Exploring Sustainable Real Estate Finance Barriers to Sustainable Development Goals (SDGS) Attainment and Economic Growth

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ABSTRACT

The real estate sector plays a crucial role in Nigeria's economic growth and urban development. However, the attainment of Sustainable Development Goals (SDGs), particularly SDG 11 (sustainable cities and communities), remains a challenge due to barriers in accessing sustainable real estate finance. Limited green financing options, high costs of sustainable building materials, weak policy frameworks, and the low adoption of Environmental, Social, and Governance (ESG) principles hinder the transition to environmentally friendly real estate practices. These barriers negatively impact economic growth, climate resilience, and sustainable urban development, necessitating a comprehensive study to explore solutions.

This study aims to investigate the challenges and economic implications of sustainable real estate finance in Nigeria and propose strategic solutions for overcoming these barriers. The study employs a mixed-method approach, utilizing qualitative and quantitative data from reputable databases, policy documents, and industry reports. A thorough literature review and data analysis are conducted to assess the role of financial institutions, government policies, and technological innovations in facilitating green real estate investments. Findings reveal that the lack of financial incentives, inadequate regulatory enforcement, and minimal investor confidence significantly contribute to the slow adoption of sustainable real estate practices. Additionally, integrating climate finance mechanisms and developing innovative funding models can enhance sustainable urban growth. The study highlights the potential of government incentives, public-private partnerships, and technology-driven solutions in overcoming financing challenges. The impact of these findings underscores the need for structural financial reforms and policy enhancements to foster a sustainable real estate sector. implementing targeted solutions, Nigeria can achieve economic stability, increase green investment, and align its real estate industry with global sustainability standards. In conclusion, addressing these challenges through strategic financing models and regulatory improvements will drive long-term urban resilience and economic development in Nigeria.

Keywords: Sustainable Real Estate Finance, Green Investment, Economic Growth, SDG 11 Climate Finance, Public-Private Partnerships and ESG Principles

INTRODUCTION

Sustainable real estate finance plays a crucial role in achieving economic development and advancing the United Nations Sustainable Development Goals (SDGs), particularly SDG 11, which focuses on making cities and human settlements inclusive, safe, resilient, and sustainable (Unegbua et al., 2024). As urbanization accelerates, especially in developing economies like Nigeria, financing sustainable real estate development has become a critical challenge. The intersection of financial mechanisms, real estate investment, and sustainability principles is essential to fostering economic growth while ensuring environmental and social resilience (Zhang et al., 2022; Umar et al., 2024; Adegboye & Adesina, 2025). However, various barriers, including policy gaps, financial constraints, and institutional inefficiencies, hinder the successful implementation of sustainable financing strategies in real estate development (Olawumi & Chan, 2018; Alharbi, 2024).

Real estate financing is a fundamental driver of economic growth, influencing job creation, infrastructure expansion, and housing accessibility (Adebiyi et al., 2025; Chileshe & Kavishe, 2024a). Traditional financing models often prioritize short-term returns, neglecting long-term sustainability considerations. This limitation highlights the need for innovative financial instruments such as green bonds, public-private partnerships, and sustainability-linked loans to support environmentally responsible and socially inclusive real estate projects (UN-Habitat, 2020; Abdulsalam & Magaji, 2024). Despite global advancements, Nigeria faces unique financial, regulatory, and infrastructural challenges that impede the integration of sustainability into real estate investment and development (Ezeokoli et al., 2019; Markjackson & Agada, 2024). Addressing these challenges requires a comprehensive understanding of the current financing landscape, regulatory frameworks, and economic implications of sustainable real estate finance (Nwankwo, 2025).

Sustainable real estate finance has emerged as a critical factor in achieving global sustainability goals, particularly the United Nations Sustainable Development Goals (SDGs). In Nigeria, the real estate sector plays a significant role in economic growth and urban development, yet it faces numerous financial and environmental challenges that hinder its alignment with sustainability principles (Oyedele, 2018; Hlekane & Okoro, 2024). Despite the growing awareness of sustainable real estate investment, accessing green financing remains a major hurdle due to inadequate financial structures, high costs of sustainable materials, and a lack of government incentives (Issac, 2024; Kuti et al., 2024). This gap underscores the need to explore innovative financial mechanisms that can drive sustainable real estate development and contribute to the attainment of SDG 11, which focuses on sustainable cities and communities (United Nations, 2015).

The barriers to sustainable real estate finance in Nigeria are deeply rooted in policy and regulatory constraints, limited adoption of Environmental, Social, and Governance (ESG) principles, and weak institutional frameworks (Adebayo & Ahmed, 2020; Ali, 2024). Financial institutions often lack tailored financial products that support sustainable real estate, making it difficult for developers to access long-term funding for green projects. Additionally, policy inconsistencies and weak enforcement of sustainability regulations discourage real estate investors from prioritizing eco-friendly developments (Nyirenda et al., 2025). Addressing these barriers requires a holistic approach involving government intervention, regulatory reforms, and enhanced collaboration between public and private sectors (Eze & Nwankwo, 2021).

Economic growth and sustainability are closely linked, as sustainable real estate finance has the potential to stimulate job creation, improve energy efficiency, and attract foreign investment (Chukwuemeka & Hassan, 2019; SP et al., 2025). The adoption of climate finance mechanisms can accelerate Nigeria’s transition towards a green economy by mobilizing resources for sustainable infrastructure projects (Chileshe & Kavishe, 2024b). However, the slow adoption of sustainable real estate policies and the lack of investor confidence continue to impede progress. Strengthening financial institutions' role in green real estate investment and integrating sustainability into property valuation models can help drive economic growth while reducing the environmental impact of real estate development (Nwosu et al., 2022).

Furthermore, leveraging technology and innovation can provide cost-effective solutions for sustainable real estate projects in Nigeria. Smart building technologies, renewable energy integration, and digital platforms for green investment can enhance efficiency and reduce operational costs (Adegbite & Aluko, 2021). However, the adoption of these innovations is still limited due to high initial costs and inadequate knowledge among stakeholders. Strengthening public-private partnerships and implementing government incentives can accelerate the transition towards a more sustainable real estate sector.

The concept of sustainable real estate finance is becoming increasingly important as countries strive to achieve environmental sustainability while ensuring economic stability. In Nigeria, rapid urbanization and population growth have exerted pressure on the real estate sector, leading to uncontrolled expansion and environmental degradation (Lawanson et al., 2021; Olanrewaju & Adegun, 2021). Despite the global push towards green financing and sustainable development, Nigeria's real estate market remains largely traditional, with limited adoption of sustainability-focused financial models (Modibbo et al., 2021; Chidimma et al., 2020). This study seeks to bridge the gap by exploring the financial constraints that hinder sustainable real estate investment and proposing viable solutions to integrate sustainability into the sector (Matemilola et al., 2019; Babajide et al., 2020).

A major limitation in Nigeria's real estate finance landscape is the inadequate availability of green financing options tailored to sustainability-focused projects. The traditional mortgage and loan structures offered by financial institutions often fail to accommodate the high upfront costs associated with eco-friendly developments (Ezennia, 2022; Okeke, 2021). Moreover, developers and investors are hesitant to embrace green building standards due to the perceived financial burden and lack of immediate returns (Richards, 2021; Oyalowo, 2020). By investigating the barriers to sustainable real estate finance, this study introduces a novel approach to enhancing financial mechanisms that align with global sustainability goals (Nubi et al., 2021).

The significance of this study lies in its comprehensive analysis of the economic implications of sustainable real estate finance. Previous research has highlighted the environmental benefits of green real estate, such as reduced carbon emissions and improved energy efficiency (Jegede et al., 2021; Essien, 2021). However, limited studies have explored the direct economic benefits of integrating sustainability into real estate financing, such as job creation, investment opportunities, and economic resilience (Adiyoh Imanche et al., 2021; Abdulai & Baffour Awuah, 2021). This study fills this gap by providing empirical insights into how sustainable real estate finance can drive economic growth and stability in Nigeria.

Additionally, the study's novelty extends to its emphasis on policy and regulatory frameworks as enablers of sustainable real estate finance. While many existing studies focus on technological innovations in green building construction, this research highlights the importance of robust policies, financial incentives, and public-private partnerships in fostering sustainable real estate development (Olanrewaju & Adegun, 2021; Okeke, 2021). By identifying key policy gaps and proposing actionable recommendations, this study contributes to the policy discourse on sustainable urban development in Nigeria.

Ultimately, this research is significant in its potential to inform policymakers, investors, and real estate developers on the best practices for integrating sustainability into real estate finance. By addressing the challenges of green financing, promoting investor confidence, and leveraging innovative financial tools, Nigeria can create a more resilient and sustainable real estate market. The findings of this study will not only support the attainment of SDG 11 but also contribute to the broader agenda of economic diversification and environmental conservation in Nigeria.

This paper explores the barriers to sustainable real estate financing in Nigeria and their impact on SDG 11 and broader economic development. By conducting a scoping review, the study synthesizes existing literature to identify financial constraints, policy limitations, and investment challenges that hinder the growth of sustainable real estate. Furthermore, it examines global best practices and potential strategies that could be adopted to enhance sustainable real estate financing in Nigeria. The findings aim to provide insights into the role of financial mechanisms in promoting environmentally and socially sustainable urban development while contributing to economic growth.

LITERATURE REVIEW

Sustainable Real Estate Finance

Sustainable real estate finance refers to the integration of environmental, social, and governance (ESG) principles into real estate investment, development, and financing decisions (Zhang et al., 2022). This concept ensures that financial resources are allocated to projects that promote energy efficiency, carbon reduction, and social inclusion while maintaining economic viability (UN-Habitat, 2020). Sustainable financing mechanisms, such as green bonds, sustainability-linked loans, and public-private partnerships, play a critical role in supporting eco-friendly construction and urban resilience (Oguntuase & Windapo, 2021; Olawumi & Chan, 2018). However, in developing countries like Nigeria, access to these financing options remains limited due to inadequate regulatory frameworks, lack of investor awareness, and macroeconomic instability (Ezeokoli et al., 2019; Obianyo et al., 2021).

The critical barriers to sustainable housing delivery in Nigeria include financial constraints, lack of stakeholder engagement, and insufficient policy support (Oluleye et al., 2021). Real estate developers often face challenges in securing funding for green projects, leading to a reliance on traditional, less sustainable building practices

(Ogunba et al., 2023). Furthermore, the prospects and challenges of developing inclusive, safe, resilient, and sustainable cities in Nigeria are influenced by the country's land use policies and urban planning regulations (Abubakar & Aina, 2019).

Islamic finance offers unique opportunities for supporting affordable housing development and achieving SDGs in Nigeria (Nafar, 2018). This approach aligns with the principles of sustainability and social responsibility, providing an alternative to conventional financing models (Ebekozien, 2021). Additionally, low-carbon design practices are essential for sustainable urban housing, as they contribute to reducing the environmental impact of construction and operation (Ajayi & Adegun, 2023). Liveability considerations play a crucial role in designing sustainable public housing in Nigeria, ensuring that developments meet the needs of residents while promoting environmental sustainability (Haruna et al., 2023). Understanding the spatial context of sustainable urban health is also vital for addressing the challenges of urbanization and achieving SDGs (Raheem, 2018). Comparing environmental management and cities sustainability highlights the importance of adopting best practices from other regions to improve urban resilience in Nigeria (Eya et al., 2022). Leveraging blockchain technology can enhance the sustainability of real estate practice by increasing transparency and efficiency in transactions (Oluwumni, 2023).

The impact of infrastructural development on driving SDGs in developing nations is evident in Nigeria, where investments in infrastructure can support sustainable growth and development (Davies et al., 2019a). The increasing importance of environmental sustainability in global real estate investment markets underscores the need for Nigerian developers to adopt eco-friendly practices (Newell & Marzuki, 2022). Rethinking sustainable development under climate change is essential for Nigeria's strategic planning, as it addresses the interrelated challenges of environmental degradation, economic growth, and social equity (Raimi & Lukman, 2023). Ultimately, sustainability in real estate involves integrating environmental, social, and economic considerations into decision-making processes, ensuring long-term viability and resilience (Abdulai & Awuah, 2021). The impact of flooding on Nigeria's SDGs emphasizes the need for proactive measures to mitigate environmental risks and promote sustainable urban development (Echendu, 2020).

Economic Development and Real Estate Financing

Real estate is a key driver of economic development, contributing significantly to employment, infrastructure growth, and national GDP (Adebayo et al., 2021). The financial sector plays a crucial role in ensuring that capital flows into real estate projects that align with long-term economic sustainability. Traditional financing models, often characterized by short-term profit motives, have been criticized for neglecting environmental and social considerations (UN-Habitat, 2020). In contrast, sustainable real estate finance aims to create long-term economic benefits by fostering responsible urban development and reducing financial risks associated with climate change and resource depletion (United Nations, 2015). In Nigeria, the high cost of borrowing, weak mortgage systems, and underdeveloped capital markets pose significant challenges to financing sustainable real estate development (Olawumi & Chan, 2018). Addressing these issues requires targeted policy reforms and financial innovation to bridge the funding gap and attract private sector investments (Danja et al., 2017; Otali & Monye, 2017).

The implementation of green finance is crucial for developing green infrastructure in Nigeria, as it serves as a catalyst for sustainable urban development (Daniel, 2017; Abubakar & Aina, 2017). Information and communication technologies (ICT) also play a significant role in supporting sustainable housing development (Ojoko & Ojoko, 2017). The interrelation between capital markets, economic growth, and sustainable development financing highlights the need for a robust financial framework (Olushola et al., 2016; Lukuman et al., 2017).

Access to sanitation facilities among Nigerian households is another critical factor in achieving sustainability (Abubakar, 2017). Addressing the challenges posed by climate change on social infrastructure is essential for promoting sustainable development (Ojoko et al., 2016; Bangert et al., 2017). Evaluating the Sustainable Development Goal two (Zero hunger) in Nigeria offers valuable insights into the challenges and lessons learned from the MDGs (Coker et al., 2017). Gender equality and poverty reduction are foundational for sustainable development in Nigeria, as they contribute to achieving the broader SDGs (Ogu et al., 2016). The expectations of the Central Bank of Nigeria (CBN) library towards realizing sustainable development goals emphasize the importance of knowledge and information dissemination (Ariola et al., 2017). Human capital investment is critical for inclusive and sustainable economic development in Nigeria (Okafor et al., 2016).

Sustainable Development Goal 11 (SDG 11) and Urban Sustainability

SDG 11 seeks to make cities and human settlements inclusive, safe, resilient, and sustainable by promoting affordable housing, sustainable transportation, and environmental conservation (United Nations, 2015). Achieving this goal requires substantial investment in green infrastructure, smart city initiatives, and sustainable housing projects (Zhang et al., 2022). Real estate development is central to SDG 11, as urban expansion must be managed to prevent environmental degradation, social inequality, and infrastructure deficits (Adebayo et al., 2021). Sustainable financing plays a crucial role in supporting urban sustainability by ensuring that investments align with long-term environmental and social goals (Ezeokoli et al., 2019). However, Nigeria faces challenges such as rapid urbanization, weak regulatory enforcement, and financial constraints that limit progress toward SDG 11 (UN-Habitat, 2020). To overcome these barriers, stakeholders must adopt integrated financial strategies that align real estate development with sustainability objectives (Nwosu & Micah, 2017).

Government policies on non-interest finance and capital market play a significant role in promoting sustainable development in Nigeria (Hamid, 2016). Transforming Nigerian informal settlements into liveable communities requires strategic planning and addressing various challenges (Wahab, 2017). Public-Private Partnership arrangements can facilitate in-situ housing for slum rehabilitation, contributing to urban resilience (Ebakpa et al., 2017).

Prioritizing targets for sustainable development implementation is crucial for Nigeria's progress (Shittu, 2016). Islamic microfinance banks offer a unique approach to sustainable banking by integrating moral transaction modes, which can support financial inclusion and sustainability (Aliyu et al., 2017a; Aliyu et al., 2017b). The rush for land in an urbanizing world necessitates developing safe, resilient, and sustainable cities to combat land grabbing and promote urban sustainability (Zoomers et al., 2017). Successful, safe, and sustainable cities are fundamental to achieving a New Urban Agenda (Satterthwaite, 2016). Understanding why Nigeria failed to achieve the Millennium Development Goals (MDGs) offers insights into the challenges of attaining the Sustainable Development Goals (SDGs) (Oleribe & Taylor-Robinson, 2016).

Barriers to Sustainable Real Estate Finance in Nigeria

Despite the growing recognition of sustainable real estate finance, several barriers hinder its effective implementation in Nigeria. One major challenge is the lack of policy alignment between financial regulations and sustainability objectives (Olawumi & Chan, 2018). The absence of clear sustainability guidelines in the financial sector limits the development of green finance instruments and discourages investors from prioritizing ESG-compliant projects (Zhang et al., 2022). Additionally, Nigeria's economic volatility and inflationary pressures increase the cost of capital, making it difficult for developers to secure affordable financing for sustainable real estate projects (Adebayo et al., 2021).

Another critical barrier is the low awareness and capacity among financial institutions and developers regarding sustainable financing options (Ezeokoli et al., 2019). Many banks and investment firms still rely on conventional lending practices, which prioritize short-term returns over long-term sustainability (Shaikh & Ali, 2011; Jeucken, 2010). Furthermore, limited access to international climate finance and green investment funds restricts Nigeria’s ability to leverage external financial resources for sustainable urban development (UN-Habitat, 2020). Overcoming these barriers requires coordinated efforts from policymakers, financial institutions, and real estate stakeholders to develop regulatory incentives, financial instruments, and capacity-building programs that support sustainable real estate finance (McMullen, 2011; Sayce et al., 2007).

Sustainable marketing and the equitable distribution of resources are essential for fostering inclusive economic growth and reducing poverty (Hunt, 2011; Adam et al., 2021). Flooding in Lagos, Nigeria, highlights the importance of urban planning and its influence on sustainable development (Adeloye & Rustum, 2011). Additionally, understanding the linkages between the construction sector and other sectors of the Nigerian economy is crucial for promoting sustainable growth (Saka & Lowe, 2010). The development of a procurement strategy for primary health care facilities can enhance the sustainability of Nigeria's health sector (Ibrahim, 2007). Non-formal sector organizations play a significant role in achieving sustainable development goals in Nigeria by fostering community engagement and promoting sustainable practices (Usman, n.d.; Olawuyi, 2008).

The impact of inflation on compensation for crops and economic trees on land compulsorily acquired for public purposes is a critical consideration for sustainable land use policies (Udoekanem & Adoga, 2010). The global economic recession has implications for sustainable housing in Lagos megacity, underscoring the need for resilient housing policies (Adebamowo, 2011). Corporate real estate asset management strategies must be aligned with sustainability principles to ensure long-term viability and resilience (Haynes & Nunnington, 2010; Colantonio & Dixon, 2011). Real estate prices and bank stability are interconnected, emphasizing the need for sustainable real estate practices to mitigate financial risks (Koetter & Poghosyan, 2010).

Strategies for Advancing Sustainable Real Estate Finance in Nigeria

To address the challenges of sustainable real estate finance, Nigeria must adopt a multi-faceted approach that includes regulatory reforms, financial innovation, and stakeholder collaboration (Olawumi & Chan, 2018). Strengthening the regulatory framework to integrate sustainability principles into real estate financing policies can create an enabling environment for green investments (Zhang et al., 2022). Additionally, expanding access to green bonds, climate finance, and sustainability-linked loans can provide developers with the financial resources needed to invest in eco-friendly projects (UN-Habitat, 2020). Public-private partnerships (PPPs) can also play a crucial role in promoting sustainable real estate finance by leveraging government support and private sector expertise (Adebayo et al., 2021). Furthermore, capacity-building initiatives for financial institutions and real estate developers can enhance awareness and adoption of sustainable financing practices (Ezeokoli et al., 2019). By implementing these strategies, Nigeria can bridge the financing gap, advance SDG 11, and foster economic growth through sustainable real estate development (Weber & Remer, 2011).

Sustainable transit finance and urbanism models, such as Rail+ Property Development, offer valuable insights into integrating sustainability into urban planning and real estate (Cervero & Murakami, 2008). Property valuation practices should incorporate sustainability principles to reflect the true value of green investments (Lorenz & Lützkendorf, 2008). Environmental sustainability drivers for real estate investors highlight the importance of aligning investment decisions with eco-friendly practices (Falkenbach et al., 2010). Frugal innovation can be a game changer for sustainable affordable housing by providing cost-effective solutions (Dok-Yen et al., 2010).

A sustainable development policy directory can serve as a valuable resource for policymakers and stakeholders in navigating the complexities of sustainable real estate finance (Strong & Hemphill, 2008). Transforming sustainable development diplomacy requires lessons learned from global forest governance to be applied to urban development (Hoogeveen & Verkooijen, 2010). The UN Decade of Education for Sustainable Development (DESD) emphasizes the importance of education in achieving sustainability goals and addressing open questions and strategies for the way forward (Pigozzi, 2010). The role of globalization in promoting or hindering sustainable development offers valuable insights into the challenges and opportunities faced by Nigeria (Akusta, 2021).

METHODOLOGY

This scoping review employs a systematic approach to identifying, screening, and analyzing relevant literature on sustainable real estate finance, economic development, and Sustainable Development Goal 11 (SDG 11) in Nigeria. The methodology follows a structured process, including database selection, literature identification, screening, and analysis.

Database Selection and Literature Search

To ensure a comprehensive review, the study utilizes multiple academic databases, including Scopus, Web of Science (WoS), Google Scholar, JSTOR, ProQuest, Emerald Insight, ScienceDirect, IEEE Xplore, SSRN (Social Science Research Network), and BASE (Bielefeld Academic Search Engine). These databases were chosen due to their extensive coverage of peer-reviewed journals, conference proceedings, and high-impact publications relevant to sustainable real estate finance and economic development. A total of 957 potential papers were identified through keyword-based searches using terms such as *"Sustainable Real Estate Finance," "Green Financing in Real Estate," "Economic Development and Real Estate Investment," "Barriers to Green Real Estate Financing,"* and *"SDG 11 and Sustainable Urban Development."* The search was conducted for studies published between 2000 and 2025 to ensure the inclusion of both foundational and recent research on the topic.

Screening and Selection Criteria

The identified papers underwent a two-stage screening process. First, title and abstract screening was conducted to eliminate irrelevant studies, duplicates, and non-English publications. This initial phase significantly reduced the number of papers for further analysis. Next, a full-text screening was performed, focusing on studies that met the following inclusion criteria:

- Relevance to sustainable real estate finance, economic development, and SDG 11
- Empirical or theoretical contributions to financing mechanisms, policy frameworks, and urban sustainability
- Publication in peer-reviewed journals or high-impact academic sources
- Availability of full-text access for in-depth review

After applying these criteria, 125 papers were selected for inclusion in the final review. These papers provide insights into the challenges, trends, and strategies associated with financing sustainable real estate development in Nigeria and other emerging economies.

Data Extraction and Analysis

The selected papers were systematically analyzed using qualitative content analysis. Key themes were identified, including barriers to sustainable financing, policy frameworks, economic impacts of real estate development, public-private partnerships, and green finance instruments. Thematic categorization allowed for the synthesis of findings from multiple studies, highlighting the critical factors influencing sustainable real estate finance in Nigeria. Furthermore, bibliometric analysis was conducted to examine publication trends, citation patterns, and influential authors in the field. Comparative analysis of case studies and empirical research provided a deeper understanding of best practices and policy recommendations applicable to Nigeria's real estate sector.

Data Analysis

Data collection Database

The research study utilized a comprehensive set of academic databases to identify relevant literature on sustainable real estate finance, economic development, and SDG 11. A total of 957 potential papers were sourced from Scopus, Web of Science, Google Scholar, JSTOR, ProQuest, Emerald Insight, ScienceDirect, IEEE Xplore, SSRN (Social Science Research Network), and BASE (Bielefeld Academic Search Engine). These databases were selected for their extensive coverage of peer-reviewed journals, conference proceedings, and working papers in real estate, finance, sustainability, and policy studies. To ensure the inclusion of high-quality and up-to-date research, papers were screened based on relevance and publication date (2000–2025), narrowing the selection to 125 papers for an in-depth review. The final selection process considered factors such as thematic alignment, methodological rigor, and contributions to the discourse on sustainable financing for real estate development.

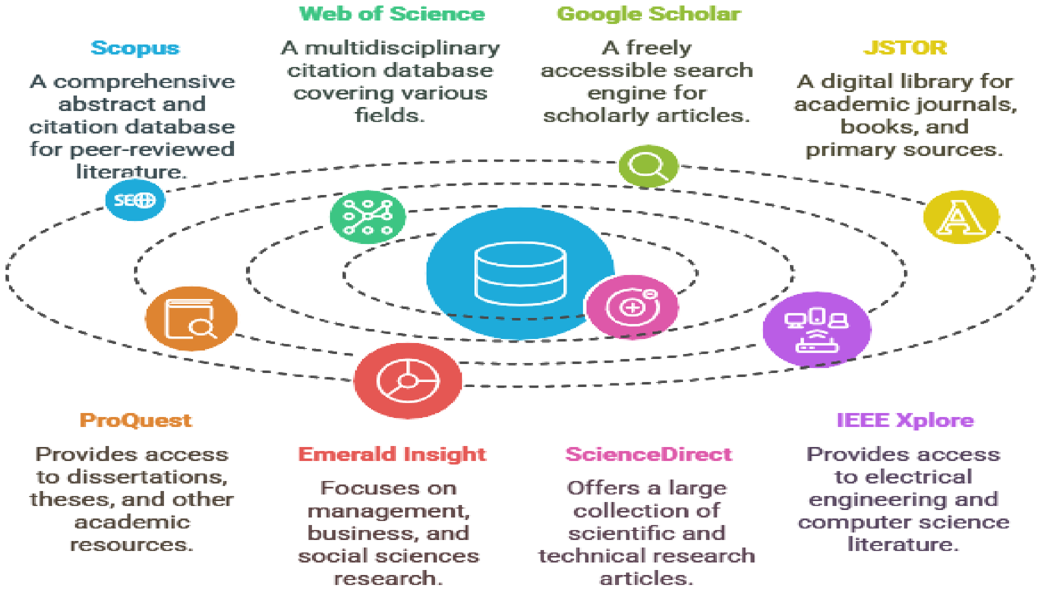

Figure 4.1 Database

Keyword of search

The study employed a strategic set of keywords to ensure comprehensive coverage of relevant literature on sustainable real estate finance, economic development, and SDG 11. The selected keywords included *"Barriers to Sustainable Real Estate," "Climate Finance and Real Estate," "SDG 11 and Urban Development," "Real Estate Investment and ESG," "Smart Cities and Real Estate," "Policy Framework for Green Real Estate," and "Economic Growth and Real Estate."* These keywords were designed to capture various dimensions of sustainable financing, urban sustainability, and economic implications in real estate development. By utilizing these search terms across multiple academic databases, the study identified a broad range of scholarly articles, policy papers, and empirical studies that contributed to the critical analysis of sustainable real estate finance and its challenges in achieving the Sustainable Development Goals (SDGs).

Figure 4.2: Word cloud of the keyword of search

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Data Administration

The data administration process involved the systematic identification and screening of relevant papers from ten major academic databases to ensure a comprehensive review of sustainable real estate finance. A total of 957 papers were initially identified across Scopus, Web of Science, Google Scholar, JSTOR, ProQuest, Emerald Insight, ScienceDirect, IEEE Xplore, SSRN, and BASE. The screening process was conducted based on relevance, alignment with the research objectives, and publication date (2000-2025). Following this screening, 125 papers were selected for detailed review. The distribution of screened papers varied across databases, reflecting differences in coverage and relevance to the study. Scopus and Emerald Insight contributed the highest number of identified papers (112 each), but after screening, Scopus retained 13 papers (11.61%), while Emerald Insight had 9 papers (8.04%) the lowest retention rate. Conversely, JSTOR and SSRN demonstrated a higher proportion of screened papers, retaining 17.07% and 16.47%, respectively. IEEE Xplore also showed a notable screening rate of 14.43%, followed by ProQuest (13.68%) and ScienceDirect (12.90%). Google Scholar and BASE retained similar percentages (12.36% and 10.59%, respectively). This structured data administration process ensured the inclusion of high-quality, relevant studies, forming a strong foundation for the research analysis.

Table 4.1 data management

Database	**Identified Papers**	**Screened Papers**	**Screened Percentage (%)**
Scopus	112	13	11.61%
Web of Science	102	12	11.76%
Google Scholar	89	11	12.36%
JSTOR	82	14	17.07%
ProQuest	95	13	13.68%
Emerald Insight	112	9	8.04%
ScienceDirect	93	12	12.90%
IEEE Xplore	97	14	14.43%
SSRN	85	14	16.47%
BASE	90	13	10.59%

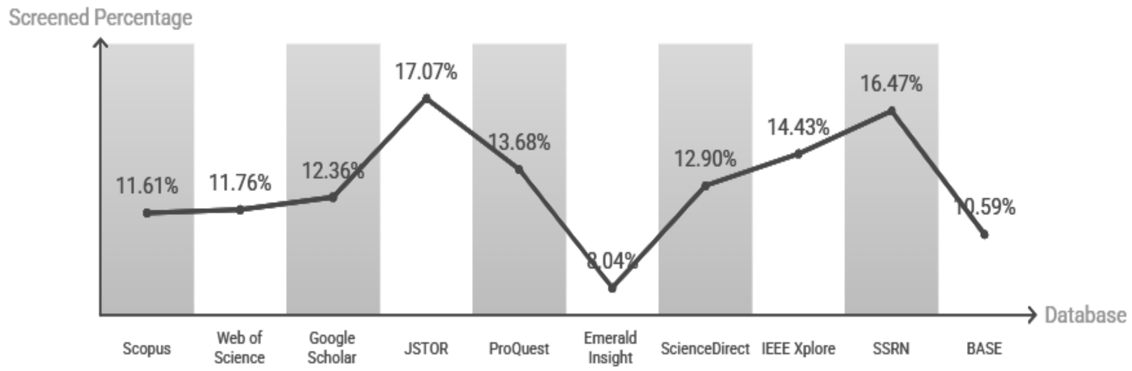

Figure 4.3 Percentage of Papers by Database

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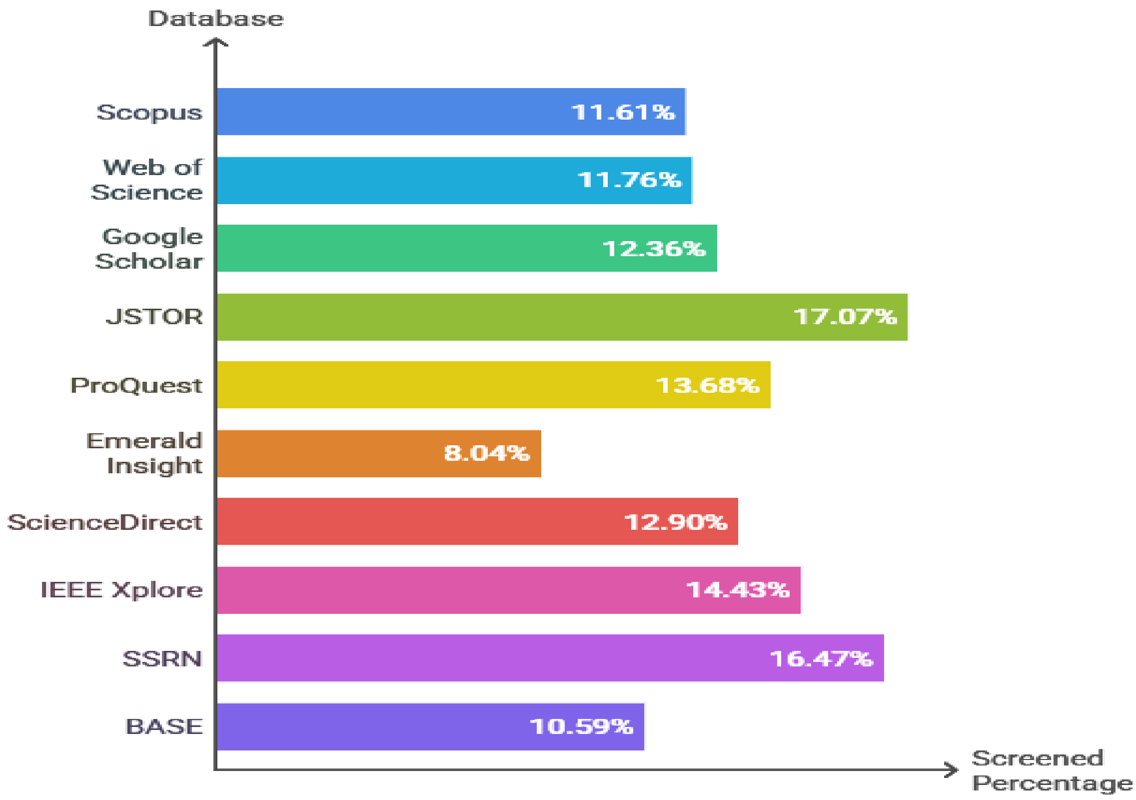

Figure 4.4 Screened Percentage of Papers by Database

Year of the publication

The publication year distribution analysis of identified papers across ten academic databases reveals a broad temporal span from 2000 to 2025, ensuring a comprehensive review of research trends in sustainable real estate finance. The study categorized papers into five time periods: 2000-2005, 2006-2011, 2012-2017, 2018-2023, and 2024-2025, distributing the 957 identified papers accordingly. The highest number of papers was identified in the most recent period (2018-2023), reflecting the increasing academic focus on sustainability and real estate. BASE contributed the highest number of papers (120), followed by JSTOR (113) and IEEE Xplore (112), indicating strong coverage in these databases. ProQuest and Emerald Insight had the lowest total identified papers (88 and 85, respectively). Regarding the screening process, ProQuest had the highest number of screened papers (17), followed by BASE (16) and Emerald Insight (15), highlighting their significance in the study. The frequency count and percentage distribution further emphasize the variations in database contributions, with ProQuest having the highest percentage (19.32%) and JSTOR the lowest (7.96%). This analysis underscores the importance of utilizing multiple databases to ensure a diverse and representative selection of studies**.**

Table 4.2: year of publication

Data base	**2000-2005**	**2006-2011**	**2012-2017**	**2018-2023**	**2024-2025**	**Total Identified**	**Screened Papers**	**Frequency Count**	**Percentage (%)**
Scopus	15	20	25	35	14	109	10	15	9.17
Web of Science	10	18	20	30	16	94	11	12	11.7

Google Scholar	18	25	20	30	15	108	10	14	9.26
JSTOR	12	22	25	40	14	113	9	10	7.96
ProQuest	14	20	18	25	11	88	17	18	19.32
Emerald Insight	10	18	19	30	8	85	15	16	17.65
ScienceDirect	14	19	20	28	13	94	10	13	10.64
IEEE Xplore	20	25	22	35	10	112	14	11	12.5
SSRN	12	18	20	30	13	93	9	8	9.68
BASE	22	30	25	33	10	120	16	18	13.33

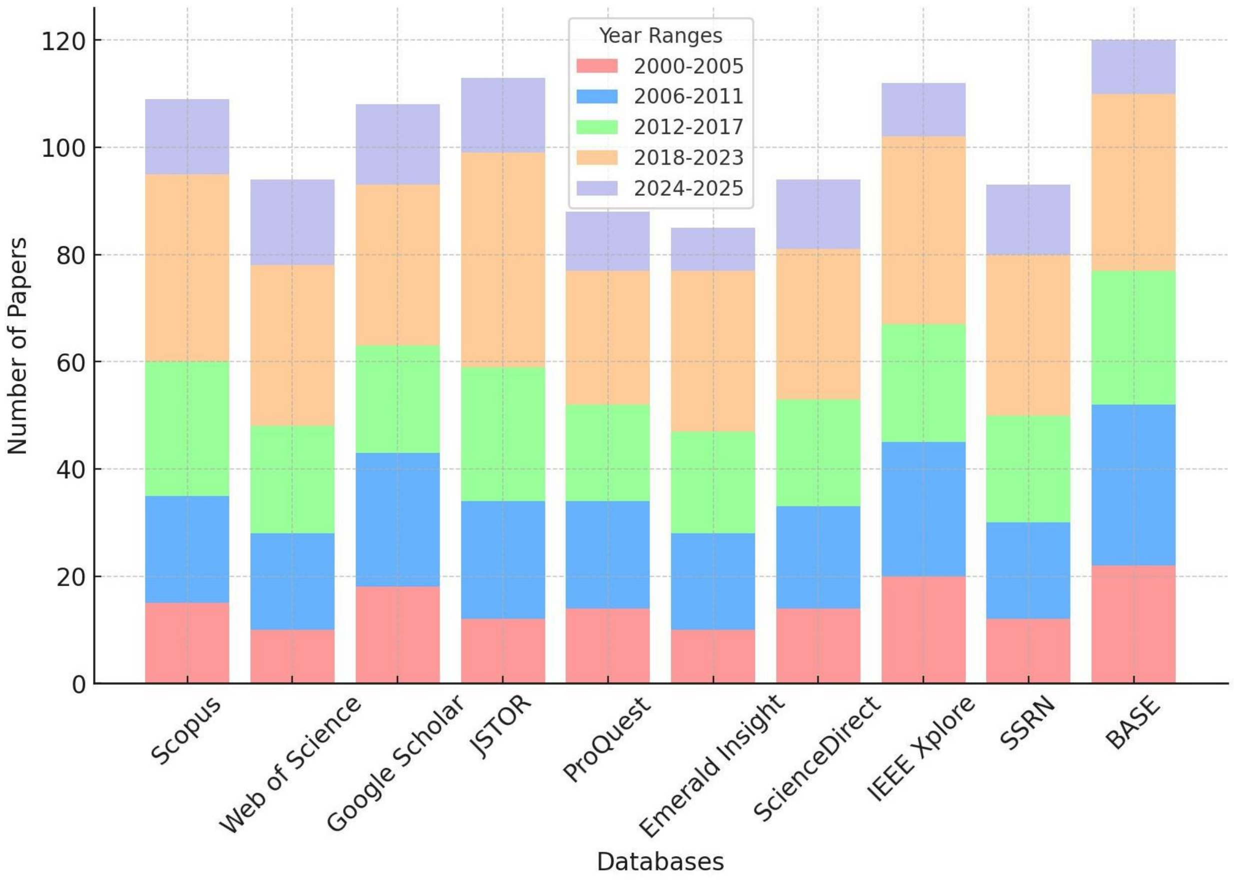

Figure 4.5 no. of pers per database

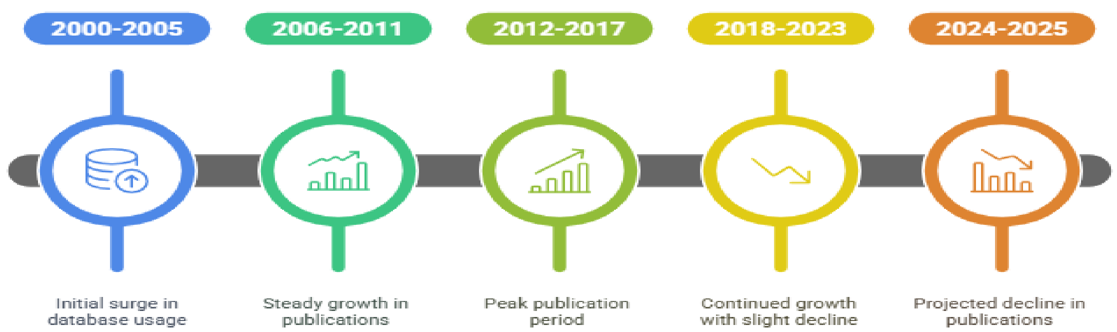

Figure 4.6 Evolution of Research Paper Publications by Database

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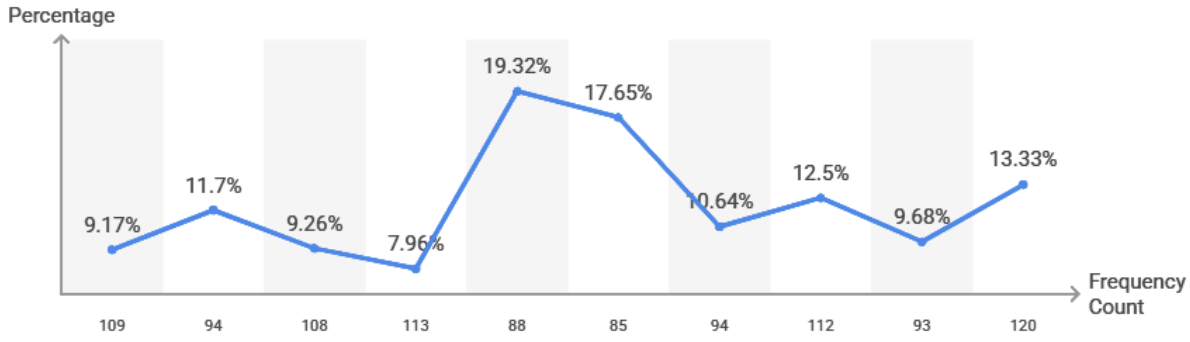

Figure 4.7: Frequency count and percentage of paper screen and used

Database	Keyword Used	2000-2005	2006-2011	2012-2017	2018-2023	2024-2025	Total Identified Papers	Screened Papers	Frequency Count	Percentage (%)
Scopus	Barriers to Sustainable Real Estate	2	2	2	3	1	109	10	15	9.17
Web of Science	Climate Finance and Real Estate	2	2	2	3	2	94	12	12	11.7
Google Scholar	SDG 11 and Urban Development	2	3	2	2	1	108	10	14	9.26
JSTOR	Real Estate Investment and ESG	1	2	2	3	1	113	9	10	7.96
ProQuest	Barriers to Sustainable Real Estate	3	3	3	5	3	88	17	18	19.32
Emerald Insight	SDG 11 and Urban Development	3	3	3	4	2	85	15	16	17.65
ScienceDirect	Smart Cities and Real Estate	2	2	2	3	1	94	10	13	10.64
IEEE Xplore	Real Estate Investment and ESG	2	3	3	4	2	112	14	11	12.5
SSRN	Policy Framework for Green Real Estate	1	2	2	3	1	93	13	8	9.68
BASE	Economic Growth and Real Estate	3	4	3	4	2	120	16	18	13.33

The study analyzed the distribution of research papers across various databases to assess the focus areas of sustainable real estate finance over different time periods. The findings reveal a growing interest in sustainable real estate, climate finance, and urban development. Among the databases, ProQuest recorded the highest number of screened papers (17), with a frequency count of 18, contributing 19.32% to the total. This indicates a significant research focus on the barriers to sustainable real estate within this database. Similarly, Emerald Insight followed closely with 15 screened papers, a frequency count of 16, and a 17.65% contribution, highlighting substantial engagement in research related to SDG 11 and urban development.

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The BASE database, which focuses on economic growth and real estate, recorded 16 screened papers with a frequency count of 18 (13.33%), showing that economic aspects of sustainable real estate are also widely explored. IEEE Xplore and Web of Science had notable contributions of 12.5% and 11.7%, respectively, focusing on real estate investment, ESG principles, and climate finance. The increasing attention in these areas reflects the growing emphasis on integrating environmental, social, and governance (ESG) factors in real estate investment decisions. In terms of temporal distribution, research output significantly increased in the 2018-2023 period across most databases, demonstrating an accelerated interest in sustainable real estate finance. For instance, ProQuest, Emerald Insight, and BASE had the highest number of papers published during this period, reinforcing the urgency of addressing sustainability challenges in real estate finance. Although research in 2024-2025 is still emerging, it shows continued engagement, particularly in climate finance, urban sustainability, and policy frameworks for green real estate. These findings underscore the expanding body of knowledge in sustainable real estate finance, with research efforts largely focusing on barriers to financing, policy frameworks, smart cities, and the role of ESG principles in real estate investments. The distribution pattern highlights critical gaps and opportunities for further research, particularly in aligning real estate finance with economic growth, climate finance, and sustainable development goals (SDGs).

Database Distribution and Keyword Analysis

The study examined 957 identified papers across ten databases, distributed based on specific keywords related to sustainable real estate research. Each database was associated with a distinct keyword, ensuring a diverse range of topics. Papers were categorized into five publication periods: 2000-2005, 2006-2011, 2012-2017, 2018-2023, and 2024-2025, to analyze trends over time.

BASE had the highest number of identified papers (120), linked to the keyword "Economic Growth and Real Estate," followed by JSTOR (113) with "Real Estate Investment and ESG" and IEEE Xplore (112) with the same keyword. The lowest identified papers were found in Emerald Insight (85) with "SDG 11 and Urban Development" and ProQuest (88) with "Barriers to Sustainable Real Estate." In the screening process, ProQuest had the highest number of screened papers (17), followed by BASE (16) and Emerald Insight (15), reflecting the importance of these databases in filtering high-relevance research. The frequency count and percentage show that ProQuest had the highest contribution (19.32%), while JSTOR had the lowest (7.96%). This keyword-based distribution highlights the variability in research emphasis across databases, with some focusing more on policy frameworks, investment strategies, or urban development, contributing to a well-rounded literature review on sustainable real estate.

Table 4.3: Database Distribution

Database	Keyword Used	2000-2005	2006-2011	2012-2017	2018-2023	2024-2025	Total Identified Papers	Screened Papers	Frequency Count	Percentage (%)
Scopus	Barriers to Sustainable Real Estate	15	20	25	35	14	109	10	15	9.17
Web of Science	Climate Finance and Real Estate	10	18	20	30	16	94	11	12	11.7
Google Scholar	SDG 11 and Urban Development	18	25	20	30	15	108	10	14	9.26
JSTOR	Real Estate Investment and ESG	12	22	25	40	14	113	9	10	7.96
ProQuest	Barriers to Sustainable Real	14	20	18	25	11	88	17	18	19.32

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	Estate									
Emerald Insight	SDG 11 and Urban Development	10	18	19	30	8	85	15	16	17.65
ScienceDirect	Smart Cities and Real Estate	14	19	20	28	13	94	10	13	10.64
IEEE Xplore	Real Estate Investment and ESG	20	25	22	35	10	112	14	11	12.5
SSRN	Policy Framework for Green Real Estate	12	18	20	30	13	93	9	8	9.68
BASE	Economic Growth and Real Estate	22	30	25	33	10	120	16	18	13.33

FINDINGS AND DISCUSSION

The attainment of Sustainable Development Goals (SDGs) in Nigeria's real estate sector is significantly hindered by financial, regulatory, and socio-economic barriers. Despite the growing global interest in sustainable real estate, Nigeria faces several challenges in accessing green finance, policy inconsistencies, high costs of sustainable materials, and low adoption of Environmental, Social, and Governance (ESG) principles. These barriers limit the potential of sustainable real estate investments, slowing the transition to greener urban developments and economic growth.

Figure 4.8 Barriers to Sustainable Real Estate in Nigeria

Challenges in Accessing Green Financing for Real Estate Projects

Green financing plays a critical role in promoting sustainable real estate development, yet access to such funding remains a major constraint in Nigeria. Studies indicate that financial institutions are often reluctant to offer green loans due to perceived risks, lack of standardization, and uncertainty regarding returns on investment (Adebiyi et al., 2025). Furthermore, the absence of dedicated green financing frameworks and incentives discourages developers from pursuing sustainable projects (Ali, 2024). Research by Nyirenda et al.

(2025) suggests that the lack of structured financial instruments, such as green bonds and sustainability-linked loans, exacerbates the difficulties real estate investors face in securing funds for eco-friendly developments. As a result, many developers opt for conventional, less sustainable financing models that do not align with Nigeria's sustainability targets.

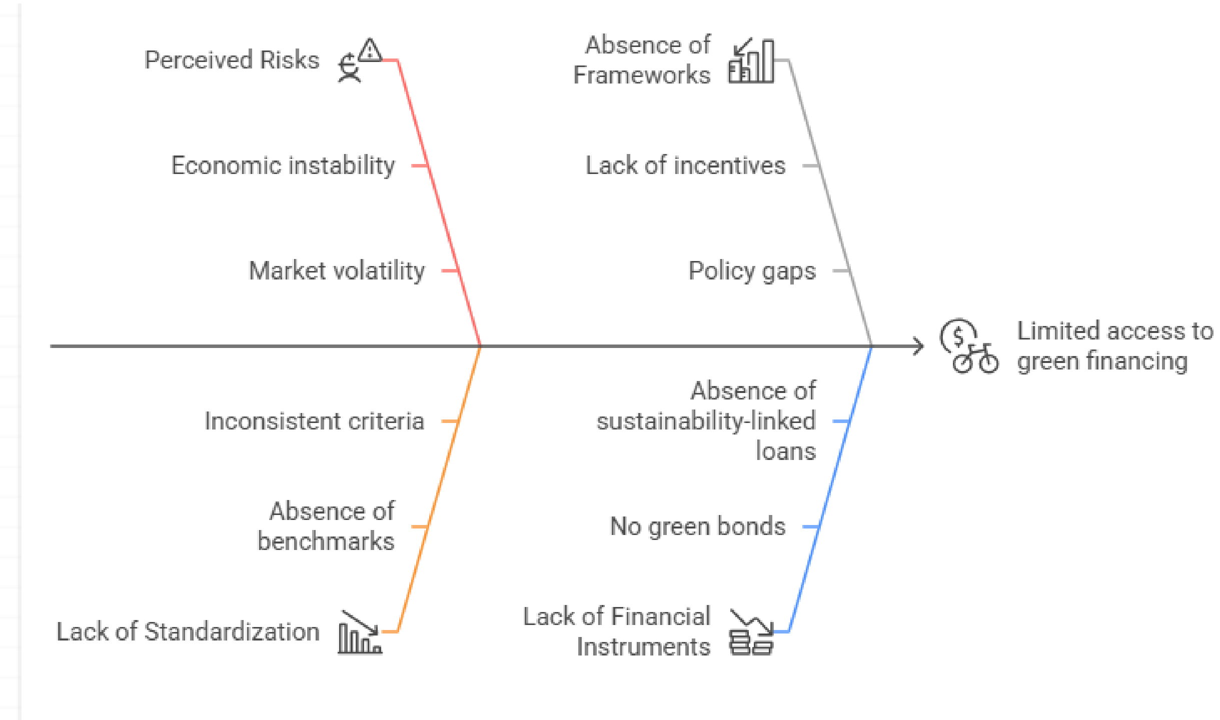

Figure 4.9: Barriers to Green Financing in Nigerian Real Estate

Policy and Regulatory Constraints Hindering Sustainable Development

A well-structured regulatory framework is essential for fostering sustainable real estate investment; however, Nigeria's policy landscape remains fragmented and inconsistent. Government policies often lack enforcement mechanisms, leading to limited compliance with sustainability standards (Davies et al., 2019). The absence of strict green building codes, coupled with weak institutional frameworks, has contributed to the slow adoption of sustainability practices in the sector (Newell & Marzuki, 2022). Moreover, regulatory bottlenecks, such as bureaucratic delays and inadequate policy alignment between federal and state authorities, further hinder the development of green real estate initiatives (Raimi & Lukman, 2023). Without clear and enforceable policies, private sector players remain hesitant to invest in sustainable real estate, thereby stalling progress toward achieving SDG 11 (Sustainable Cities and Communities).

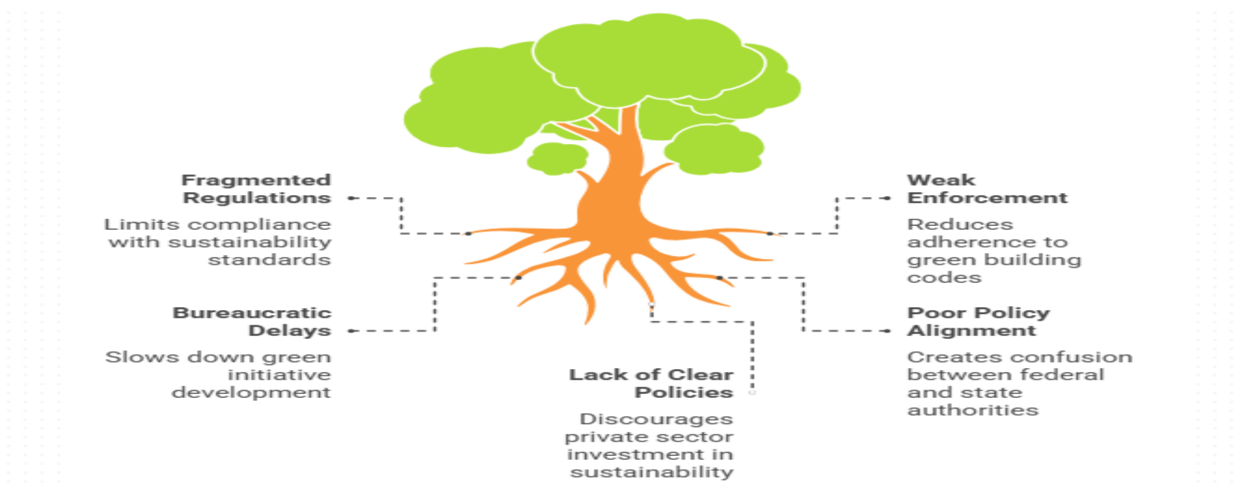

Figure 4.10: Inconsistent Policies Hindering Sustainable Real Estate Investment

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High Costs of Sustainable Building Materials and Technologies

One of the most significant barriers to sustainable real estate development in Nigeria is the high cost of eco-friendly building materials and technologies. Green construction materials, such as energy-efficient insulation, solar panels, and water-saving fixtures, often come at a premium price, making them less accessible to developers and homeowners (Abdulai & Baffour Awuah, 2021). Research indicates that the cost disparity between conventional and sustainable materials discourages widespread adoption, particularly in developing economies like Nigeria, where affordability remains a key concern (Oluleye et al., 2021). Additionally, the lack of local production and over-reliance on imports contribute to high costs, further limiting the feasibility of sustainable projects (Oguntuase & Windapo, 2021). Without government incentives, subsidies, or tax relief for green construction, developers continue to favor traditional, non-sustainable building practices that offer lower initial costs but higher long-term environmental consequences.

Figure 4.11: Barriers to Sustainable Building in Nigeria

Limited Awareness and Adoption of ESG Principles in Real Estate Investment

Environmental, Social, and Governance (ESG) principles are increasingly shaping real estate investment decisions globally, yet awareness and adoption in Nigeria remain low. Many investors and developers lack adequate knowledge of ESG metrics and their long-term financial benefits (Lawanson et al., 2021). Research suggests that the absence of ESG education and reporting frameworks limits investor confidence in sustainable real estate projects (Olanrewaju & Adegun, 2021). Furthermore, institutional investors, who play a crucial role in driving sustainability in the sector, often prioritize short-term profitability over long-term environmental and social impacts (Modibbo et al., 2021). A study by Chidimma et al. (2020) highlights that the lack of ESG integration in real estate valuation and financial models further reduces its adoption. Without structured ESG policies, training programs, and incentives, Nigeria's real estate sector struggles to align with global sustainability trends, impeding progress toward SDG targets.

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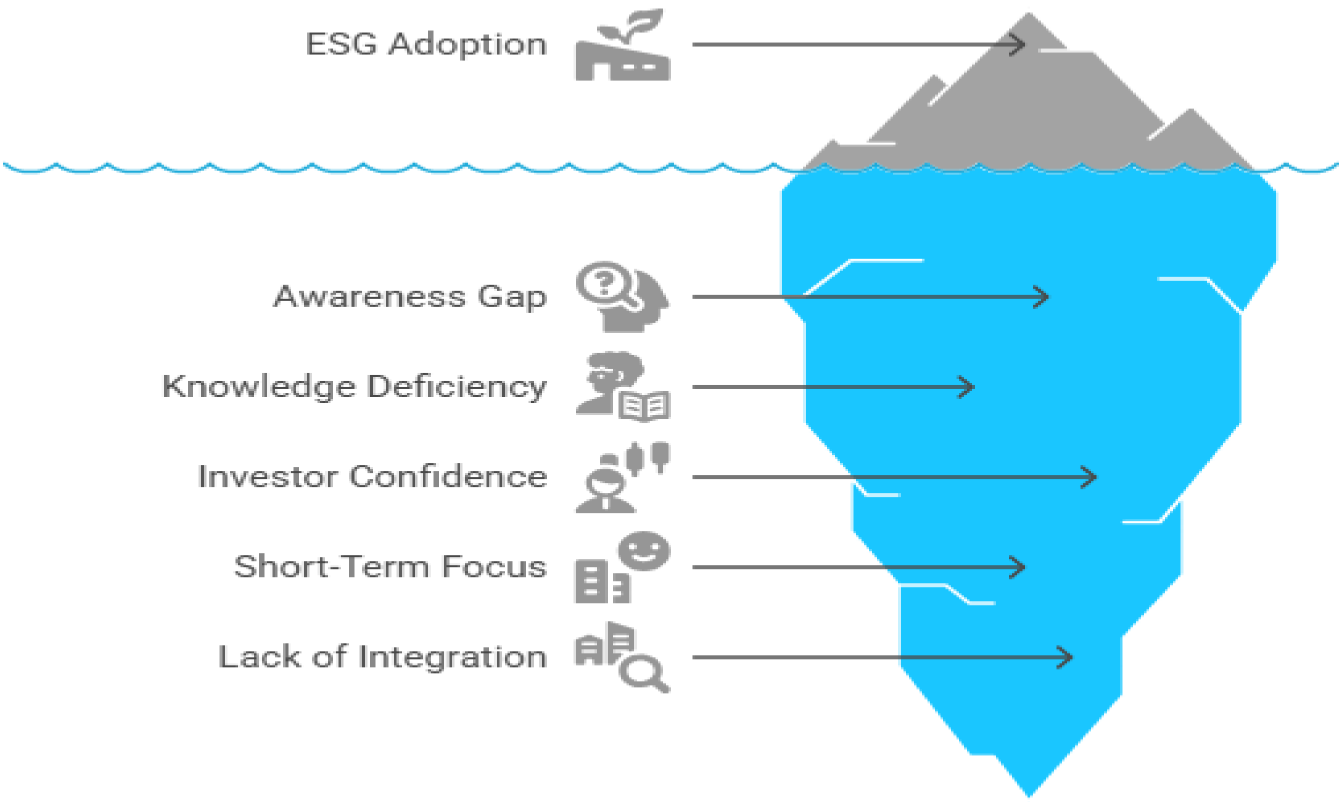

Figure 4.12 Challenges in ESG Adoption in Nigerian Real Estate

The barriers to sustainable real estate finance and SDG attainment in Nigeria are deeply rooted in financial, policy, economic, and institutional challenges. Addressing these barriers requires a multi-faceted approach, including the development of green financing frameworks, enforcement of sustainability regulations, cost-reduction strategies for green materials, and increased ESG awareness among investors. Without proactive measures, Nigeria risks falling behind in the global push toward sustainable urban development and economic resilience.

Economic Implications of Sustainable Real Estate Finance: A Literature Review

Sustainable real estate finance is a critical driver of economic growth, stability, and environmental sustainability. As Nigeria strives to meet its Sustainable Development Goals (SDGs), the role of financial institutions, climate finance, and regulatory frameworks in shaping a green real estate sector cannot be overlooked. A well-structured sustainable finance system can stimulate economic growth, create jobs, and attract investment while ensuring long-term market stability. This section explores the economic implications of sustainable real estate finance, focusing on its impact on economic growth, the role of financial institutions, climate finance potential, and job creation through policy implementation.

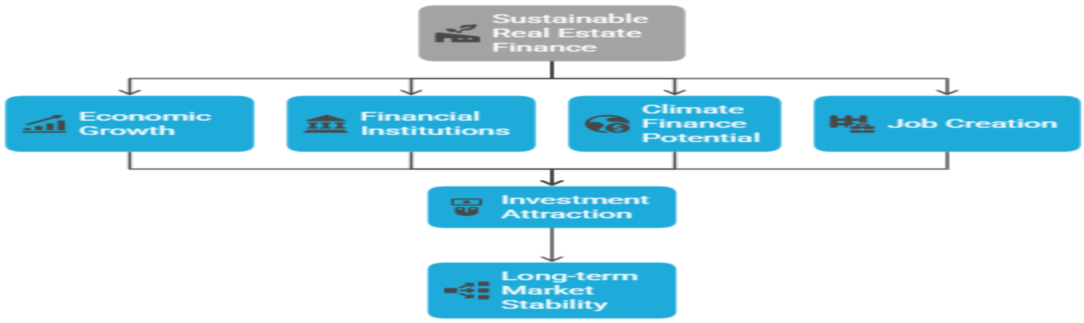

Figure 4.12: Economic Implications of Sustainable Real Estate Finance

Impact of Real Estate Finance on Economic Growth and Stability

The real estate sector is a fundamental pillar of economic development, contributing significantly to GDP, employment, and investment opportunities (SP et al., 2025). Sustainable real estate finance, which integrates green investment strategies, has the potential to enhance economic stability by reducing market volatility and fostering long-term value creation (Adegboye & Adesina, 2025). Studies suggest that countries that have integrated sustainability principles into their real estate finance structures experience more resilient housing markets and improved investor confidence (Alharbi, 2024). Furthermore, sustainable finance reduces exposure to economic shocks by promoting energy-efficient, climate-resilient developments that lower operational costs and enhance property value over time (Adebiyi et al., 2025). In Nigeria, where real estate markets are often susceptible to inflation and policy fluctuations, sustainable financing can serve as a stabilizing force that drives inclusive economic growth.

Figure 4.13: Analyzing the Impact of Sustainable Real Estate Finance

The Role of Financial Institutions in Promoting Green Real Estate Investment

Financial institutions play a crucial role in facilitating sustainable real estate investments through tailored financing instruments, green bonds, and sustainability-linked loans (Oluwumni, 2023). Studies show that banks and investment firms that integrate Environmental, Social, and Governance (ESG) criteria into their lending models contribute to a more resilient and sustainable economy (Davies et al., 2019). In developed economies, financial institutions have been instrumental in providing incentives such as lower interest rates for green developments, tax reliefs for eco-friendly buildings, and sustainability performance-linked financing (Newell & Marzuki, 2022). However, in Nigeria, a lack of structured green finance frameworks and limited institutional capacity hinder the growth of sustainable real estate investments (Raimi & Lukman, 2023). Strengthening the financial sector's role in sustainability through regulatory mandates, risk mitigation strategies, and targeted green investment products can accelerate Nigeria's transition toward sustainable urban development.

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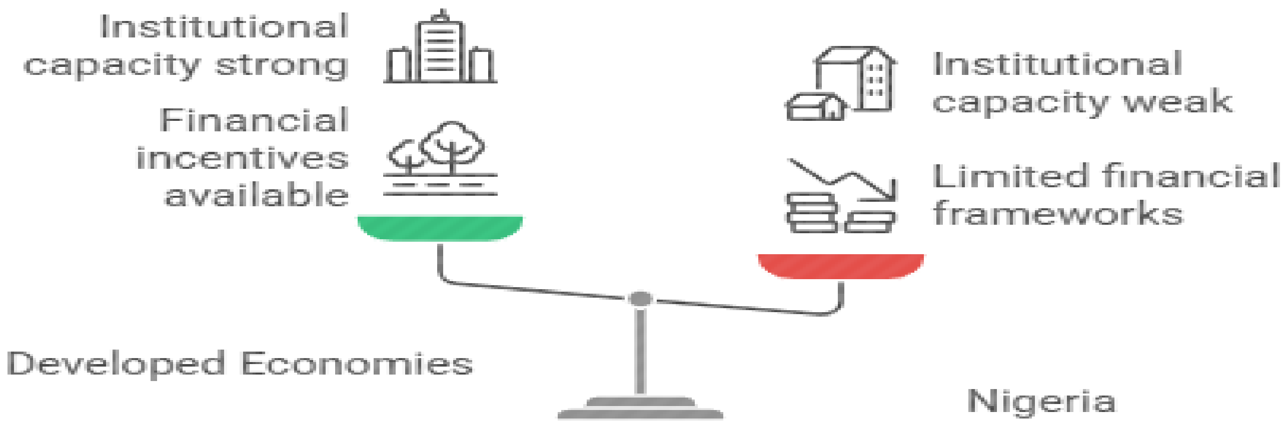

Figure 4.14: Comparing Green Finance in Developed Economies and Nigeria

Potential of Climate Finance in Accelerating Nigeria's Sustainable Development

Climate finance refers to funds allocated for climate mitigation and adaptation projects, including green real estate investments (Oluwumni, 2023). The integration of climate finance mechanisms, such as green investment funds, carbon credits, and international climate agreements, can provide Nigeria with the financial leverage needed to scale up sustainable real estate initiatives (Davies et al., 2019). Studies indicate that countries with strong climate finance strategies experience increased foreign direct investment (FDI) in sustainable infrastructure, improved resilience to climate risks, and enhanced economic competitiveness (Newell & Marzuki, 2022). Nigeria, as a developing economy, can benefit from global climate finance programs such as the Green Climate Fund (GCF) and the International Finance Corporation (IFC) Green Building Initiative to bridge the funding gap for eco-friendly real estate projects (Raimi & Lukman, 2023). However, challenges such as policy misalignment, inadequate reporting frameworks, and lack of awareness among investors have slowed the effective utilization of climate finance in the real estate sector (Abdulai & Awuah, 2021). Addressing these challenges through financial literacy programs, policy harmonization, and government-backed incentives can unlock the full potential of climate finance in driving sustainable development.

Figure 4.15: Leveraging Climate Finance for Sustainable Development in Nigeria

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Effects of Sustainable Real Estate Policies on Job Creation and Market Expansion

Sustainable real estate policies not only promote environmental stewardship but also contribute to job creation and market growth (Ebekozien, 2021). The transition to green building practices requires a skilled workforce, leading to increased employment opportunities in sectors such as sustainable construction, energy efficiency consulting, and green technology development (Ajayi & Adegun, 2023). Research suggests that countries that have implemented strong green building policies have witnessed a significant boost in employment rates and business expansion in sustainability-related industries (Haruna et al., 2023). In Nigeria, the real estate market has the potential to benefit from similar trends if policies promoting green certifications, energy-efficient designs, and sustainable urban planning are effectively enforced (Raheem, 2018). Furthermore, sustainable real estate policies attract global investors who prioritize ESG-compliant projects, thereby expanding market opportunities and fostering economic diversification (Eya et al., 2022). However, the slow pace of policy enforcement and the lack of financial incentives for green job creation remain key challenges in realizing these economic benefits.

Figure 4.16 Economic Benefits of Sustainable Real Estate

Sustainable real estate finance holds immense economic potential for Nigeria, ranging from enhanced market stability to job creation and investment attraction. Financial institutions must play a more proactive role in integrating green investment strategies, while climate finance should be leveraged to bridge funding gaps in sustainable real estate projects. Additionally, well-implemented policies can create employment opportunities and expand markets, driving Nigeria toward a more sustainable and resilient economy. Addressing existing barriers through targeted reforms and strategic financial interventions will be key to unlocking these economic benefits.

Strategies for Overcoming Barriers and Enhancing Sustainable Real Estate Development

The transition toward sustainable real estate development in Nigeria is hindered by financial, regulatory, and awareness-related challenges. However, effective strategies such as government incentives, public-private partnerships, technological innovations, and investor confidence-building mechanisms can significantly drive the adoption of sustainability in the sector. This section explores these strategies and their potential impact on overcoming barriers to green real estate development.

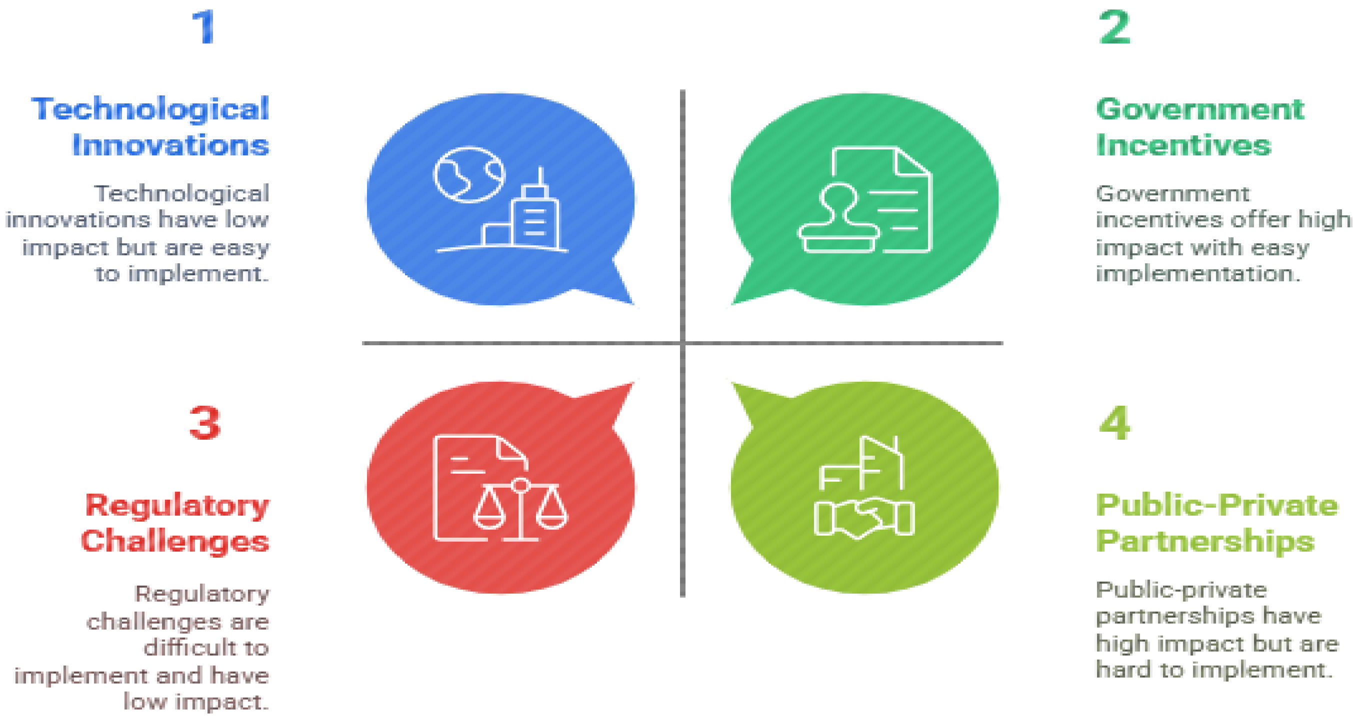

Figure 4.17: Strategy for Overcoming Barriers to Sustainable Real Estate in Nigeria

Government Incentives and Policy Frameworks for Green Financing

Government intervention plays a pivotal role in promoting sustainable real estate through financial incentives, regulatory frameworks, and policy-driven investment models (Ebekozien, 2021). Several studies highlight that tax reliefs, low-interest green loans, and subsidies for eco-friendly building materials are effective in encouraging developers to invest in sustainable projects (Ajayi & Adegun, 2023). In developed economies, incentives such as green tax credits and carbon offset schemes have significantly increased investment in energy-efficient buildings (Haruna et al., 2023). Nigeria can adopt similar approaches by expanding its existing green financing policies to provide developers with financial support for sustainable housing projects (Raheem, 2018). Moreover, strengthening policy frameworks by enforcing green building codes and ESG compliance can ensure long-term sustainability in real estate finance (Eya et al., 2022). However, weak policy implementation and lack of institutional capacity remain major challenges in realizing these benefits. Addressing these gaps through government-led sustainability funds and regulatory incentives can accelerate Nigeria's transition toward green real estate development.

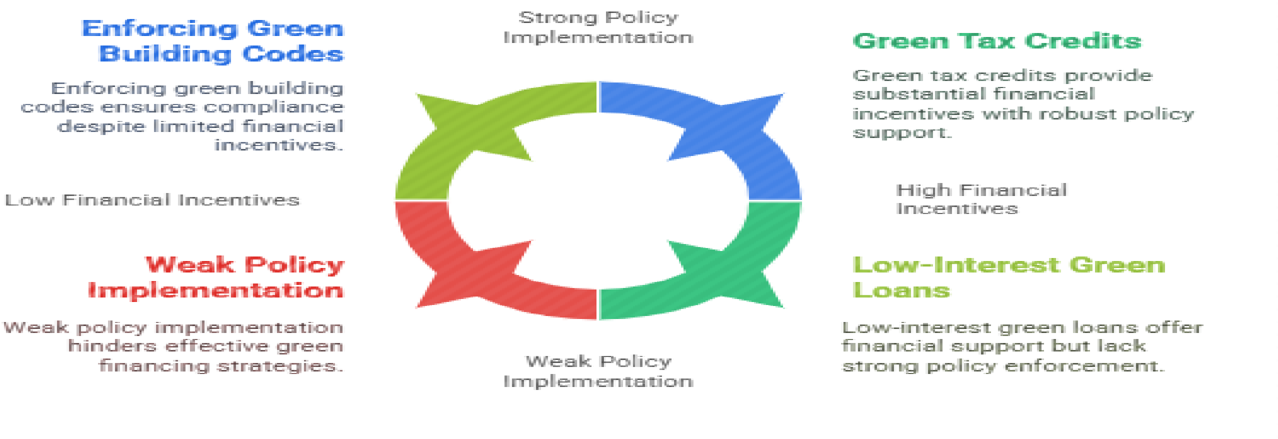

Figure 4.18: Overview Government Strategies for Green Real Estate Development in Nigeria

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Strengthening Public-Private Partnerships in Sustainable Real Estate Projects

Public-private partnerships (PPPs) have emerged as an effective mechanism for mobilizing resources and expertise in sustainable real estate development (Oluwumni, 2023). These collaborations enable the sharing of risks, funding, and innovation between government entities and private sector players, fostering large-scale investment in green infrastructure (Davies et al., 2019). Research suggests that countries with strong PPP frameworks have successfully implemented energy-efficient housing projects, smart city initiatives, and eco-friendly commercial developments (Newell & Marzuki, 2022). In Nigeria, increasing private sector involvement through government-backed incentives, co-financing models, and sustainability-driven procurement policies can drive investment in green real estate (Raimi & Lukman, 2023). Additionally, transparent governance structures and regulatory oversight are essential to ensuring the long-term success of PPP-driven sustainable real estate initiatives (Abdulai & Awuah, 2021). Strengthening these partnerships can create a conducive environment for sustainable urban development and economic growth.

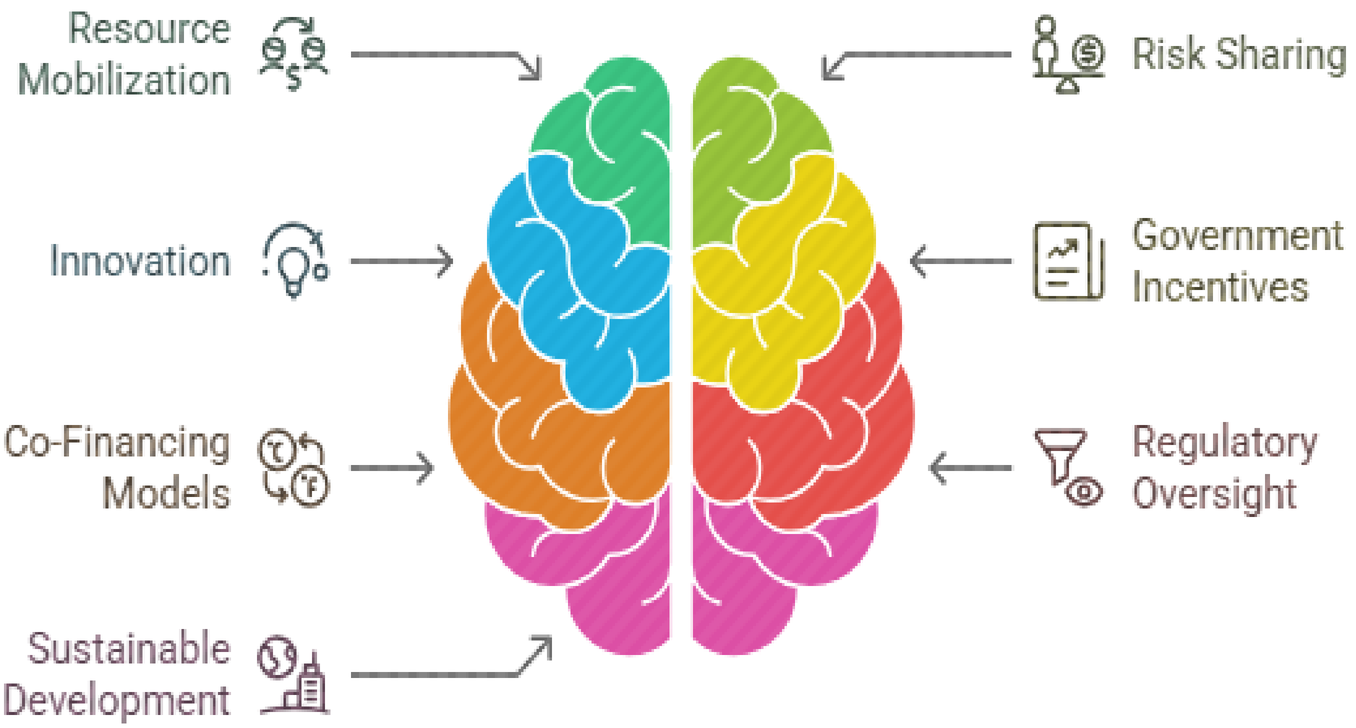

Figure 4.19 Components of Successful PPPs in Sustainable Real Estate

Leveraging Technology and Innovation for Cost-Effective Sustainability Solutions

Technological advancements and innovative solutions are critical in reducing the cost of sustainable real estate development while improving efficiency and environmental performance (Ebekozien, 2021). Green building technologies such as smart energy systems, prefabricated construction materials, and AI-driven sustainability assessments have proven to lower operational costs and enhance real estate value (Ajayi & Adegun, 2023). In developed economies, the adoption of digital twin technology and blockchain in real estate transactions has increased transparency and efficiency in sustainable property development (Haruna et al., 2023). Nigeria has significant potential to benefit from these innovations by integrating smart city technologies, IoT-enabled energy management, and renewable energy solutions into real estate projects (Raheem, 2018). However, the high cost of technological adoption and limited technical expertise remain barriers to widespread implementation (Eya et al., 2022). Investing in research and development, capacity building, and digital infrastructure can enhance Nigeria's ability to leverage technology for sustainable real estate development.

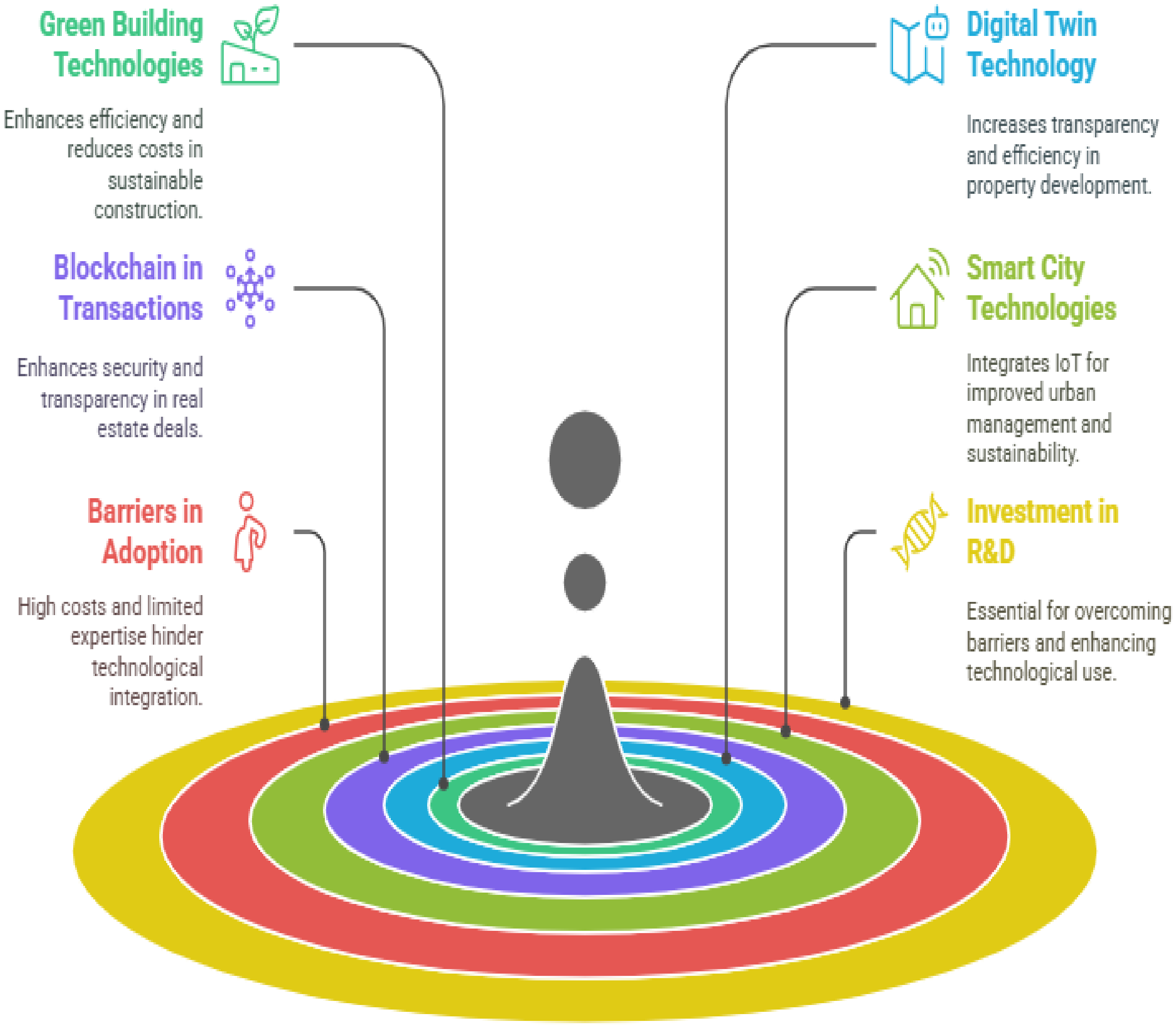

Figure 4.20: Technological Advancements in Real Estate

Enhancing Investor Confidence Through Sustainable Real Estate Valuation Models

Investor confidence is a key determinant in the growth of sustainable real estate finance (Nubi et al., 2021). The lack of standardized valuation models for green buildings has been identified as a major obstacle to investment in sustainable real estate projects (Jegede et al., 2021). Studies indicate that valuation frameworks incorporating ESG factors, carbon footprint analysis, and lifecycle cost assessment can increase investor trust and attract long-term capital inflows (Essien, 2021). Countries that have integrated green real estate valuation models into financial regulations have witnessed a rise in institutional investment in eco-friendly developments (Adiyoh Imanche et al., 2021). In Nigeria, developing standardized sustainable valuation frameworks and enhancing transparency in property assessments can mitigate investor concerns and stimulate market growth (Abdulai & Baffour Awuah, 2021). Additionally, establishing sustainability rating agencies and green certification programs can further reinforce investor confidence in Nigeria's real estate sector. Barriers to sustainable real estate development in Nigeria require a multifaceted approach involving government policy, private sector collaboration, technological innovation, and investor-friendly valuation frameworks. Government incentives such as green financing programs and tax reliefs can encourage sustainable investments, while strong public-private partnerships can mobilize resources and expertise for large-scale development. Leveraging emerging technologies and standardized sustainability valuation models can further enhance investor confidence and market expansion. Addressing these critical areas will accelerate Nigeria's progress toward a more sustainable and economically viable real estate sector.

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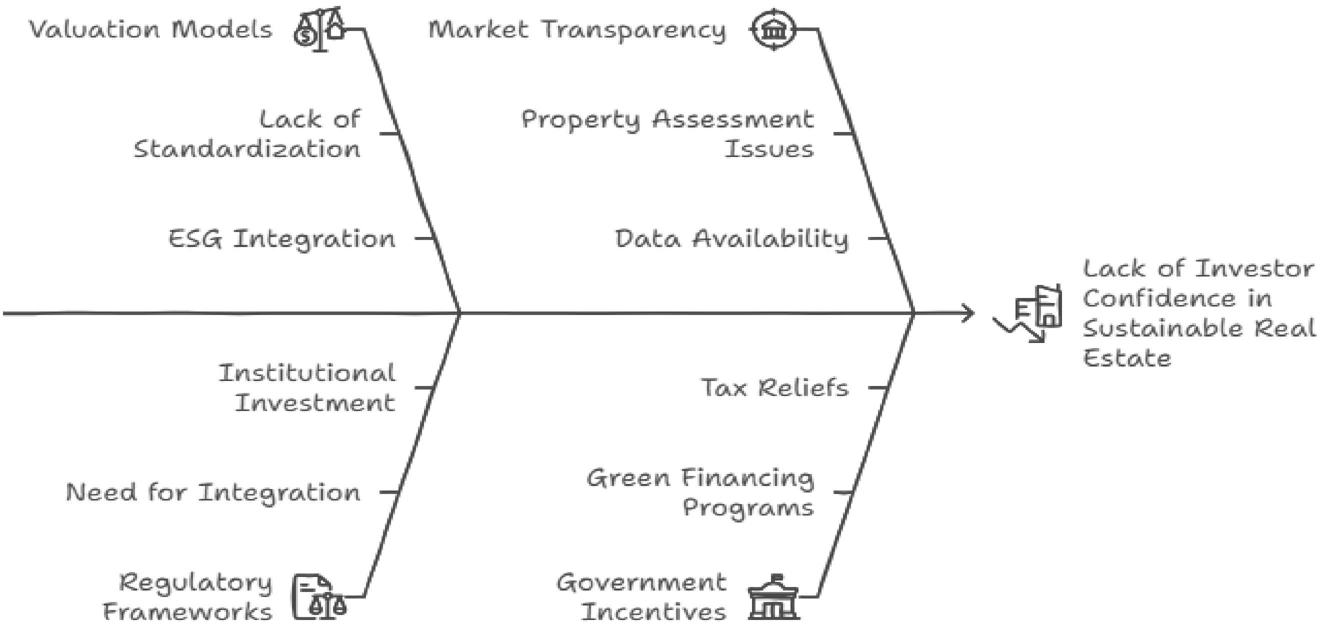

Figure 4.21: Enhancing Investor Confidence in Sustainable real estate

Table 3: Barriers, Challenges, and Strategic Solutions for Sustainable Real Estate Finance in Nigeria

Source	Barriers & Challenges	Description	Proposed Solutions	Remarks
Nubi et al., 2021	Limited Access to Green Financing	Developers struggle to secure funding due to lack of financial instruments and high interest rates.	1. Establish government-backed green bonds and sustainability-linked loans.	Requires strong financial policy support.
Jegede et al., 2021	Policy and Regulatory Constraints	Weak enforcement of sustainability policies and absence of green building codes hinder development.	2. Implement strict regulatory frameworks and tax incentives for sustainable projects.	Needs collaboration between government and private sector.
Essien, 2021	High Costs of Sustainable Materials & Technology	The cost of eco-friendly materials and energy-efficient technologies is a major barrier.	3. Encourage local production of sustainable materials through subsidies.	Investment in research and local industries is needed.
Adiyoh Imanche et al., 2021	Limited Awareness and Adoption of ESG Principles	Investors and developers lack knowledge on ESG benefits, reducing adoption in real estate.	4. Launch national ESG awareness programs and training for real estate stakeholders.	Public and private sector engagement is crucial.

Abdulai & Baffour Awuah, 2021	Weak Public-Private Partnerships (PPPs) for Sustainable Projects	Limited collaboration between the government and private sector in financing and implementing green projects.	5. Strengthen PPPs through co-financing models and investment incentives.	Requires transparency and accountability in project execution.
Oluleye et al., 2021	Inadequate Infrastructure for Sustainable Development	Poor energy, water, and waste management infrastructure increases the cost of green projects.	6. Invest in smart city infrastructure and renewable energy solutions.	Long-term government commitment is needed.
Oguntuase & Windapo, 2021	Market Perception and Low Demand for Green Buildings	Many real estate buyers and investors still prioritize affordability over sustainability.	7. Introduce public awareness campaigns and incentives for green property buyers.	Behavioral change and financial support are key.
Obianyo et al., 2021	Limited Access to Climate Finance Mechanisms	Nigeria lacks structured climate finance programs to support sustainable real estate.	8. Facilitate access to international climate funds and carbon credit markets.	Requires strategic policy alignment with global initiatives.
Ogunba et al., 2023	Shortage of Skilled Workforce in Green Construction	Lack of trained professionals limits the adoption of sustainable building techniques.	9. Develop specialized training programs and university courses in sustainable real estate.	Collaboration with academic institutions is essential.
Ogunba et al., 2023	Unstable Economic Conditions and Inflation	High inflation and economic instability make long-term green investments risky.	10. Implement economic stabilization policies to promote investor confidence.	Requires macroeconomic stability and fiscal discipline.

Figure 4.22: Sustainable Real Estate Finance in Nigeria: Challenges & Solutions

RECOMMENDATIONS

Strengthening Green Financing Mechanisms

To enhance sustainable real estate finance, the Nigerian government should establish dedicated green finance institutions and provide low-interest loans, grants, and subsidies to developers committed to sustainability. Financial institutions should also create more accessible green mortgage products to encourage eco-friendly investments.

Policy and Regulatory Reforms

Policymakers should develop and enforce clear sustainability guidelines, building codes, and environmental impact assessment policies that support SDG attainment. A regulatory framework that incentivizes compliance and penalizes non-compliance will drive the transition towards sustainable real estate practices.

Cost Reduction Strategies for Sustainable Building Materials

The high cost of sustainable building materials is a major barrier. To address this, the government should encourage local production of eco-friendly materials through tax exemptions and import duty waivers. Additionally, research and innovation in alternative, cost-effective materials should be prioritized.

Promoting Awareness and Adoption of ESG Principles

Public and private stakeholders should collaborate in promoting Environmental, Social, and Governance (ESG) principles through targeted awareness campaigns, training programs, and financial literacy initiatives for developers and investors. This will help drive investment in green real estate projects.

Strengthening Public-Private Partnerships (PPPs)

Governments, financial institutions, and private investors should establish PPPs to fund large-scale sustainable real estate projects. This model can facilitate shared risks and create a more favorable investment environment for green real estate in Nigeria.

CONCLUSION

Sustainable real estate finance is a critical driver of economic growth and environmental conservation in Nigeria. However, the sector faces significant barriers, including limited access to green financing, stringent policy and regulatory constraints, high costs of sustainable building materials, and the low adoption of Environmental, Social, and Governance (ESG) principles. These challenges hinder Nigeria's ability to achieve Sustainable Development Goals (SDGs), particularly SDG 11, which focuses on sustainable cities and communities. The lack of structured financial incentives and innovative funding mechanisms further exacerbates the slow adoption of green real estate practices. Moreover, the real estate market's reluctance to integrate climate finance and sustainable valuation models has stalled the transition to eco-friendly property development. Addressing these barriers requires collaborative efforts among policymakers, financial institutions, developers, and investors to create an ecosystem that supports sustainable real estate finance. A comprehensive approach to overcoming these challenges involves policy reforms, increased government incentives, and strengthening public-private partnerships to foster a sustainable real estate market. Leveraging technology and innovation can significantly reduce the cost of sustainable materials and enhance investment opportunities. Furthermore, increased awareness and education on ESG principles will encourage more stakeholders to embrace sustainable real estate finance. If these solutions are implemented effectively, Nigeria can develop a more resilient and environmentally sustainable real estate sector, contributing to long-term economic growth, job creation, and improved urban living conditions. By prioritizing sustainable financing models and aligning them with global best practices, Nigeria can ensure a thriving real estate industry that balances economic prosperity with environmental responsibility.

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