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Green Building Awareness Level Among Real Estate Developers and Estate Surveyors and Valuers in Abuja

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Abstract

Green building is an emerging construction response to discomforting impacts of climate change on the built environment. This paper examined the green building knowledge and awareness level among real estate developers and estate surveyors and valuers in Abuja. The population of the study was 526 which comprised of 241 firms of estate surveyors and valuers and 290 estate developers in Abuja. The 2024 directory of Real Estate Developers Association of Nigeria (REDAN) which revealed that there were about 1061 REDA members in Nigeria and the financial up-to-date list of firms of the Estate Surveyors and Valuers Registration Board of Nigeria for the year 2024 constituted the sample frame. Purposive and stratified sampling techniques were adopted to administer questionnaire on the respondents. Out of the 531 questionnaires administered, 486 representing about 91.5% were duly completed and returned. Tables, weighted mean score and Chi Square were used to present and analyse the data. It was discovered that real estate developers possess higher level of green building awareness compared to estate surveyors and valuers. It recommended that the stakeholders in the training of prospective Estate Surveyors and Valuers and regulation of practice of the professions should incorporate studies in green building technology in the curriculum.

Keywords: *Awareness, Estate Surveyors and Valuers, REDAN, Green building*

1.0 Introduction

Green building is an emerging practice in construction industry that is gaining traction among the developed economies of the world but still struggling to gain practical adoption in the developing or third world countries (Lawal and Isyaku, 2024). It is a building scheme that focuses on harvesting climatic weather elements to meet the energy need of the building, conserve resources and mitigate its impact on the environment. A green building is a sustainable structure that uses natural resources like sunlight, wind, and rain to minimize environmental impact and reduce reliance on non-renewable energy sources throughout its life-cycle.

Green building is identified with various benefits, ranging from conservation of resources, preservation of natural environment, contribution to economic developments and healthy living of occupants (Isang, 2016). These have endeared advanced countries to embrace green building whereas developing countries among of which Nigeria is one is grappling with its full adoption despite the notable benefits it possesses, (Bidyut, 2018).

For instance, its energy efficiency attributes is capable of bailing Nigerians out of power problem occasioned by erratic power supply and outrageous bills from the various power distribution companies in Nigeria. Among the challenges identified with the full adoption of green building in developing countries was awareness to the concept and advantages of green building (Dahiru, Dania, and Adejoh, 2014). Studies have indicated lack of adequate awareness among consumers, but there has not been studies on the level of awareness among other stakeholders like the

green building suppliers (real estate developers) and real estate marketers (estate surveyors and valuers) in Abuja property market. This paper therefore examined the knowledge and awareness level of green building concept among real estate developers and estate surveyors and valuers in Abuja.

2.0 Literature

Green building, or sustainable and eco-friendly building, is a framework that emphasises resource efficiency, environmental stewardship, and occupant well-being in the design, construction, and operation of structures. In 2004, the US Environmental Protection Agency (EPA) defined green buildings as the design and construction of structures using resource-efficient and environmentally friendly techniques throughout the entire building life cycle, encompassing planning, design, construction, operation, maintenance, renovation, and demolition. Taiwo and Adeboye (2013) define sustainable development as fulfilling present needs without jeopardising the ability of future generations to meet their own needs. Green building, also known as sustainable building or green construction, is defined by Oyebode (2018) as a structure that employs resource- and environmentally-conscious methods throughout all phases of a building's life cycle, including planning, design, construction, operation, maintenance, renovation, and demolition. Green building can be defined as a sustainable structure that uses natural resources like sunlight, wind, and rain to minimize environmental impact and reduce reliance on non-renewable energy sources throughout its life-cycle.

Green building involves the design and execution of ecologically sustainable and resource-efficient practices throughout all phases of the building life cycle, including planning, design, construction, operation, maintenance, renovation, and demolition. Green building encompasses the planning, construction, operation, maintenance, renovation, and demolition of structures, ensuring resource-efficient and environmentally sustainable practices across the entire building life-cycle (Buya and Hurbisson, 2011).

Ramakrishna, Abjijeet, Prateek, and Ankit (2021) characterized green building, sustainable building, or green development as the implementation of techniques and practices that promote energy and resource conservation across a building's life-cycle, encompassing planning, development, operation, maintenance, redesign, and demolition. According to Lin (2021), a building is deemed green when it reduces the ecological impact throughout its life cycle of energy and materials, utilises sustainable and renewable resources, and minimises exposure to hazardous substances. Ignatius et al. (2022) observed that a green building, relative to a conventional building, utilises less water, optimizes energy efficiency, conserves natural resources, generates less waste, and provides healthier environments for occupants. It should be highlighted that the majority of individuals in Nigeria are either uninformed about sustainable practices or fail to acknowledge the importance of an environmentally self-sustaining ecosystem. Consequently, green building and sustainable development remain in their nascent phase.

Among the challenges bedeviling green building adoption in Nigeria are lack of knowledge and awareness, lack of fundamental information about using the green building evaluation system, a lack of enthusiasm from real estate developers, and the challenge of establishing a single green building assessment standard (Dahiru, *et al.,* 2014). Though, it was established in Waniko's (2014) study that Nigerian construction experts are aware of green building practice and perceptions, but very low compared to more developed nations, Abisuga and Oyekanmi (2014). However, a study carried out to assess experts' familiarity with green building principles in Saudi Arabia found that a significant segment of the population lacks awareness and expertise regarding green building principles, (Faisal, Khan, Zulfikar and Bafaqeer, 2024).

Dahiru, *et al.,* (2014), looked into the potential of green building techniques inNigeria.Fortyofthefiftystructuredquestionnair esthatwereprovidedwerereturned.Investigations wereconductedand it was discovered that, green building is not currently practiced despite

it is necessity, because of ignorance, which is followed by the "economic situation of the country" and "lack of enabling environment in the form of policy or legislation that will encourage prospective clients to use GB.

Adeojo and Awodele (2020) conducted research on professionals in Nigeria's construction industry's understanding of green building prerequisites for skill development. The Leadership in Energy and Environmental Design (LEED) v4 was used to gather data. A five-point Likert scale was used to modify the LEED v4 Project checklist for New Construction and Major Renovation. The Kruskal Wallis H Test and the Mean Item Score (MIS) were two of the techniques used for the data analysis. There was no statistically significant variation in the degree of required awareness, according to the Kruskal Wallis H Test. The study's conclusion was that professionals in the built industry in the study area did not significantly differ in their awareness of the requirements for the creation of green buildings.

From the foregoing, it was discovered that awareness is critical to adopting green building technology, but there has not been any comparative study on the level of awareness to green building between real estate developers and estate surveyors and valuers in Abuja.

3.0 Methodology

The research design for this study was survey research and the population was 526 which comprised of 241 firms of estate surveyors and valuers and 290 estate developers. The 2024 directory of Real Estate Developers Association of Nigeria (REDAN) which revealed that there were about1061 REDAN members in Nigeria and the financial up-to-date list of firms of the Estate Surveyors and Valuers Registration Board of Nigeria for the year 2024 constituted the sample frame. Purposive and stratified sampling technique was adopted to administer questionnaires on the respondents. Out of the 531 questionnaires administered, 486 representing about 91.5% were duly completed and returned. The study area was Abuja, the Federal Capital Territory. Descriptive statistics, weighted mean score and Chi-square were used for the analysis.

4.0 Analysis and Discussions

Table 1: Demographic Characteristics of Estate Surveyors and Valuers in Abuja

Category	Variable	Frequency	Percentage (%)
Gender Distribution	Male	195	83.7%
	Female	38	16.3%
	Total	**233**	**100%**
Academic Qualifications	None	0	0%
	O' Level	0	0%
	ND/NCE	0	0%
	HND/B.Sc	190	81.5%
	M.Sc/Ph.D	43	18.5%
	Total	**233**	**100%**
Professional Cadre	Non-Professional	0	0%
	Probationer/Graduate	0	0%
	Associate	199	85.4%
	Fellow	34	14.6%
	Total	**233**	**100%**
Years of Experience	0 - 5 years	10	4.3%
	4 - 10 years	56	24%
	10 - 15 years	129	55.4%
	Above 15 years	38	16.3%
	Total	**233**	**100%**
Aspects of Real Estate	Environmental Impact	12	5.2%

Engagement	Assessment (EIA)		
	Agency	233	100%
	Management	214	91.8%
	Marketing	212	91%
	Land Acquisition& Subdivision	64	27.5%
	Property Development	39	16.7%
	Valuation	233	100%
	Feasibility & Viability Studies	41	17.6%
	Total	**233**	**100%**
Property Mgt Portfolio in Abuja	Yes	233	100%
	No	0	0%
	Total	**233**	**100%**

Source: Field Survey, 2025

Table 1 provides valuable information about the demographic and professional features of estate surveyors and valuers working within the Abuja real estate market. The research shows that male surveyors outnumber female surveyors by a wide margin since males account for 83.7% of respondents in contrast to female surveyors who make up 16.3% of the respondents. The male-dominated nature of estate surveying and valuation suggests that the profession preserves traditional male preferences throughout the real estate industry in Abuja and other areas. The professional balance needs assessment regarding inclusivity and diversity in estate surveying and valuation because only 16.3% of the respondents identified as female while 83.7% identified as male.

Survey participants showed that estate surveying and valuation practice demands extensive formal education from its practitioners. The majority of 81.5% of participants hold either a Higher National Diploma (HND) or Bachelor of Science (B.Sc.) whereas 18.5% possess Master of Science (M.Sc.) or Doctor of Philosophy (PhD) degrees. Entry into the estate surveying profession is tightly regulated because the data shows undergraduate degrees are the minimum qualification for the profession. The educational standards in estate surveying and valuation demand practitioners to maintain advanced theoretical and practical knowledge in the field. Hence, this obvious trend. However, the minimum education standard to access a professional cadre in this profession is an O'Level certificate. It will only take passing a series of professional examinations right from PQE1 to PQE3, PPE, writing a Critical Analysis and attending oral interviews at the Nigerian Institution of Estate Surveyors and Valuers, (NIESV) and Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON). Graduates of estate management equally pass through this route, but the difference is that graduates commence their examination from PQE2 or PQE3 as the case may be.

The distribution of professional cadres demonstrates that the survey participants possess an advanced level of expertise. Among the total respondents (85.4%) Associate professionals make up the largest group whereas Fellowship holds only 14.6% of the respondents. The survey participants exclusively belonged to the established professional cadre because non-professionals, probationers and graduate trainees were absent from the sample group. The study gains higher credibility through this demographic data because respondents possess comprehensive knowledge about real estate practices and market dynamics together with practical experience in real estate. The presence of majority mid-level professionals in this sample demonstrates an organisation workforce with accumulated experience in the field at the same

time, it demonstrates professional readiness for continued specialisation.

The collected data indicates that a high proportion of respondents bring extensive professional experience to the survey. A high proportion of 55.4% of estate surveyors possess 10 to 15 years of experience followed closely by those with between 5 to 10 years of experience at 24%. The studied data derives its foundation from extensive industry experience because of the participation of these established professionals. Among the survey respondents, 16.3% have more than15 years of experience while just 4.3% have less than five years of experience. This professional distribution supports data reliability since it demonstrates that most participants have worked in their field for many years thereby exposing them to industry trends, market conditions and evolving real estate practices.

The study surveys various dimensions of real estate activities practised by Abuja-based estate surveyors and valuers. The survey results show that all participants (100%) engaged in both valuation and agency work which represent fundamental aspects of estate surveying and valuation. The professional expertise of these professionals extends beyond property valuation based on the survey results where 91.8% engage in property management and 91% include real estate marketing. Several estate surveyors in Abuja also, in addition to the agency, property management and valuation, engage in land acquisition and subdivision work (27.5%), property development (16.7%) and feasibility and viability studies (17.6%). The small percentage of estate surveyors conducting environmental impact assessments (EIA) confirms sustainability topics have not become essential to most practitioners within the field yet, although green building practices should be integrated across all areas of professional practice. Furthermore, the entire 233 Estate Surveyors and Valuers have management portfolios in Abuja.

Estate surveyors and valuers in Abuja demonstrate extensive experience and high educational qualifications along with deep professional connections according to research findings. Industrial dynamics benefit from the male dominance within this profession while the property markets concentrated in urban areas represent another essential factor. The current low numbers of stakeholders involved in sustainability positions create a chance for policymakers to implement industry-academia development initiatives that will boost green building practice adoption. The survey results establish important knowledge points for analysing Abuja real estate industry factors including sustainability integration and green building applications.

Table 2: Demographic Characteristics of Estate Developers

Category	**Frequency**	**Percentage (%)**
Gender Distribution		
Male	234	92.5%
Female	19	7.5%
Total	**253**	**100%**
Academic Qualifications		
None	0	0%
O' Level	0	0%
ND/NCE	17	6.72%
HND/B.Sc	202	79.84%
M.Sc and Above	34	13.44%
Total	**253**	**100%**
Professional Cadre		
Non-Building Professional	9	3.56%
Allied Building Professional	43	17%
Building Professional	201	79.5%
Total	**253**	**100%**

Membership of REDAN		
Non-REDAN Member	8	3.2%
REDAN Member	245	96.8%
Total	**253**	**100%**
Years of Experience		
0 - 5 years	10	4.3%
5 - 10 years	56	24%
10 - 15 years	129	55.4%
Above 15 years	38	16.3%
Total	**233**	**100%**
Property Locations in Abuja		
AMAC	196	77.5%
Abaji	0	0%
Bwari	35	13.8%
Gwagwalada	8	3.2%
Kuje	14	5.5%
Kwali	0	0%
Total	**233**	**100%**

Table 2 presents data that reveals important details about the estate developers in Abuja regarding their demographics, their professions and their local areas. Almost all estate developers in the studied area identify as male because their numbers surpass female developers by 92.5% compared to 7.5%. The real estate development sector in Abuja displays a significant male dominance among its developers due to both industry patterns and socio-cultural elements that affect gender participation in certain professions. The research reveals the academic backgrounds of developers where 79.84% hold HND or B.Sc degrees while 13.44% of developers hold M.Sc and higher qualifications. The widespread presence of advanced formal education among estate developers supports the concept that Abuja real estate development needs professional technical capabilities. The survey results further reveal that only a negligible percentage of 6.72% of real estate developers hold a National Diploma (ND) or National Certificate in Education (NCE) with no respondents reporting having only O' Level. This survey shows that a significant proportion of real estate developers in Abuja are graduates.

The survey also indicates that real estate developers in Abuja primarily consist of building professionals who account for 79.5% while 17% belong to allied building professions along with 3.56% non-building professionals creating the professional composition. A large number of developers hold construction-related technical expertise to achieve quality development results according to the observed distribution. Estate development throughout Abuja proceeds largely from people who possess real estate expertise together with knowledge of construction and urban planning. Nearly all estate developers have joined the Real Estate Developers Association of Nigeria (REDAN) because 96.8% of them became registered members. The majority of estate developers belong to REDAN thus indicating their support for a structured industry which promotes standards of practice alongside ethical conduct as well as policy-making influence. Independent developers along with those in informal market sectors possibly account for the 3.2% of real estate developers who are not members of the Real Estate Developers Association of Nigeria (REDAN).

Most real estate developers hold extensive involvement within the industry according to research findings regarding their experience levels. Among the surveyed real estate developers, 55.4% have had 10 to 15 years of experience and 16.3% have spent more than fifteen years practising their profession. Twenty-four percent of participants possess experience between five to ten years while less than five year professionals make up a small 4.3 percent. Abuja's real estate development sector

consists mostly of professionals with years of experience indicating possible benefits for decision-making stability and expert-level management.

Research reveals that properties developed by estate developers primarily exist within the Abuja Municipal Area Council (AMAC) which represents 77.5% of all properties in the city. Developers prefer to develop properties in urban districts that show stronger market demand and better infrastructure availability. The remaining 22.3% of estate developer projects are located across Bwari (13.8%), Kuje (5.5%) and Gwagwalada area councils (3.2%), although these areas show less development than AMAC. Property developers revealed they do not invest in either Abaji or Kwali areas which indicates these regions are not at present considered essential for real estate investments. This falls in line with the result of ESVs location of holding property portfolios for management.
A substantial demographic of real estate developers exists, who hold advanced degrees combined with extensive experience in urban areas while being actively associated with professional groups. Policy-makers should focus on supporting gender equality and promoting urban growth in less-developed zones to address the prevailing male domination and concentration of development AMAC.

Awareness and Knowledge of GBT in the Abuja Real Property Market
This part analysed and tracked knowledge and awareness level between estate developers and estate valuers in Abuja from full awareness to not aware; and the knowledge depth from very deep to no knowledge of green building technology. This research compares the green building understanding between real estate developers and Estate Surveyors & Valuers to demonstrate differences in their contact with the green building concept. The analysis gave the understanding of how professional experience influences understanding and demonstrates how to boost sustainability efforts in Nigerian real estate development.

Table 3: Cross-tabulation of Awareness Levels of GBT among ESVs and REDAN Members

Awareness Level	**ESV** (n= 233)	**%**	**REDAN**(n=253)	**%**	**Total** (n= 486)	**%**
Very Deep	104	44.6%	124	49.0%	228	46.9%
Fairly Deep	73	31.3%	108	42.7%	181	37.2%
Shallow	36	15.5%	21	8.3%	57	11.7%
No Knowledge	19	8.15%	0	0%	19	3.9%
Total	233	100%	253	100%	486	100%

Results from Table 3 on green building technology awareness indicate fundamental insights related to the current understanding of sustainable building practices among Estate Surveyors and Valuers (ESV) as well as Real Estate Developers Association of Nigeria (REDAN) members in Nigeria. The data divides awareness categories into very deep, fairly deep, shallow knowledge, and complete lack of knowledge to offer a full understanding of professional expertise in green building technology.
The survey results demonstrate that numerous respondents demonstrated an intense understanding of green building technology. A higher percentage of 49.0% of REDAN members demonstrated a strong understanding of sustainable building concepts when compared to 44.6% of ESV members who demonstrated a similar understanding. The practical understanding of green building appears superior for developers as they directly undertake project construction chores whereas ESVs prioritise property valuation, agency and management tasks. The number of REDAN members displaying deep awareness surpasses ESV members by showing 42.7% versus 31.3% respectively.

A significant gap appears in the results from evaluating respondents who possess a basic understanding of green building technology. The percentage of REDAN members with limited knowledge amounted to 8.3% whereas

ESV members revealed limited knowledge in larger numbers at 15.5%. Such differences in professional knowledge might stem from inadequate training of valuers and limited opportunities to learn sustainable building methods. The situation becomes more worrying when we examine the respondents who lacked knowledge entirely since no REDAN members displayed this point but ESV members reached 8.15% in the same category. Part of the assessment sector seems to remain uninvolved with the expanding real estate sustainability movement in development.

The study results support international evidence, as indicated by the World Bank Group, (2016) which demonstrates awareness functions as an essential element for green building adoption. Professional education along with regulatory frameworks and financial incentives together act as significant factors that drive the sustainable building practices adoption across the entire industry in developed markets of the United Kingdom, Germany, and Singapore. International green building success stories like the United States and Canada use capacity-building programmes and green certification standards to guarantee experts receive accurate sustainability information throughout all real estate fields.

Developer-oriented actions drive the level of green building awareness that has been identified by research findings. The people who construct projects assume direct responsibility to integrate sustainable features into their work thus they feel motivated to study green building methods. Results show that there is a marked improvement on the studies of Agyemang, et al., (2018) which found that there was a poor level of understanding about sustainable building among building professionals.

Assessors and managers of completed projects which estate surveyors and valuers represent tend to lack sustainability as a fundamental professional competency. Instructively, O'Neil and Gibbs (2018), observed that standardized green valuation models in global markets have made the quantitative assessment of green building financial benefits a necessary responsibility for valuers. Limited training and awareness about assessing green building investment value prevent Nigerian estate surveyors from accelerating the sustainable real estate market's adoption.

The research proves both policy developments and training programs for professionals will help close the information gap because they lead to increased green building technology adoption in Nigeria. The understanding of green building practices stands at contradictory levels between developers and valuers who practice within the Nigerian real estate sector. Sustainability practices show high engagement from developers but valuers show low exposure to principles of green building.

Table 4.: Chi-Square Analysis of Awareness Levels of GBT among ESV and Developers

Awareness Level	**Observed Frequency**			**Expected Frequency**	
	ESV	**REDAN**	**Total**	**ESV**	**REDAN**
Very Deep	104	124	228	109.06	118.94
Fairly Deep	73	108	181	86.58	94.42
Shallow Knowledge	36	21	57	27.27	29.73
No Knowledge	19	0	19	9.09	9.91
Total	**233**	**253**	**486**		
Chi-Square (χ^2)	30.62				
Degrees of Freedom(df)	3				
p-value	0.000				

Table 4 presents statistical details regarding Green Building Technology (GBT) awareness between Estate Surveyors and Valuers (ESVs) and real estate developers from the Real Estate Developers Association of Nigeria (REDAN). A statistical comparison between Estate Surveyors and Valuers (ESVs) and Real Estate Developers Association of Nigeria (REDAN) members uses the chi-square test of independence to analyse the observed and expected frequencies at four-tier levels of awareness ranging from Very Deep to No

Knowledge. A significant distinction exists regarding the level of awareness between Estate Surveyors and Valuers (ESVs) and Real Estate Developers under the Real Estate Developers Association of Nigeria (REDAN). At Very Deep awareness levels the sample included 104 ESVs and 124 REDAN members. The recorded figures show a mismatch with predicted values because the number of ESVs should have reached 109 and the number of REDAN members should have exceeded 119. The REDAN membership demonstrated superior numbers in the "Fairly Deep" awareness segment by obtaining 108 participants when compared to ESVs' 73 members. The predicted numbers for this awareness category were set at 87 for ESV members and 94 for REDAN members. The data indicates that developers maintain a stronger and better understanding of GBT than the valuation professionals involved in this study.

A larger percentage of ESV members did not understand GBT compared to REDAN members. The data shows that 36 ESVs showed shallow understanding but this rate exceeds the expected findings for ESVs and falls below the expected rate for REDAN members. Analysis reveals a substantial knowledge gap because 19 ESVs admitted they did not know GBT while none of the REDAN members claimed ignorance toward GBT. The estimated values show a greater knowledge deficit among ESVs given their expected values of approximately 9 for each category. Through the chi-square test, the obtained value reached 30.62 with 3 degrees of freedom along with a p-value of 0.000. This is an indication that there is a statistically significant association between a respondent's profession and their level of GBT awareness.

Assessors and managers of completed projects which estate surveyors and valuers represent tend to lack sustainability as a fundamental professional competency. This corroborates findings of O'Neil and Gibbs (2018), who observed that standardized green valuation models in global markets have made the quantitative assessment of green building financial benefits a necessary responsibility for valuers. Limited training and awareness about assessing green building investment value prevent Nigerian estate surveyors from accelerating the sustainable real estate market's adoption.

5. Conclusion

Conclusively, it was discovered that real estate developers possess a higher degree of knowledge as well as awareness level of green building technology compared to a limited degree of knowledge and awareness of green building technology by Estate surveyors and valuers in Abuja. Also, Real Estate Developers were more involved directly in green building practices than Estate Surveyors and Valuers which accounts for higher level of knowledge and awareness among developers. This is due to developers' direct involvement in building construction and the lack of knowledge among renters and house buyers about the benefits of green buildings.

6. Recommendations

The research suggests that policy developments and professional training programs can increase green building technology adoption in Nigeria. The Estate Surveyors and Valuers Registration Board of Nigeria in conjunction with The Nigerian Institution of Estate Surveyors and Valuers should introduce sustainable and green building technology through multi-level educational programs into their mandatory continuing professional development programmes to acquaint practitioners with this emerging concept in the building industry.

Green building technology education should be introduced into Higher institutions curricula to avail the budding real estate graduates with appropriate knowledge of green building and technical know-how.

Government and not state actors in the real estate market should increase their awareness campaign about the benefits of green building.

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