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Does Incremental Housing Finance Contribute to Sustainability for Africa's Green Affordable Housing? A Scoping Literature Review

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Abstract

This study conducts a scoping literature review of the contribution of incremental housing finance to the adoption of green affordable housing in Africa, grounded in sustainable finance theory. The study synthesised evidence from 33 studies conducted between 2001 and 2025, identifying major themes such as housing microfinance (31%), sustainable housing (19%), and incremental housing finance (13%). The findings show that incremental housing finance (IHF) is a subset of housing microfinance that addresses affordability and sustainability, particularly by contributing to green building practices. This study's theoretical contribution entails situating IHF within sustainable finance theory, which is also significant in addressing affordable housing demand. It demonstrates the potential to align the provision of low-income housing with environmental objectives. This is important for banks, microlenders, and investors in the affordable housing market as a tool to understand developing market dynamics and opportunities to scale up sustainability through IHF. Without incorporating green practices in IHF, Africa's potential for climate-resilient affordable housing would remain significantly underdeveloped.

Keywords: *Incremental housing, finance, sustainable finance, sustainable development, green buildings, affordable housing*

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1. Introduction

In many African cities, rapid urban population growth, underperforming mortgage lending institutions, and reliance on personal savings collectively inhibit housing affordability. (International Finance Corporation, 2024). Moreover, the high cost of construction has historically excluded the majority of citizens in African countries (Hlekane & Okoro, 2024). These challenges manifest as high cost of capital, exclusionary formal financing, and weak purchasing capacity for outright purchases. At the same time, construction constitutes one of the world's largest contributors to carbon emissions (UNEP, 2025). Therefore, sustainability and environmental consideration in housing development have become an increasing concern to housing policymakers, investors, and developers in the affordable housing market (Bashir et al., 2023), further limiting access and investment potential. Hence, the housing sector faces the dual challenge of affordability and sustainability. Developers in the affordable housing market are hesitant to adopt green or sustainable building designs due to the perceived higher initial cost (Akomea-Frimpong et al., 2022). Also, formal financing solutions are insufficient to address growing housing demand across the African continent and investors' appetite for sustainability. These realities drive the need for innovative financing options for Africa's affordable housing market.

Notably, most housing development in developing economies, including in Africa, adopts an incremental strategy (Egino, 2023). In this approach, housing is staged, financing is incremental, and development is adaptive to informal income. It is important to note that incremental housing is increasingly recognised in the literature as the most cost-effective housing supply option in Africa (Muller and Mitlin, 2007; Ferguson and Smets, 2010). However, incremental housing is not as profitable as standard credit-financed housing, even though it is most common in developing nations due to households' low economic standing and perceived risk (Teye, Teye, & Asiedu, 2013; Donkor-hyiaman, 2016; Iyandemye & Barayandema, 2018; Oladeji, Zulch, & Yacim, 2023). Mortgage financing, commonly referred to as bank loans, is frequently given for completely constructed homes and often at exclusionary interest rates that are out of reach. Therefore, the incremental housing finance (IHF) option offers a viable and affordable alternative (Oladeji, Zulch and Yacim, 2023).

While existing studies (Bondinuba & Adjei-Twum, 2016; Leal Filho et al., 2022) have separately examined affordability and sustainability, there are limited structured insights on how incremental housing contributes to sustainability outcomes. Despite the perceived cost of incorporating sustainability features, incremental development can potentially address the need for resource efficiency in energy, water, and materials through staged adoption. This paper situates IHF within the sustainable finance theory (World Commission on Environment and Development, 1987) as both a mechanism for affordability and sustainability. This scoping review seeks to synthesise the available knowledge on how IHF contributes to sustainability by facilitating financial inclusion in many African cities and informal settlements, and reducing housing inequality.

Therefore, the main research question that this study addresses is, "What is the contribution of IHF to the adoption and promotion of sustainable (green) building practices in African housing markets?" This question informs the following sub-questions:

1. What are the key barriers to sustainability adoption in African housing markets?
2. Through which mechanisms does IHF enable the adoption of sustainability?

This paper sought to demonstrate that IHF enables a phased adoption of sustainability in the urban African context through the combined interaction of three mechanisms: financial inclusion, staged adoption of sustainability, and adaptation to informality. This extends the sustainability theory through the context of housing markets and the unique development outcomes of incremental housing.

2. Literature Review

Housing demand and affordability challenges across African urban centres often overlap with environmental sustainability challenges—high carbon emissions, high energy costs, environmental hazards, and power shortages. Yet the extant literature on these twin challenges tends to treat them separately, leaving a limited, structured understanding of the opportunities for developers, lenders, and investors to address both. Widespread financial constraints further shape this problem, as the ability to meet housing needs is tied to broader economic development (UN-Habitat, 2005). In African cities, this ability is increasingly dependent on strategies that address financial inclusion, informality, and inequality together. Yet African city residents are unable to access financing options suited to doing that. In Kigali, mortgage products are available at outrageous conditions, making mortgage finance unaffordable (Iyandemye and Barayandema, 2018). At the same time, living conditions make adopting sustainability seem like an exclusionary move, driven largely by greater capital needs among developers and homeowners. Therefore, this section critically examines the literature on the incremental housing model. It further situates it within the African context, addressing the unique challenges of emerging financial inclusion, housing affordability, and sustainability gaps.

2.1. Incremental Housing Finance

IHF provides a unique opportunity to achieve greater inclusion in housing finance. Given that up to 90% of residential buildings in the developing world are constructed in a gradual or progressive manner, Habitat for Humanity (2014) recommends making housing microfinance available to support this approach.

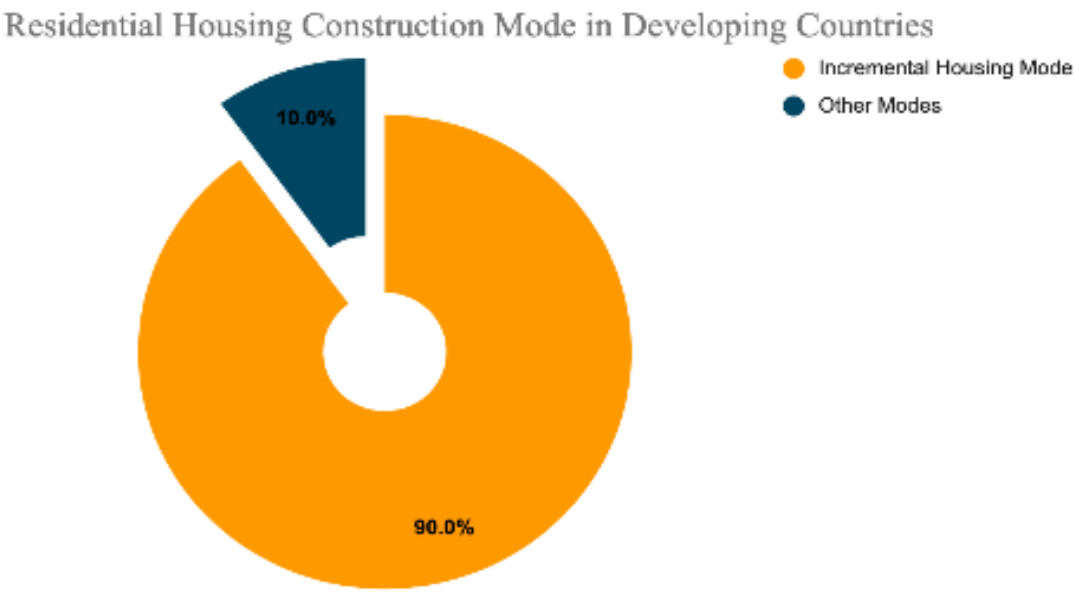

Figure 1: Residential Housing Construction Mode in Developing Countries (**Source:** Habitat for Humanity, 2014)

Considering the estimated size of the Incremental Housing Finance market in developing countries, as shown in Fig. 1, the construction of self-help or incremental housing facilitates access to financial services, inclusion, and long-term solutions for low- and middle-income populations throughout Africa.

However, there is no consensus in the literature on the adoption of IHF as a viable alternative to mortgages. Despite its widespread use, Kongoro and Owino (2016) contend that incremental housing is not the answer to Kenya's limited access to housing finance. According to Berge and Jing (2010), many low-income applicants for financing face exclusionary selection factors in addition to locational, urbanisation, and legal framework problems. This is amplified by the perception that low-income homeowners are high-risk and low-profit, which further inhibits private sector investment in incremental housing. The alternative of expanding mortgage finance has historically failed to address housing market demand. For example, the World Bank abandoned sites and services as well as slum-upgrading projects for two decades to finance national mortgage systems with loan terms typically 20 to 30 years for the middle and upper-middle classes (Hawtrey, 2009). The impact of this has been that the housing backlog across the continent has reached more than 50 million in recent years, with a $1.4 trillion financing gap.

Another significant dimension of this financing gap is that housing's capital-intensive nature requires private investment and cannot rely solely on public funds (Madell, 2024). Without sufficient financing for the low- to mid-income market, issues of housing poverty, slum formation, and informal housing settlements continue to rise. In Africa, this problem is even more pronounced as millions live in housing that is less than ideal and lacks utilities, services, and infrastructure (Hlekane and Okoro, 2024; Madrazo et al., 2025). This poses a unique challenge, as the housing and construction industry is a leading contributor to global carbon emissions. Ahmad (2023) argues that developing a carbon-neutral building is possible, but developing it cheaply is an innovative frontier.

These studies disagreed on the appropriate alternative mechanism for mortgage finance in Africa. They also failed to identify how this gap potentially drives barriers to adopting sustainability. Furthermore, none of these studies has investigated the contributions of incremental housing to achieving sustainability in the housing sector. These make this present study a significant contribution to knowledge. By exploring the mechanisms through which IHF addresses sustainability barriers, this study offers a unique perspective on how this financing approach operates and its relevance to what seem like divergent objectives: sustainability and affordability.

2.2. Sustainable Adoption Barriers

While sustainability adoption barriers are a global reality, the African urban context is shaped by large-scale dependence on less formal financing options, informal income structures, and structural informality that are distinct from those in more developed nations. Therefore, conventional housing finance options further deepen the exclusion and economic inequalities that inhibit affordable and sustainable housing. These financial models, which focus largely on profit and economic efficiency, do not address the sustainability challenges posed by global poverty and the threat of climate change (Ryszawska Bożena, 2024). The bigger problem is that these conventional financial systems are rigid and ill-suited to less formal economic structures, such as those found across Africa. This means such financial structures do not create sufficient housing opportunities, nor can they provide many Africans with the capital needed to adopt sustainable housing practices in housing developments.

Affordability and purchasing power also tend to hinder the adoption of sustainable practices in housing developments across the globe, particularly in Africa. The literature reveals a wide disparity between developed and developing nations and their macroeconomic realities, impacting housing affordability and finance (Muellbauer and Murphy, 2008; Boshoff, 2010; and Bondinuba and Adjei-twum, 2016). These affordability barriers also directly or indirectly limit urban residents' capacity to access sustainable housing developments. The literature has also demonstrated that IHF is an adaptable strategy for addressing these affordability challenges. However, there is limited understanding of its role in achieving sustainability outcomes in housing projects.

This study contributes to sustainable finance theory by investigating the mechanisms by which incremental housing addresses the gap between sustainability and affordability. Traced back to the sustainable development concept developed in the 1987 Brundtland report (see World Commission on Environment and Development, 1987), sustainable finance theory addresses multiple facets of society, including housing in a broad sense. This paper grounds sustainable finance theory in the context of affordable housing finance in urban African cities. Within this framework, IHF is not just an affordability strategy but a tool for achieving sustainable urban development. IHF addresses several key Sustainable Development Goals, including SDGs 1, 3, 6, 7, 8, 10, 11, and 13. Particularly relevant to this study are SDG 7, 10, 11, and 13, which highlight the potential of IHF to reduce inequality, promote sustainable cities, advance climate action, and support energy-efficient buildings.

2.3. Incremental Housing Finance Mechanisms

IHF facilitates financial inclusion through staged financial contributions and its adaptability to the needs of informal housing development. While capital remains a challenge for housing stakeholders in developing nations across Africa, public and private sector entities in some countries, like South Africa, have succeeded in better lending terms through IHF (Marais, Ntema and Venter, 2008; Groves, 2004; Pugh, 2001; and Mehlomakulu and Marais, 1999). In South Africa, these collaborations with the government have lessened the risk that affordable housing poses to investors in the South African affordable housing market (Klug, Rubin and Todes, 2013). Since most African households rely on incremental housing development, the government's facilitating role encourages private sector investment, further strengthening the model (Groves, 2004).

The staged nature of IHF makes it well-suited to many African homeowners, who tend to turn to alternative forms of financing as they build incrementally. The literature highlights the value of financing sources that are suited to incremental housing development (Donkor-Hyiaman, 2016). However, the link to staged adoption of sustainability has not fully emerged. This study strengthens the insights into the IHF mechanism and the links to the staged adoption of sustainability.

By driving collaboration with MFIs, the government, and the private sector, IHF provides low-income housing, directly addressing informality and economic inequalities (Bondinuba and Adjei-Twum, 2016). Its adaptability to informal income and development facilitates housing improvements, including sustainability measures that are ordinarily inaccessible. The IHF mechanisms of financial inclusion, staged development, and adaptivity to informality have been extensively documented in the literature. However, this study's unique contribution is a structured investigation into how these mechanisms address barriers to sustainability adoption in developing African countries.

3. Methodology

This study adopts a pragmatist philosophical stance, recognising that knowledge in emerging fields, such as the convergence of housing affordability and sustainability, is often fragmented and contextual. Rather than focusing solely on empirical data, this approach allows the synthesis of multiple forms of knowledge to understand a phenomenon. The study employs an inductive approach, allowing patterns and trends to emerge in the literature. Aligned to this approach, a qualitative mono-method using a scoping review strategy is followed. According to Arksey and O'Malley (2005), a scoping review examines the extent, range, and nature of research activity, summarising and disseminating research findings. This study applied a scoping review, appropriate for an emerging phenomenon, and contributed a different approach to the emerging sustainability needs in affordable housing markets. The aim of the study, to investigate the extant literature on IHF and its potential for integrating sustainability into affordable housing, is aligned with the purposes of a scoping review. For this study, literature was selected from Google Scholar, Google Search, and Scispace, including journals and other grey literature. These sources were selected and are easy to access and considered sufficient for a scoping review. This study adopted the five-stage scoping review process developed by Arksey and O'Malley (2005). In summary, the scoping review was done in five steps:

1. Identifying the research question.
2. Identifying relevant studies.
3. Study selection.

4. Charting the data.
5. Collating, summarising, and reporting the data.

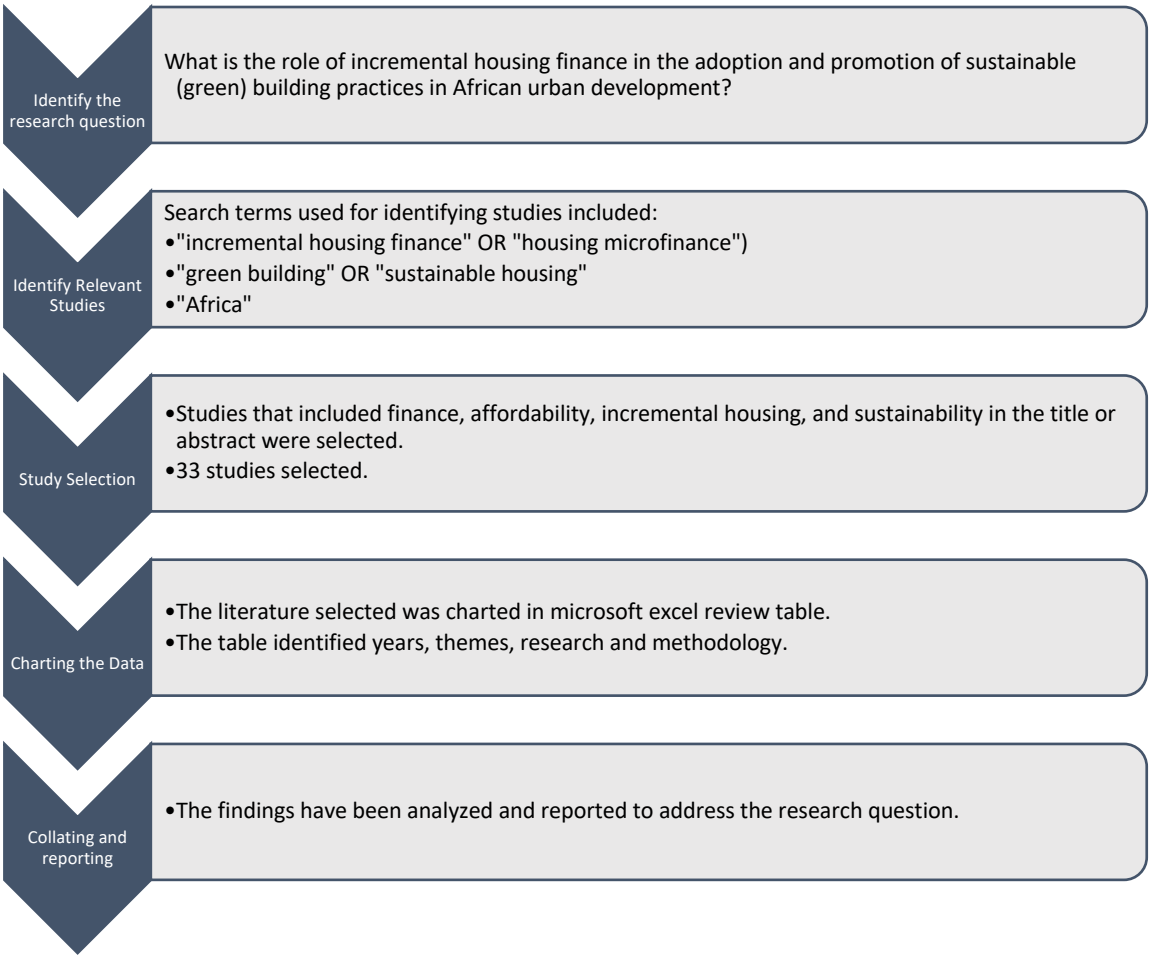

Figure 2: Literature Search and Selection Process (Adapted from PRISMA Framework) (…)

First, our research question was: What is the role of IHF in the adoption and promotion of sustainable (green) building practices in African urban development? The study considered a wide range of literature because sustainability and housing affordability approaches, such as incremental approaches, are emerging concepts and require careful identification of convergence.

As shown in Figure 2, the literature search was based on keywords such as incremental housing, macroeconomic indicators, developing economy, Africa, drivers, and housing finance. The search terms used included ("incremental housing finance" OR "housing microfinance") AND ("green building" OR "sustainable housing") AND ("Africa"). The literature search identified seventy-three studies in the affordable housing finance research space between 1992 and 2025. The exclusion criteria applied were studies not explicitly focused on incremental housing, housing finance, or affordability, and those lacking a geographic focus on Africa. The studies selected, totalling thirty-three (33), specifically mentioned finance, affordability, incremental housing, and sustainability. The data charting was done using Microsoft Excel. The kind of

data to be extracted was predetermined. Some of these were the title, authors, study type, methodology, theme, and year.

4. Results and Analysis

The results, as shown in descriptive table 1, illustrate the recurring themes and patterns in the selected literature. The key themes demonstrate the recurrence and overlap among incremental housing, financial inclusion, sustainable housing, and affordable housing in the African urban context. The selected studies, as shown in Table 1, span the period between 2001 and 2025, with an outlier from 1994, which is among the earliest studies on IHF that address developing-economy needs. There is a total of 33 studies with varying themes and methodologies within the incremental housing literature.

Table 1: Selected Literature for The Scoping Review

Authors	Theme	Location	Methods
Swilling et al. (2018)	Incremental housing concept	South Africa	Mixed
World Bank (2025)	Financial inclusion	West Africa	Mixed
Mokgadinye et al. (2012)	Incremental housing policy	South Africa	Mixed
Madell (2024)	Financial inclusion	South Africa	Qualitative
Egino (2023)	Financial inclusion	Tanzania	Mixed
Kroeker-Falconi and Canclini (2021)	Incremental housing policy	Africa and the Caribbean	Qualitative
Banleman (2008)	Housing microfinance	Ghana	Mixed
Hlekane and Okoro (2024)	Sustainable housing finance	Africa	Qualitative
Kongoro and Owino (2016)	Housing microfinance	Kenya	Quantitative
Ojo-Aromokudu and Loggia (2017)	Incremental housing concept	South Africa	Qualitative
Jones and Stead (2020)	Sustainable housing finance	Africa and Asia	Mixed
Adade et al. (2022)	Incremental housing concept	Ghana	Qualitative
Jumbe and Manya (2020)	Housing Finance	Malawi	Qualitative
Habitat For Humanity (2014)	Sustainable housing finance	Malawi	Mixed
BoP Learning Lab and Dalberg Research (2014)	Affordable housing	Cross-country	Mixed
Van Noorloos et al. (2020)	Incremental housing finance	Cross-country	Qualitative
Doling, Vandenberg and Tolentino (2013)	Housing Finance	Cross-country	Qualitative

Berge and Jing (2010)	Housing microfinance	Botswana	Mixed
Bah, Faye and Geh (2018)	Housing microfinance	Africa	Mixed
World Bank (2015)	Housing microfinance	Africa	Mixed
Tomlinson (2007)	Housing microfinance	Africa	Qualitative
Ferguson and Smets (2010)	Housing microfinance	Cross-country	Qualitative
Prime-Stat PVC Ltd (2018)	Affordable housing	Ghana	Qualitative
Gardner (2008)	Housing microfinance	South Africa	Qualitative
Merrett and Russell (1994)	Incremental housing finance	Cross-country	Qualitative
Amoako and Frimpong (2017)	Affordable housing	Ghana	Qualitative
World Bank (2011)	Sustainable housing finance	Kenya	Quantitative
Oladeji, B. Zulch and Yacim (2023)	Incremental housing finance	South Africa	Mixed
Asibey et al. (2023)	Sustainable housing finance	Ghana	Mixed
Groves (2004)	Housing microfinance	Africa	Qualitative
Datta and Jones (2001)	Incremental housing finance	South Africa	Qualitative

4.1. Research Methodology Trends

Figure 3 illustrates the methodology adopted for the studies in the incremental housing literature. Across the selected literature, the majority (54%) use mixed methods, including literature reviews, case studies, surveys, and interviews. The second most common methodology is qualitative (43%). Meanwhile, the quantitative approach is the least used methodology (3%). The trend illustrates the dominance of the mixed and qualitative research methodology within the incremental housing and sustainability discourse.

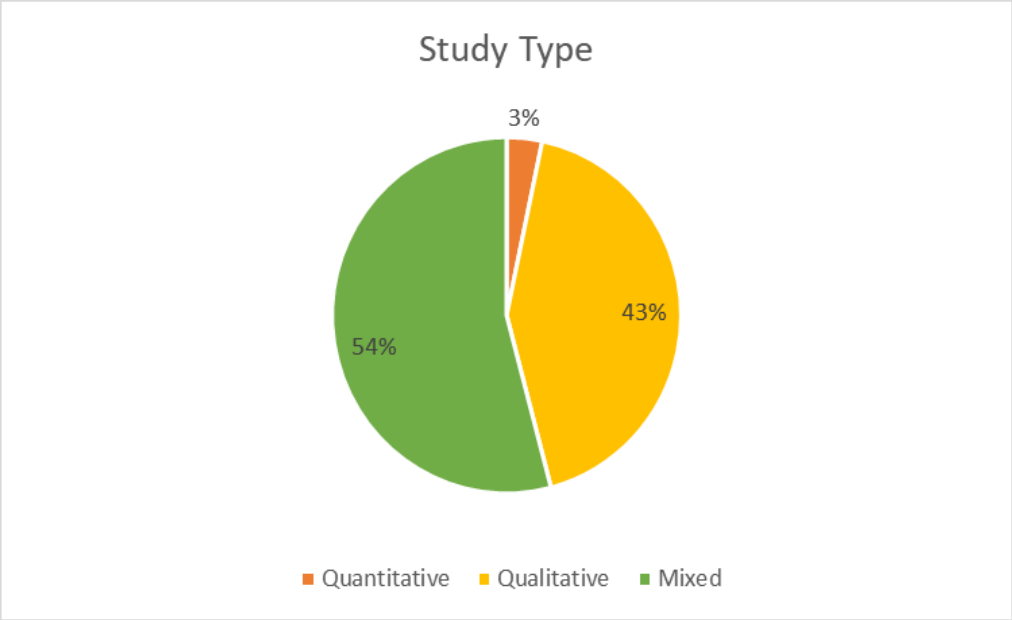

Figure 3: Pie Chart of the Research Methodologies Identified

4.2. Geographical Focus of the Scoping Review

Research on incremental housing has been published in all 54 of Africa's nations. Figure 4 illustrates some of the leading geographic foci of the literature. There are 5 broad continental studies, 2 others with overlaps with Asia and the Caribbean, and 1 focused on West Africa, Tanzania, South Africa, Malawi, Kenya, Ghana, and Botswana. The two leading countries identified in the literature are South Africa and Ghana.

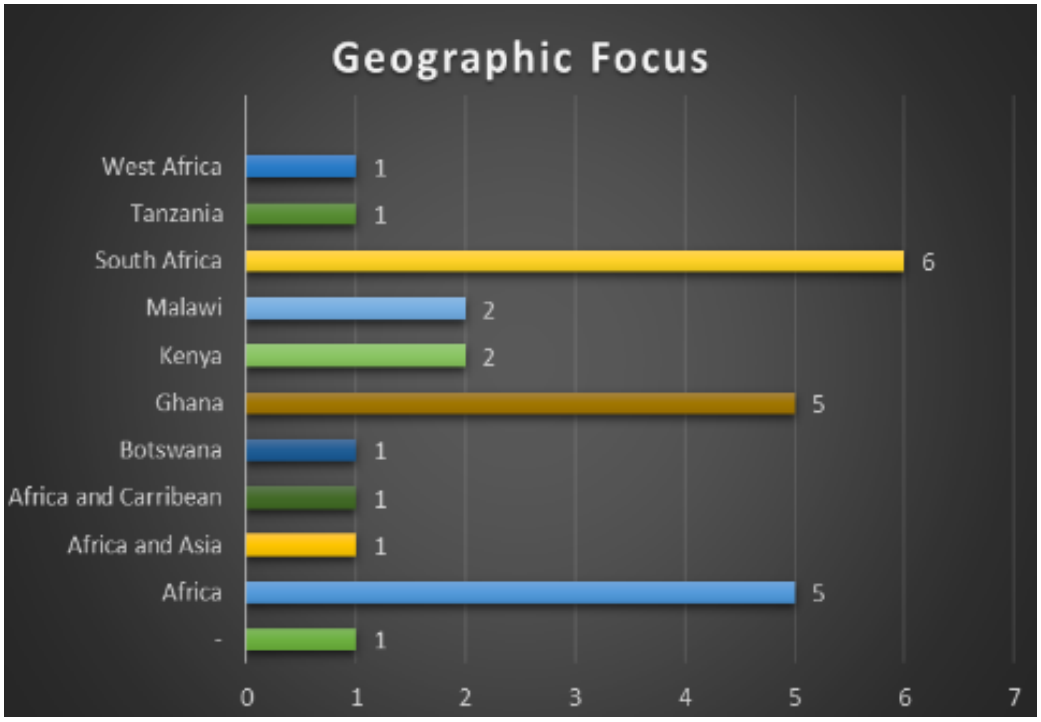

Figure 4: Bar Chart of the Geographic Focus in the Incremental Housing Literature

4.3. Thematic Focus of the Literature Review

As seen in Figure 5, the reviewed literature could be categorised into themes including affordable housing, financial inclusion, housing finance, housing microfinance, incremental housing concept, incremental housing finance, incremental housing policy, and sustainable housing. The top three themes are Housing microfinance (31%), Sustainable housing (19%), and Incremental housing finance (13%).

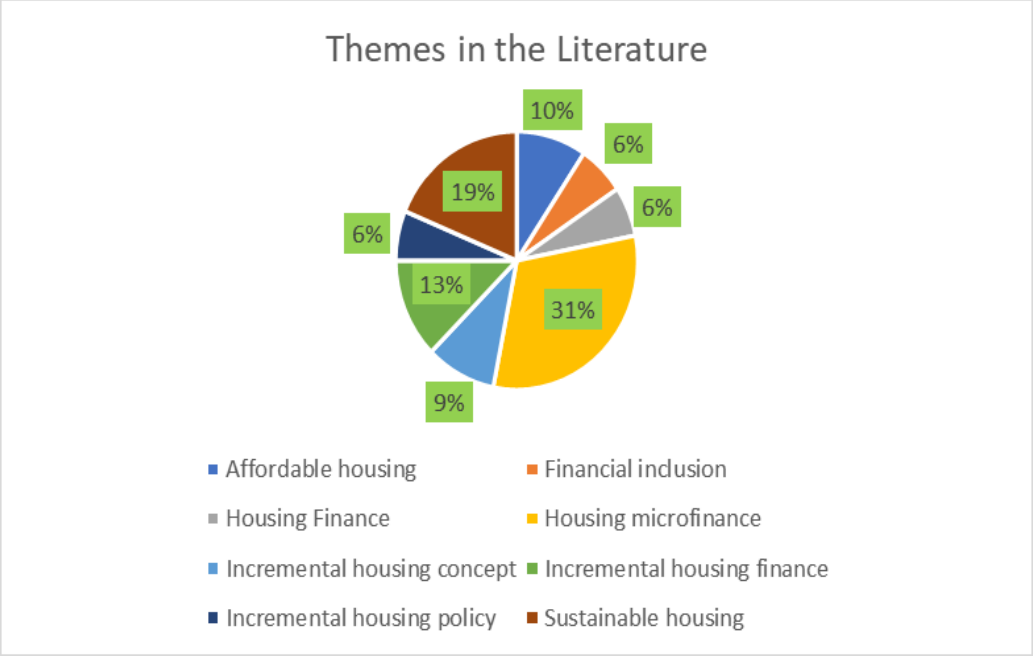

Figure 5: Pie Chart of Themes in the Incremental Housing Finance Literature

4.4. IHF Facilitates Financial Inclusion through Housing Microfinance (HMF) Mechanisms

The review reveals that housing microfinance institutions provide IHF products to low-income households as their development needs evolve. This highlights the role of IHF in improving housing quality and expanding financial inclusion. As Banleman (2008) demonstrated, the IHF, as a microfinance instrument, prioritises financial sustainability. Moreover, the model incorporates public-private partnerships and technical support that are critical for minimising risks and improving the quality of the housing developments. IHF provides access to financing while monitoring household income levels and repayment risk through HMF. Some studies, such as Bah et al. (2018), also highlighted the role of incremental housing as a financing mechanism to improve technical know-how, mitigate risk, and ensure best practices. The World Bank (2015) also recommended that incremental housing through housing microfinance is a valuable strategy for providing quality and disaster-resistant housing. It facilitates the hiring of skilled labour for development that would otherwise be inaccessible. Similarly, Kongoro and Owino (2016) reported that incremental housing offers a viable financing alternative for Kenyans through staged development. The authors put it concisely as:

"Given the limited supply of housing credit, Kenyans have had to resort to incremental housing by depending on microfinance loans to improve or construct their homes gradually" (Kongoro & Owino, 2016).

Incremental housing finance addresses the huge capital outlay that construction requires through micro-lending. Where households run out of cash during construction and are further affected by rising interest and inflation rates, they can access financing to continue development (Berge & Jing, 2010). These studies also highlight the value of IHF as a subset of HMF that addresses affordability and sustainability concerns in Africa by providing the financial resources to incorporate sustainability features. Studies like Tomlinson (2007) and Ferguson and Smets (2010) also report that IHF contributes to financial inclusion through the involvement of multi-stakeholders—communities, businesses/private entities, government, and HMF. This collaborative system makes it attractive to investors in the low- to mid-income housing market.

4.5. Incremental Sustainability Adoption

Incremental housing enables the gradual improvement of living conditions, offering low-income earners the option to adopt sustainability practices (Kroeker-Falconi & Canclini, 2021). These short-term loans for housing projects can include improvements in energy and water management. These types of loans or credit provided for the gradual improvement of living conditions are what is termed IHF. Their report highlights the potential to finance green and sustainable housing in stages, addressing challenges relating to water and sanitation. This agrees with what some describe as a move from commoditised housing delivery to a demand-responsive mechanism (Swilling et al., 2018).

Across the literature, case studies demonstrate the incremental contribution of housing to sustainability through a staged adoption mechanism (Mokgadinye et al., 2012; Ojo-Aromokudu & Loggia, 2017; Swilling Mark et al., 2018). In some countries, such as South Africa, the Green Fund facilitates the provision of solar systems, trains solar operators, drives community-led environmental sanitation, and provides an anaerobic digester for on-site wastewater treatment (Swilling et al., 2018). This financing model emphasised individual participation, community engagement, electrification projects, and environmental or green practices as development proceeds. Mokgadinye et al. (2012) also highlight the value of IHF in reducing overdependence on government subsidies while allowing for gradual improvements in living conditions. Other studies, such as Ojo-Aromokudu and Loggia (2017), Van Noorloos et al. (2020), Adade et al. (2022), and Oladeji et al. (2023), identify sustainability and green improvements as elements of the IHF model. Due to the staged nature of this financing, it is appropriate for low-income households adopting green practices like solar systems, wastewater recycling, and other sustainable improvements.

4.6. Sustainable Housing in Informality

A study on the factors influencing the adoption of green or sustainable practices, using an incremental model, highlights adaptivity to informality as a critical mechanism (Aliyari, 2024). The study reported that the need to enhance environmental sustainability in housing minimise ecological footprint reduce waste and resource consumption and provide financial incentives, influences the adoption of green building practices. Other studies also identify the link between incremental housing and sustainable housing finance as the direct outcome of trends in sustainable housing conversion (Hlekane & Okoro, 2024). This approach involves inclusive housing finance and the use of innovative technology to gradually improve the quality and safety of housing in African urban contexts. They also posited that green building concepts promote affordability through sustainable housing finance targeted at building conversion for low-income groups that dominate informal economies. This model is also influenced by

housing delivery and affordability challenges faced by low-income groups, government interest, community engagement, and the improvement of slum living conditions.

An important case study for sustainable housing finance is found in Reall's Africa operation, as described in Jones and Stead (2020). The Reall model entails sustainable mixed-tenure housing with emphasis on green spaces, community-led development, incremental housing, and HMF. Studies such as Asibey et al. (2023) and the World Bank (2011) similarly highlight the influence of staged housing needs, sustainable city growth, and financial constraints on the adoption of green practices in affordable housing markets.

4.7. Conceptual Framework

The results of this study inform the development of a conceptual framework that can be further validated through other empirical analyses. In Figure 6, this framework extends sustainable finance theory by directly linking IHF to green development outcomes. By incorporating housing microfinance, technical assistance, and public-private partnerships, this framework extends the theory of sustainable finance, offering low-income housing markets an approach that connects sustainability to affordability. This framework positions IHF as a central piece in the convergence of sustainability and affordability.

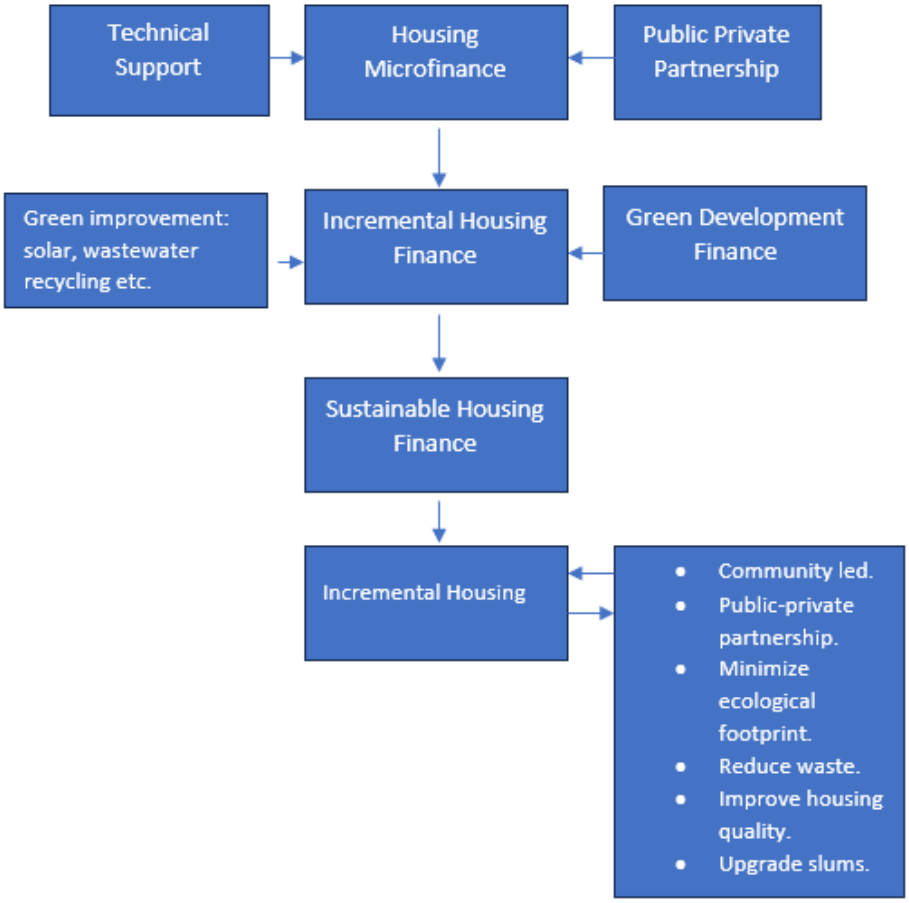

Figure 6: Conceptual Framework for Green IHF

As seen in Figure 6, incremental housing finance interacts with three core input mechanisms – housing microfinance, public-private partnership, and technical support at the first layer. These three inputs are the local interactions with the model. Housing microfinance forms the primary financing framework by which incremental housing finance is advanced to end users. Typically, these financing options are provided in partnership with relevant technical experts, material suppliers, and developers to ensure quality control and standards. Furthermore, the partnership between public and private institutions, like the case of the NHFC in South Africa, also derisks this form of financing. (Oladeji et al., 2023).

The HMF achieves affordability by relying on strong technical support and a public-private partnership. Building on sustainable finance theory, it provides an integrative model of financial inputs (e.g., housing microfinance, green development finance, public–private partnerships, and technical support) and socio-environmental outputs (e.g., quality affordable housing, slum upgrades, and reduced ecological footprint). This framework incorporates

iterative and mutually reinforcing linkages: technical support for HMF recipients mitigates risks, attracting private investment, while public-private partnerships bridge financing and infrastructure gaps, further strengthening interest in and the viability of green improvements in affordable housing.

At the second layer, this framework provides an interactive and connected model for interventions that are typically siloed. Based on the literature reviewed, this study proposes integrating green practices in the incremental delivery method for low-income households in African urban contexts (Ojo-Aromokudu & Loggia, 2017; Van Noorloos et al., 2020; Adade et al., 2022). International development financiers play an important role by contributing to incremental housing financing with sustainability outcomes clearly defined. Green finance for green improvements and housing upgrades potentially offers improved living conditions at scale. This drives the creation of sustainable housing finance and incremental housing, which in turn minimises the ecological footprint, reduces waste, drives slum upgrades, and integrates community participation. This framework synthesises the literature on incremental housing finance and the potential for sustainability in African urban housing. It offers policymakers and practitioners a viable approach to financing green affordable housing across the continent. It also illustrates the opportunities to overcome financing barriers to sustainability in the low-income housing market.

These insights are essential for developing policies and strategies that provide optimal financing options with utility and value for low-income households in emerging African economies. The results of this study also suggest that without embedding sustainability in IHF, Africa risks perpetuating housing poverty, financial exclusion for the majority, and environmental degradation. Government institutions and housing policymakers should prioritise incentives for green development, such as tax rebates, green subsidies, and priority access to land, which will align investors' objectives with sustainability outcomes. For developers and property practitioners, HMF partnerships and community involvement provide channels for mainstreaming green practices in the affordable housing sector.

This framework further contributes to the theory of sustainability by identifying core attributes of the model within the African urban housing context. It further leads to some observable hypotheses, such as the following:

1. Sustainability within the IHF framework is driven by technical support for low-income housing development.
2. The growth of IHF is directly correlated with growing access to green and sustainable financing and the demand for green improvements in low-income housing markets.
3. Green and sustainable financing supply drives the growth of sustainability in the incremental housing market.

Further empirical studies that test these hypotheses would strengthen the theoretical contributions by examining these relationships within the proposed framework. Through the literature scoping review, this study demonstrated IHF's contribution to sustainability adoption through 3 mechanisms: financial inclusion, staged development, and adaptation to informality. By situating it within the sustainable finance theory, this paper extends the theory, illustrating how financially inclusive mechanisms can balance profitability, equity, and environmental responsibility in emerging markets.

5. Conclusions

This study conducted a scoping review of 33 studies within the African context to critically examine the contribution of IHF to the adoption and promotion of sustainable (green) building practices in African housing markets. The results demonstrated that the staged nature of IHF aligns with the African urban housing needs and contributes to the adoption of green or sustainable practices. This finding is evidenced by the growing inclusion of environmental and green strategies in slum upgrades, building conversions, and housing unit improvements. The studies report that the adoption of sustainability in the African urban context is limited by the high cost of formalised capital, such as loans, the exclusionary requirements for accessing these loans, and the economic realities of developing nations relative to developed ones. The lack of a structured understanding of how housing affordability in the literature overlaps with sustainability has further contributed to these barriers.

The main contribution of this study is that it demonstrates that IHF offers a market-based and socially inclusive mechanism for green affordable housing in Africa. The results offered a unique perspective on sustainable finance theory, providing specific context for how IHF contributes to sustainable housing in Africa. IHF underscores the value of community engagement, individual participation, and public/government participation in driving a sustainability agenda within affordable housing markets in African cities. This scoping review demonstrates that within low-income housing markets, development relies on the three IHF mechanisms of financial inclusion, staged financing, and informal adaptation to drive sustainable outcomes. This study also proposes an IHF framework that integrates IHF with the sustainability measures identified in African markets. Building on sustainable finance theory, this study proposes the first integrative framework that combines the affordability and sustainability literatures. This model demonstrates how financial inputs (e.g., housing microfinance, green development finance, public–private partnerships, and technical support) can contribute to socio-environmental outputs (e.g., quality affordable housing, slum upgrades, and reduced ecological footprint).

It is recommended that a savings, community, and cooperative model be adopted as a form of financial intermediation for sustainability adoption. This allows loan security to be handled differently under non-traditional contexts. Combining community-led sustainability with short payback periods and modest advances reduces the lender's risk while providing homeowners with ongoing financial resources to stage their development and adopt sustainability practices. The ability to pay may vary from one nation to another and even between regions within the same nation. Consequently, the study anticipates distinct interactions between different economies and the housing finance sector. Further research on these connections, or the role that certain social, political, and economic circumstances play in attaining housing finance affordability and sustainability throughout Africa, can be examined in future research. Measuring and improving home finance affordability is a challenge, particularly in developing nations, where monitoring consumer behaviour and data can be difficult. Therefore, further studies measuring the market's readiness for sustainability adoption are important areas for contribution, worth investigating. Further empirical studies can also test the proposed framework across various African contexts to demonstrate its validity and practical applications, thereby informing policy interventions.

Declaration:

There are no conflicts of interest to declare.

Use of Generative AI:

The use of tools includes: Quillbot (for editing statements and paraphrasing other literature), Grammarly (for editing and proofreading text for grammar and vocabulary correctness), and ChatGPT (for preliminary search and fact-checking of the study focus). We declare that the full content and ideas in the article are fully representative of our work and not generated from AI.

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