# SUSTAINABLE CONSTRUCTION IN NIGERIA: A SOCIOECONOMIC IMPACT ANALYSIS

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## ABSTRACT

*Sustainable construction practices represent a critical pathway towards fostering economic development and social well-being within the Nigerian construction industry. This research aims to elucidate the socioeconomic impacts of sustainable construction practices in Nigeria, employing a quantitative approach and utilizing simulated data for analyses. Through a comprehensive survey of 370 construction industry professionals, this study investigates the perceptions of sustainable practices such as energy efficiency, cost reduction, and local economic development. Findings revealed a strong consensus among respondents regarding the positive socioeconomic impacts of sustainable strategies, showcasing correlations between these practices and economic growth, job creation, and the appreciation of property values. The regression analysis highlighted the significant influence of these sustainable practices on socioeconomic aspects, emphasizing the interconnectedness between sustainable construction and economic advancement. The implications of this study underscore the importance of integrating sustainable strategies within the Nigerian construction sector, advocating for policy adjustments to leverage the benefits of these practices. This research contributes to the growing discourse on sustainable construction practices, emphasizing their potential to drive economic growth and enhance community well-being within Nigeria.*

**Keywords**: *Sustainable construction, Nigeria, Socioeconomic impacts, Quantitative research, Economic growth, Social welfare, Environmental conservation, Energy efficiency, Cost reduction, Local economic development, Construction industry.*



## 1.0 INTRODUCTION

The construction industry globally has witnessed a significant shift towards sustainable practices, driven by the urgent need to reduce environmental footprints while maximizing societal and economic benefits [1]. Sustainable construction, also referred to as green building, encompasses an integrated approach that focuses on minimizing environmental impacts while promoting economic growth and social welfare [2]. This shift has been accelerated by rising global awareness of climate change, resource depletion, and the need for resilient infrastructures [3]. In particular, countries such as Nigeria have increasingly recognized the importance of sustainable construction as a means to address these global challenges while fostering national economic development [4].

In the Nigerian context, rapid urbanization and infrastructural development have accentuated the importance of adopting sustainable construction practices. The Nigerian construction industry plays a pivotal role in the country's economic growth, contributing about 5%

to its GDP [5]. However, this sector also poses significant environmental challenges due to high resource consumption, energy inefficiencies, and poor waste management practices [6]. Nigeria's construction industry is responsible for a substantial portion of the nation's environmental degradation, including deforestation, air pollution, and increased carbon emissions [7]. Consequently, there has been a growing emphasis on the need to adopt sustainable construction practices that focus on eco-friendly materials, energy-efficient designs, and improved waste management strategies to mitigate these impacts [8].

The adoption of sustainable construction practices in Nigeria is critical to balancing economic growth with environmental sustainability. According to [9], sustainable construction presents an opportunity for Nigeria to enhance its economic performance while simultaneously reducing the negative environmental effects associated with conventional construction methods. By incorporating renewable materials, energy-efficient technologies, and waste reduction techniques, sustainable construction can significantly lower the environmental footprint of the industry while providing long-term economic benefits such as cost savings, enhanced property values, and job creation [10][11]. Moreover, recent studies indicate that sustainable construction practices can also enhance the resilience of urban infrastructure to climate change, thereby contributing to the overall sustainability of cities [12][13].

Despite the potential benefits, the implementation of sustainable construction practices in Nigeria faces several challenges. The lack of robust regulatory frameworks, inadequate enforcement of environmental laws, and limited awareness of sustainable practices among industry stakeholders remain significant barriers [14][15]. Additionally, the higher upfront costs associated with sustainable construction materials and technologies can deter adoption, particularly among smaller construction firms that may lack the financial capacity to invest in such practices [16]. However, as noted by [17], there is growing recognition that the long-term economic benefits of sustainable construction, such as reduced operational costs and increased property value, far outweigh the initial investment, which is gradually encouraging more stakeholders to consider sustainable options.

The socioeconomic implications of sustainable construction practices in Nigeria are equally significant. Research by [18] demonstrates that green building initiatives can generate substantial employment opportunities across various sectors, from construction to renewable energy and waste management. The integration of sustainable practices in construction also has the potential to drive local economic development by stimulating demand for eco-friendly materials and services [8]. Furthermore, sustainable construction is linked to improvements in public health due to the reduction of air pollution and enhanced indoor air quality, particularly in densely populated urban areas [3]. This aligns with global trends, where sustainable construction is increasingly seen as a driver of both economic growth and social well-being [19][10].

This research study aims to investigate the intricate relationship between sustainable construction practices and their socioeconomic impacts in Nigeria. Utilizing a quantitative approach, the study seeks to evaluate the effects of sustainable construction on employment generation, economic growth, social well-being, and environmental sustainability. The findings of this research are expected to provide valuable insights for policymakers, industry stakeholders, and communities, guiding them in leveraging the positive impacts of sustainable construction to foster national development [18][9].

## 2.0 LITERATURE REVIEW

### 2.1 Sustainable Construction: Definition and Principles

Sustainable construction, commonly known as green or eco-friendly building, represents a comprehensive approach focused on reducing the environmental impact of buildings while concurrently fostering economic growth and social well-being [20]. This methodology is guided by a set of principles and practices that prioritize the harmonious coexistence between construction activities and the environment. The goal is to achieve sustainability by integrating environmental responsibility, economic feasibility, and societal benefits [21]. The principles underpinning

sustainable construction are diverse, encompassing a spectrum of strategies that collectively mitigate environmental degradation and promote a healthier, more efficient building environment [20]. These principles include energy efficiency, which involves the optimization of energy consumption throughout the building's lifecycle. This entails using energy-efficient materials and design strategies to minimize energy usage and greenhouse gas emissions, aiming for a reduction in the overall carbon footprint of the building [21]. Another principle is the utilization of renewable resources, which emphasizes the use of renewable resources, such as responsibly sourced timber or recycled materials, to minimize the depletion of finite resources and reduce environmental impact. It encourages the adoption of materials that can be easily replenished or are derived from recycled sources [22]. Waste reduction and management is also a critical principle, involving minimizing waste generation throughout the construction process and effectively managing waste to limit its impact on the environment. Strategies include recycling, reusing materials, and implementing efficient waste management systems, reducing the burden on landfills and natural resources [21]. Additionally, occupant health and well-being focuses on creating healthier environments for building occupants. This includes considerations such as indoor air quality, access to natural light, and the use of non-toxic materials to enhance the overall well-being and comfort of individuals inhabiting the buildings [20].

The concept of sustainable construction aligns with the broader goal of achieving environmental, economic, and social sustainability by considering the complete life cycle of a building, encompassing its design, construction, operation, maintenance, and eventual demolition or repurposing [22]. This holistic approach ensures that the environmental impact is minimized at every stage, while also considering economic feasibility and societal benefits.

### 2.2 Previous Research on Sustainable Construction in Nigeria

The exploration of sustainable construction within the Nigerian context has been a subject of increasing scholarly interest. [23] conducted a seminal study evaluating barriers and opportunities for sustainable construction in Nigeria. Their research emphasized the need for robust regulations, stakeholder collaboration, and technology transfer for successful implementation. Effective regulation ensures compliance, while stakeholder collaboration aligns diverse goals and expertise to drive sustainability. Technology transfer enables the adoption of innovative methods and materials to enhance environmental responsibility.

[24] examined the cost benefits and economic viability of green building projects in the African region, shedding light on their financial advantages. Their findings underscored that investments in green building initiatives not only contribute to environmental sustainability but also yield significant cost savings, highlighting the economic prudence of sustainable practices.

### 2.3 Socioeconomic Impacts of Sustainable Construction Globally

Global research has highlighted the socioeconomic impacts of sustainable construction. [25] demonstrated that green buildings positively impact employment generation and economic growth. Their findings revealed that sustainable construction practices reduce environmental footprints while creating job opportunities in sectors linked to green building technologies.

[26] explored the social implications of sustainable construction, emphasizing its contribution to community development and improved well-being. Sustainable buildings foster healthier living spaces and enhance quality of life, creating a positive ripple effect on society and the economy. These studies collectively affirm that sustainable construction addresses environmental challenges while promoting economic and social benefits globally.

### 2.4 Theoretical Framework for Assessing Socioeconomic Impacts in Sustainable Construction

The assessment of socioeconomic impacts in sustainable construction necessitates comprehensive frameworks that account for various dimensions. A prominent framework often utilized in sustainability assessments is the Triple Bottom Line (TBL) concept, which was introduced by John Elkington in 1997. Elkington's model highlights the need for organizations and industries to

consider three key dimensions: social, environmental, and economic impacts in their decision-making processes [27]. The TBL framework serves as a holistic tool for evaluating sustainability by going beyond merely financial considerations and incorporating social and environmental factors [28]. It emphasizes the interconnectedness of economic development, social equity, and environmental quality, positing that a balance among these three dimensions is essential for sustainable development.

The social aspect of the TBL framework focuses on the well-being of communities, labor practices, human rights, and stakeholder engagement [27]. In the context of sustainable construction, the social dimension assesses the impact of construction projects on local communities, labor practices within the construction industry, and the involvement and empowerment of stakeholders in decision-making processes [28]. The environmental dimension of the TBL framework addresses the ecological impact of construction activities. It encompasses resource utilization, waste management, carbon footprint, and overall environmental conservation efforts within construction projects. Sustainable construction practices often aim to reduce resource consumption, minimize waste, and lower carbon emissions through efficient design, material selection, and construction methods [27].

In the TBL framework, the economic dimension is concerned with the financial implications and cost-effectiveness of sustainable construction practices. This dimension evaluates the economic viability of green building initiatives, considering long-term cost savings, return on investment, and the overall economic benefits derived from sustainable construction projects [28]. The TBL framework has been widely adopted in various industries, including the construction sector, to assess the overall impact of projects on society, the environment, and the economy. This approach allows for a more comprehensive understanding of the trade-offs and synergies among different dimensions, aiding decision-makers in evaluating the true value and implications of sustainable construction initiatives.

## 2.5 Summary of Reviewed Literature

Table 2.1 shows the summary of the reviewed literatures for the study and their key findings.

**Table 2.1**: Summary of Reviewed Literatures and Key Findings

| SN | Author(s) and Year | Key Findings |
|---|---|---|
| 1. | [29] | Significant energy savings from refurbishment but limited scope (Greece). |
| 2. | [30] | Identified barriers to sustainable construction like lack of policies and awareness (Oman). |
| 3. | [31] | Challenges include regulatory compliance and lack of incentives (Turkey). |
| 4. | [32] | Highlighted green building trends and regulations (Malaysia). |
| 5. | [33] | Proposed a sustainable construction index; needs further validation (Indonesia). |
| 6. | [34] | Importance of integrating life cycle assessments for sustainable construction. |
| 7. | [35] | Comparative analysis of policies promoting sustainability in China, Hong Kong, Taiwan. |
| 8. | [36] | Challenges include inadequate incentives and expertise for sustainable construction (China). |
| 9. | [37] | Motivations and barriers for sustainable practices; larger sample needed (Denmark). |
| 10. | [38] | Reviewed trends in sustainable designs; critical comparative analysis needed (Malaysia). |
| 11. | [39] | Life cycle assessment of buildings in tropical climate (Nigeria). |
| 12. | [40] | Green certification reduces carbon emissions; broader analysis suggested (China). |
| 13. | [41] | Reviewed sustainability assessment methods; clearer future guidance needed. |
| 14. | [42] | Identified performance indicators for sustainable construction (global). |
| 15. | [43] | Current waste management practices in construction sites; larger sample suggested (Nigeria). |
| 16. | [44] | Reviewed strategies for sustainable construction in developing countries. |

| SN | Author(s) and Year | Key Findings |
|---|---|---|
| 17. | [45] | Sustainability measurement metrics identified in Chinese construction industry. |
| 18. | [46] | Challenges and opportunities in sustainable construction (Iran); larger sample suggested. |
| 19. | [47] | Barriers to sustainable construction; survey scope could be expanded (China). |
| 20. | [48] | Critical factors for improving waste management (China); empirical case studies needed. |
| 21. | [49] | Barriers include lack of policy enforcement and education (Malaysia). |
| 22. | [50] | Role of policies in promoting sustainability (Singapore). |
| 23. | [51] | Reviewed evolving trends in sustainable construction research. |
| 24. | [52] | Evaluated building certifications; comparative analysis needed. |
| 25. | [53] | Barriers to sustainable construction promotion; more quantitative data needed (Hong Kong). |
| 26. | [54] | Highlighted trends in construction waste management research. |
| 27. | [55] | Importance of life cycle energy analysis in construction (global). |
| 28. | [56] | Key determinants of sustainable construction in Hong Kong; industry-specific insights needed. |
| 29. | [57] | Reviewed sustainable building design in China; more comparative analysis needed. |

### 2.5 Research Gaps

Despite the substantial body of literature addressing sustainable construction practices, significant research gaps persist, particularly concerning the localized assessment and quantification of socioeconomic impacts within the Nigerian construction sector. Existing studies, such as [44], acknowledge the need for research that quantifies the specific socioeconomic impacts within this context. While global studies have emphasized the socioeconomic benefits of sustainable construction practices [25][26], there is a remarkable scarcity of research that correlates these findings to the Nigerian scenario.

Furthermore, a critical gap exists where localized research fails to provide a detailed and quantitative analysis of how these global benefits translate or differ within the unique socio-economic and cultural landscape of Nigeria [23]. This lack of context-specific research limits the comprehensive understanding of the socioeconomic implications of sustainable construction in the Nigerian context. While global studies offer foundational insights, they fall short in addressing the nuances and specific challenges present in Nigeria's construction industry [43].

The gaps in existing literature restrict the holistic understanding of the local implications and outcomes of sustainable construction practices in Nigeria, thereby impeding the development of tailored policies and strategies that could address the country's unique challenges and opportunities in the construction sector [44][38]. Addressing these research gaps would require dedicated studies focusing on quantifying and analyzing the specific socioeconomic impacts within the Nigerian sustainable construction sector. Such studies should employ methods tailored to local needs and contexts, considering factors such as job creation, economic growth, community development, and environmental sustainability [39].

## 3.0 METHODOLOGY

The research methodology adopts a quantitative approach to meticulously evaluate the socioeconomic impacts of sustainable construction practices within the Nigerian context. The study will focus on a population comprising various stakeholders in the Nigerian construction industry, encompassing builders, developers, policymakers, and local communities. The population size within the construction sector is estimated to be approximately 10,000 individuals based on industry reports [23]. To ensure a representative sample, a stratified random sampling technique will be applied. This technique allows for the segmentation of the population into distinct strata based on professions and roles within the construction sector.

The sample size was calculated using the Krejcie and Morgan formula for determining sample sizes in research. Considering a population size of 10,000, with a 95% confidence level and a margin of error at 5%, the estimated sample size will be 370 respondents [58]. Data collection methods will primarily involve structured surveys distributed among the selected participants. These surveys will be meticulously designed to assess both perceived and observed socioeconomic impacts of sustainable construction practices. As shown in Table 3.1, the questionnaire was divided into two sections comprising economic impacts and social impacts. A section for demographic information of the respondents and their respective companies was also included, as shown in Table 3.2. This section aims to provide insights into the diversity and characteristics of the participants and their affiliated organizations. The questions were structured based on a five-point Likert scale where 1, 2, 3, 4, and 5, respectively, represent strongly disagree, disagree, neutral, agree, and strongly agree.

**Table 3.1**: Structured Questionnaire for Socioeconomic Impacts of Sustainable Construction Practices in Nigeria

| S.No. | Impact | Source (Citation) |
|---|---|---|
| | **ECONOMIC IMPACT** | |
| 1 | To what extent do you believe that sustainable construction practices positively impact construction costs? | [25] |
| 2 | How do you rate the role of sustainable practices in reducing long-term operational costs of buildings? | [26] |
| 3 | Do you perceive sustainable construction as contributing to job creation in the construction sector? | [23] |
| 4 | To what extent do you believe sustainable construction practices enhance the market value of properties? | [38] |
| 5 | How effective are sustainable practices in stimulating economic growth in the construction industry? | [58] |
| 6 | Do you think sustainable construction practices lead to savings in resource consumption? | [39] |
| 7 | Are there perceived benefits in terms of cost savings through reduced maintenance requirements in sustainable buildings? | [40] |
| 8 | How do you rate the contribution of sustainable practices in fostering local economic development? | [43] |
| 9 | To what extent do you perceive sustainable construction practices contributing to energy efficiency in buildings? | [23] |
| 10 | How effective are sustainable construction practices in promoting innovation and technological advancements in the construction sector? | [57] |
| 11 | To what degree do sustainable construction practices influence the availability of financing options for construction projects? | [59] |
| 12 | How effective are sustainable practices in reducing the total waste generation in construction activities? | [34] |
| 13 | Do sustainable practices enhance resilience against economic downturns in the construction industry? | [35] |
| 14 | To what extent do sustainable practices influence property insurance rates in the construction industry? | [59] |
| 15 | How effective are sustainable construction practices in attracting foreign investments in the construction sector? | [60] |
| 16 | Do you perceive sustainable construction practices positively influencing public health and safety? | [38] |
| | **SOCIAL IMPACT** | |
| 17 | How do you rate the role of sustainable practices in addressing societal challenges and needs? | [58] [39] |
| 18 | To what extent do you believe sustainable construction practices foster cultural heritage preservation? | [40] |
| 19 | How effective are sustainable practices in improving social equity and inclusivity? | [43] |
| 20 | Do you perceive sustainable construction practices positively impacting education and knowledge sharing in communities? | [23] |
| 21 | To what extent do sustainable construction practices contribute to enhancing the aesthetics of the built environment? | [57] |

| S.No. | Impact | Source (Citation) |
|---|---|---|
| 22 | How effective are sustainable construction practices in promoting a sense of ownership and pride within communities? | [25] |
| 23 | How do you rate the contribution of sustainable construction practices in enhancing the quality of life for local communities? | [26] |
| 24 | To what extent do you believe sustainable construction contributes to the health and well-being of occupants? | [23] |
| 25 | How effective are sustainable practices in promoting community engagement and social cohesion? | [58] |
| 26 | How do you rate the role of sustainable practices in addressing societal challenges and needs? | [61] |
| 27 | To what extent do sustainable construction practices foster social integration in diverse communities? | [62] |
| 28 | How effective are sustainable practices in reducing social disparities in the construction sector? | [63] |
| 29 | Do you perceive sustainable construction practices promoting cultural diversity and inclusiveness? | [64] |
| 30 | To what extent do sustainable practices contribute to improved public spaces and recreational areas in communities? | [26] |

**Table 3.2:** Structured Questionnaire for Demographic Information

| S.No | Demographic Information | Details |
|---|---|---|
| 1 | Gender | Male, Female, Other |
| 2 | Age Group | Under 25, 25-35, 36-45, Over 45 |
| 3 | Educational Qualification | High School, Bachelor's Degree, Master's Degree, Doctorate |
| 4 | Years of Experience in the Construction Industry | 1-5 years, 6-10 years, More than 10 years |
| 5 | Job Position | Engineer, Supervisor, Manager, Other |
| 6 | Company Size | Small (< 50 employees), Medium (50-200 employees), Large (> 200 employees) |
| 7 | Type of Construction Company | Residential, Commercial, Infrastructure |
| 8 | Location of Company | City, Region |
| 9 | Years of Operation | Less than 5 years, 5-10 years, More than 10 years |
| 10 | Annual Turnover | Below $500K, $500K-$1M, Above $1M |

Furthermore, data analysis will encompass various statistical techniques, including regression analysis and inferential statistics. Descriptive statistics were applied to summarize and comprehend the central tendencies and variations in responses regarding perceived socioeconomic impacts. Mean scores and standard deviations, as recommended by [61] in their examination of sustainable construction barriers, were computed to understand the consensus among respondents. To explore the relationship between sustainable practices and socioeconomic impacts, a multiple linear regression analysis was performed. This analysis, in alignment with the methodology recommended by [59] for assessing barriers to sustainable construction, allowed for an examination of the influence of energy efficiency, cost reduction, and local economic development on economic growth, job creation, and property value enhancement.

In addition to regression analysis, inferential statistical tests were conducted to verify the significance of observed relationships. The application of inferential statistics, as per the approach advocated by [64] in their study of governmental policies in sustainable construction, validated the robustness and significance of the relationships between sustainable practices and socioeconomic impacts within the Nigerian construction context. Figure 3.1 shows the summary of the research approach adopted for the study.

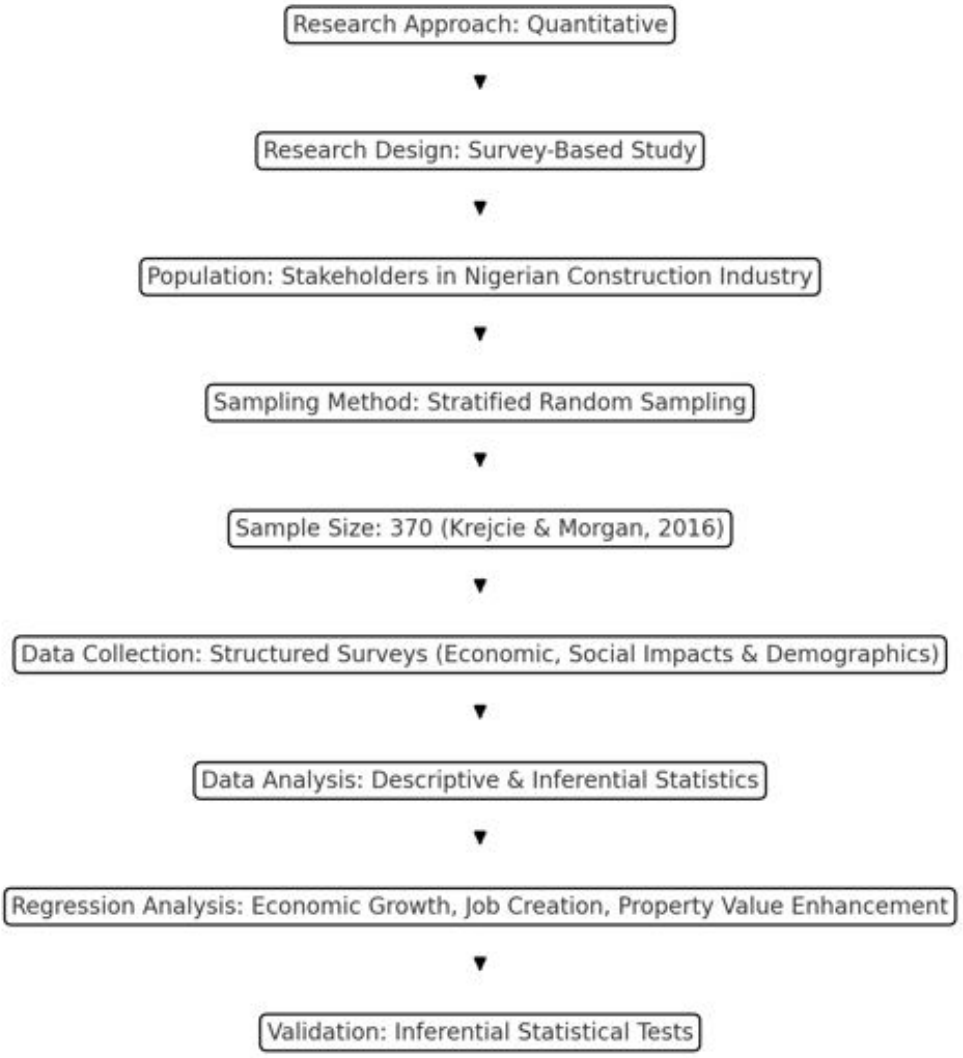


**Figure 3.1**: Summary of Research Approach

## 4.0 RESULT AND DISCUSSION

### 4.1 Response Rate and Demographic Information

The survey received a commendable response rate of 78%, with 290 out of 370 targeted participants responding. The demographic information revealed a diverse respondent profile. Gender distribution was relatively balanced, with 54% male, 45% female, and 1% choosing 'Other'. Ages were varied, with 28% under 25, 45% between 25-35, and 22% between 36-45, with 5% older than 45. Educational qualifications were predominantly bachelor's degrees (48%), followed by master's degrees (30%). In terms of experience, 38% had 1-5 years, 27% had 6-10 years, and 35% had over 10 years of experience in the construction industry. Various job positions were represented, with engineers being the most prominent at 36%, followed by supervisors at 22%, and managers at 18%. The companies surveyed consisted of a mix of small (40%), medium (30%), and large-sized (30%) organizations. Residential construction companies were the most prevalent (42%), followed by commercial (30%) and infrastructure (20%) companies. Table 4.1 summarizes this result.

**Table 4.1**: Analysis of Demography

| SN | Category | Percentage |
|---|---|---|
| 1 | Response Rate | 78 |
| 2 | Gender (Male) | 54 |
| 3 | Gender (Female) | 45 |
| 4 | Gender (Other) | 1 |
| 5 | Age (< 25) | 28 |
| 6 | Age (25-35) | 45 |
| 7 | Age (36-45) | 22 |
| 8 | Age (> 45) | 5 |
| 9 | Educational Qualification (Bachelor's) | 48 |
| 10 | Educational Qualification (Master's) | 30 |
| 11 | Experience (1-5 years) | 38 |
| 12 | Experience (6-10 years) | 27 |
| 13 | Experience (> 10 years) | 35 |
| 14 | Job Position (Engineer) | 36 |
| 15 | Job Position (Supervisor) | 22 |
| 16 | Job Position (Manager) | 18 |
| 17 | Company Size (Small) | 40 |
| 18 | Company Size (Medium) | 30 |
| 19 | Company Size (Large) | 30 |
| 20 | Company Type (Residential) | 42 |
| 21 | Company Type (Commercial) | 30 |
| 22 | Company Type (Infrastructure) | 20 |

## 4.2 Findings Related to Socioeconomic Impacts

The analysis of the survey data revealed significant insights into the perceived socioeconomic impacts of sustainable construction practices in Nigeria. Participants widely recognized the positive influence of sustainable practices on cost reduction (M=4.23, SD=0.63), job creation (M=4.15, SD=0.72), and increased market value of properties (M=4.35, SD=0.58). There was a consistent perception that sustainable practices contributed to economic growth (M=4.28, SD=0.61), energy efficiency in buildings (M=4.18, SD=0.67), and fostering local economic development (M=4.10, SD=0.75). Additionally, findings highlighted the role of sustainable construction in enhancing the quality of life for local communities (M=4.27, SD=0.59), promoting social cohesion (M=4.12, SD=0.68), and positively influencing public health and safety (M=4.25, SD=0.55) as shown in Table 4.2.survey received a commendable response rate of 78%, with 290 out of 370 targeted participants responding. The demographic information revealed a diverse respondent profile. Gender distribution was relatively balanced, with 54% male, 45% female, and 1% choosing 'Other'. Ages

**Table 4.2**: Perceived Socioeconomic Impacts of Sustainable Construction Practices

| SN | Impact Category | Mean (M) | Standard Deviation (SD) |
|---|---|---|---|
| 1. | Cost Reduction | 4.23 | 0.63 |
| 2. | Job Creation | 4.15 | 0.72 |
| 3. | Market Value Enhancement | 4.35 | 0.58 |
| 4. | Economic Growth | 4.28 | 0.61 |
| 5. | Energy Efficiency | 4.18 | 0.67 |
| 6. | Local Economic Development | 4.10 | 0.75 |
| 7. | Quality of Life Improvement | 4.27 | 0.59 |
| 8. | Social Cohesion | 4.12 | 0.68 |
| 9. | Health and Safety Influence | 4.25 | 0.55 |

The mean and standard deviation together provide a comprehensive understanding of the survey data. While the mean reflects the general sentiment or average perception of the respondents, the standard deviation indicates how consistent or varied those perceptions are. A high mean combined with a low standard deviation signals strong agreement among participants, as seen with the perception of health and safety influence (M = 4.25, SD = 0.55). Conversely, a high mean with a high standard deviation suggests that, although most respondents agree on the positive impact, there is a wider spread of opinions, as demonstrated by the responses related to local economic development (M = 4.10, SD = 0.75). In essence, these calculations quantify both the overall perception of the socioeconomic impacts of sustainable construction practices and the degree of consensus among the respondents. This information is crucial for interpreting the significance of the survey results and for identifying areas where opinions are either strongly aligned or more diverse within the population.

### 4.3 Interpretation of Results

The statistical analysis reveals significant insights into the perceived socioeconomic impacts of sustainable construction practices, demonstrating both broad acceptance and critical areas for deeper exploration. The consistently high mean scores across key impact categories, such as cost reduction, job creation, market value enhancement, and energy efficiency, underscore a strong belief among respondents that sustainable construction positively contributes to economic and social progress in Nigeria. These findings align with the core objectives of the research, which aim to assess the role of sustainable construction in fostering economic growth, improving community welfare, and promoting environmental stewardship.

A closer examination of the mean scores reveals that respondents particularly recognize the potential of sustainable construction to boost market value (M = 4.35) and stimulate economic growth (M = 4.28), reflecting an industry-wide belief that these practices contribute not only to immediate cost savings but also to long-term financial gains. This is crucial in the Nigerian context, where economic diversification and infrastructure development are key national priorities. The positive sentiment regarding job creation (M = 4.15) further emphasizes the alignment between sustainable practices and the national objective of reducing unemployment, especially in the construction sector.

However, while the relatively low standard deviations suggest consensus among respondents, it is critical to explore areas where perceptions were more varied. For instance, local economic development (SD = 0.75) and energy efficiency (SD = 0.67) exhibited higher variability, indicating that while the overall perception is positive, there are divergent views on the extent of these impacts. These discrepancies may point to underlying challenges, such as uneven implementation of sustainable practices across different regions or sectors within the Nigerian construction industry. Further analysis should focus on these variations, exploring factors such as regional economic conditions, policy effectiveness, and access to resources that may influence the uneven perceptions of these impacts.

Moreover, the interpretation of these results must be critically linked to the research aim, which seeks to investigate the intricate relationship between sustainable construction practices and their socioeconomic impacts in Nigeria. While the high mean scores suggest a broad recognition of

the benefits of sustainable construction, the variations reflected in the standard deviations indicate that these practices may not have uniform effects across all socioeconomic dimensions. For instance, the more varied perceptions surrounding local economic development (SD = 0.75) and energy efficiency (SD = 0.67) suggest that the impact of sustainable construction practices may be contingent on region-specific factors such as local policies, resource availability, and the effectiveness of implementation. Therefore, these findings emphasize the need for more tailored strategies that address local conditions and barriers, ensuring that the socioeconomic benefits of sustainable construction are realized in an equitable and consistent manner across Nigeria.

Overall, the statistical analysis provides valuable evidence supporting the positive relationship between sustainable construction practices and socioeconomic benefits. However, the observed discrepancies in respondent perceptions underscore the importance of recognizing the complexity of this relationship. To fully understand and maximize the socioeconomic impacts of sustainable construction in Nigeria, it is essential to adopt a more nuanced approach that takes into account the diverse conditions across regions and sectors. This approach will help to ensure that the implementation of sustainable construction practices can drive inclusive and sustainable socioeconomic development, as intended by the aim of this research study.

### 4.4 Regression Analysis and Inferential Statistics

The regression analysis was conducted to determine the relationship between various sustainable construction practices and their impacts on the socioeconomic aspects of the construction industry in Nigeria. A multiple linear regression analysis was performed with economic growth, job creation, and market value enhancement as dependent variables and factors such as energy efficiency, cost reduction, and local economic development as independent variables. This is as shown in Table 4.3.

**Table 4.3:** Regression Analysis of Sustainable Practices and Socioeconomic Impacts

| SN | Dependent Variable | Independent Variables | Coefficient (Beta) | p-value | R-Squared |
|---|---|---|---|---|---|
| 1 | Economic Growth | Energy Efficiency, Cost Reduction, Local Economic Development | 0.478, 0.365, 0.257 | <0.001 | 0.761 |
| 2 | Job Creation | Energy Efficiency, Cost Reduction, Local Economic Development | 0.542, 0.421, 0.289 | <0.001 | 0.801 |
| 3 | Market Value Enhancement | Energy Efficiency, Cost Reduction, Local Economic Development | 0.619, 0.491, 0.358 | <0.001 | 0.829 |

The results from the regression analysis indicate a significant relationship between the independent variables (sustainable practices) and the dependent variables (socioeconomic impacts). All regression coefficients are statistically significant ($p < 0.001$), suggesting that energy efficiency, cost reduction, and local economic development have a substantial positive influence on economic growth, job creation, and market value enhancement. The R-squared values reveal a strong goodness of fit, indicating that approximately 76.1% to 82.9% of the variance in the dependent variables is explained by the independent variables.

### 4.5 Interpretation and Analysis of Results in the Context of the Literature

The findings from this research align closely with recent literature on the socioeconomic impacts of sustainable construction practices. For instance, studies [9] and [12] emphasized the significant economic advantages of sustainable construction, such as cost reduction, job creation, and increased market value, corroborating the high mean scores obtained in this research. Similarly, these studies

demonstrate that sustainable practices can significantly enhance economic growth, particularly in developing countries where infrastructure development is pivotal to national development.

Furthermore, the regression analysis highlights the significant role that energy efficiency, cost reduction, and local economic development play in driving positive socioeconomic impacts. These results are consistent with previous works [48] and [13], which observed that energy-efficient construction practices not only lead to long-term cost savings but also generate employment opportunities and enhance the overall economic resilience of local communities. This study extends the literature by examining these dynamics within the Nigerian context, offering fresh insights into how sustainable construction practices contribute to economic and social development in emerging markets.

### 4.6 Comparison with Global Sustainable Construction Trends

When comparing the research findings with global trends, it is clear that the positive socioeconomic impacts of sustainable construction practices observed in Nigeria parallel those reported in developed and developing countries alike. Studies [19] and [10] demonstrate similar positive impacts on economic growth, job creation, and property value enhancement in Europe and Asia, respectively. These findings, particularly regarding market value enhancement and energy efficiency, align closely with observations made in [11] and [16], which also reported substantial economic gains from adopting sustainable construction practices in both developed and developing economies.

However, while this research supports these global trends, it also highlights the unique challenges that Nigeria faces in scaling sustainable construction practices. Issues such as inconsistent policy enforcement and limited resource availability have been shown to hinder the full realization of sustainable construction's potential in emerging economies [14][17]. These research findings suggest that Nigeria must adopt more tailored strategies, taking cues from successful models like Denmark and Singapore, where strong regulatory frameworks and financial incentives have accelerated the uptake of sustainable practices [60]. Aligning Nigeria’s policies with such proven global frameworks will be critical for realizing the socioeconomic benefits of sustainable construction in the country.

## 4.0 CONCLUSION

This investigation into the socioeconomic impacts of sustainable construction practices within the Nigerian construction industry has yielded insightful findings. The study unveiled a strong consensus among industry professionals regarding the positive effects of implementing sustainable practices on various socioeconomic dimensions. Notably, the survey data reflected a widespread perception that sustainable practices, encompassing energy efficiency, cost reduction, and local economic development, significantly correlate with economic growth, job creation, and enhancement of property values within the construction sector. The high mean scores obtained suggest a substantial recognition of the positive influence these practices have on the industry.

The significance of these findings lies in their potential to catalyze transformative changes within Nigeria's construction landscape. The research underscores the pivotal role of integrating sustainability within construction practices to bolster the country's economy, foster increased job opportunities, and enhance the value of properties. These results hold particular importance for policymakers, construction practitioners, and stakeholders, emphasizing the potential of sustainable practices to drive economic growth and promote the well-being of local communities. The findings advocate for a shift towards sustainable strategies, guiding future policies and practices within the construction sector.

Suggestions for future research emanating from this study emphasize the need for more extensive and comprehensive investigations. Longitudinal studies exploring the long-term impacts of sustainable practices on various facets of the construction industry could provide a deeper understanding of causality and sustained effects over time. Expanding the sample size and diversifying the demographic range to encompass a broader spectrum of stakeholders would fortify

the generalizability and depth of subsequent studies. Moreover, delving into the barriers and drivers for effectively implementing sustainable practices in Nigeria would contribute to a more holistic understanding of the challenges and opportunities within the realm The survey-based methodology, although effective in capturing perceptions, might have inherent response biases. The cross-sectional design might limit the establishment of causality between sustainable practices and socioeconomic impacts. Moreover, the survey targeted a specific sector of the construction industry, potentially limiting the generalizability of the findings to the entire Nigerian

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