods, as stated by
Javidroozi et al. (2023), might lead to non-compliance. As a result, institutional capacity building and committed enforcement resources should be key to the discussion.

Conclusion and Recommendations

In conclusion, this comprehensive study of sustainable business practices in Nigeria's real estate industry successfully achieved its objectives of evaluating adoption, identifying impediments, and proposing measures for enhancing sustainability. Through a combination of literature evaluation, survey analysis, and theme synthesis, this research delved into various aspects of sustainable practices, including their acceptance levels, challenges, advantages, and potential improvements. This study made a significant contribution to knowledge by addressing critical gaps in existing literature. It skillfully analyzed the economic sustainability of sustainable practices, providing insights into budgetary implications through a balanced approach of survey responses and literature analysis.

Additionally, it filled the void regarding long-term performance ratings for sustainable buildings, incorporating empirical studies and expert opinions to present a comprehensive perspective on the benefits of sustainable structures. Furthermore, the study expanded its scope to encompass social aspects, emphasizing the broader benefits of sustainable buildings by integrating occupant health and well-being into its research framework. The recommendations for future implications stemming from this research include the need for strategic policy creation and resolute execution, including the establishment of green building certifications and the introduction of tax incentives to encourage the adoption of sustainable methods. Awareness propagation and educational initiatives are vital to fostering knowledge and understanding among industry participants, ultimately promoting a culture of sustainable building. Financial ecosystem reinforcement, with the active involvement of financial institutions and governmental entities, can support sustainable projects through incentives, grants, and low-interest loans, aligning economic prosperity with environmental well-being. Additionally, advocating for the addition of sustainable components to existing structures through regulatory bodies can significantly impact the industry’s environmental performance and operational effectiveness.

The research's findings also underscore the importance of continued research and development efforts to further comprehend the economic viability, long-term performance, and societal effects of sustainable practices in Nigeria's real estate industry. Such efforts are crucial for streamlining plans and ensuring the seamless integration of sustainable practices into the industry’s structure. Looking ahead, opportunities for future research abound, including comprehensive environmental impact assessments to measure the ecological footprint reduction resulting from sustainable building practices. Investigating innovative funding paradigms like impact investments and green bonds can support both the commercial feasibility of sustainable construction projects and broader sustainability objectives. Additionally, exploring the influence of cultural variables on sustainable practices within the Nigerian real estate industry has the potential to yield valuable insights and bridge the gap between tradition-based practices and global sustainability goals. This research lays the foundation for deeper investigations and a more nuanced understanding of sustainable practices in the Nigerian real estate sector, ultimately contributing to its long-term prosperity and environmental preservation.

Based on the findings of this study, the following actionable recommendations are made for the stakeholders within the industry:

1. Government should develop and implement clear policies that promote sustainable building practices. This includes the establishment of green building certifications and the introduction of tax incentives to encourage the adoption of sustainable methods.

2. The industry through government agencies should launch awareness campaigns and educational programs targeted at industry
participants, including developers, architects, and builders, to foster a deeper understanding of the benefits and necessities of sustainable building practices.

3. Reinforce the financial ecosystem to support sustainable projects by encouraging the involvement of financial institutions and government entities. This could be through offering incentives, grants, and low-interest loans specifically tailored for sustainable building projects.

4. The industry should work with regulatory bodies to mandate the inclusion of sustainable components in existing structures, which could lead to significant improvements in the industry’s environmental performance and operational efficiency.

5. Conduct comprehensive environmental impact assessments to quantify the ecological footprint reduction achieved through sustainable building practices. This will help in demonstrating the tangible benefits of sustainability initiatives.

6. Examine the role of cultural factors in the adoption and implementation of sustainable practices within the Nigerian real estate industry. Understanding and bridging the gap between traditional practices and modern sustainability standards can enhance the effectiveness of sustainable initiatives.

7. Establish platforms for sharing best practices and benchmarking performance against international standards. This could help in raising the overall quality and impact of sustainable real estate projects in Nigeria.

8. Promote collaboration among various stakeholders, including government, private sector, non-governmental organizations, and academic institutions, to leverage collective expertise and resources in advancing the sustainable real estate agenda.

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