

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

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ABSTRACT: Addressing urban housing crisis, especially in Sub-Saharan Africa, requires implementing informal settlement upgrading (ISU). This paper investigates, compares and contrasts government-led and community-led ISU strategies, assessing their efficacy in fostering sustainable and affordable housing options. Comparative analysis was done based on themes that run across literature, and emphasises important aspects such as planning and execution, socio-economic effect, financial sustainability, governance systems, and resilience. Results reveal that while they may be sluggish to implement, lack community involvement, and run gentrification concerns, government-led projects offer policy support and large-scale infrastructure. Community-led initiatives prioritise local empowerment, affordability, and participatory planning but struggle with limited resources and lack of official acknowledgement. The results further imply that hybrid strategies (mixing government assistance with grassroots involvement) provide the most hopeful road for sustained urban growth. Efforts to promote resilient ISU require fundamental methods such as enhancing community involvement, using digital technologies, and closing policy holes.

KEYWORDS: Informal Settlement Upgrading, Urban Housing, Government-Led ISU, Community-Led ISU, Sub-Saharan Africa.

1.0 Introduction

The predominance of informal housing has become an important component in urban growth, particularly in quickly urbanising regions globally (Suhartini and Jones, 2023). The global population is growing in metropolitan areas in the twenty-first century (Marana et al., 2020). 60% of people on Earth are expected to live in cities by 2030, up from more than 54.4% in 2016 (United Nations, 2023). The sustained urbanisation rates of 3.3% between 2010 and 2015, 3.1% between 2015 and 2020, and 2.3% between 2020 and 2025 will result in nearly half of Africa's population (47.2%) residing in cities by 2025 (UN-Habitat, 2011).

The rate of urbanisation in Africa have contributed to a huge housing shortage defined by a severe dearth of affordable housing choices. The situation in Sub-Saharan Africa requires urgent intervention. According to UN-Habitat (2011) in 2000, countries like Angola, Cameroon, DR Congo, Ethiopia, Ghana, Kenya, and Uganda have an annual deficit ranging from 70,000 to 121,000 units. These statistics are further emphasized by data from UN-Habitat (2018), which indicates that Sub-Saharan Africa has the highest proportion (more than 50%) of urban people living in slums when compared to other regions of the world, where the figures range from 20% to 31%. In Ghana, the government estimates that 5 million people, or 20% of the population, already reside in slums, which will rise by 1.8% annually (Stacey and Lund, 2016). These places are overcrowded and have little access to piped-borne water lack, and adequate sanitary amenities. With an estimated population density of 608 persons per hectare, the residents in informal settlements make up around 15.7% of the land area (Agyabeng et al, 2022). Other sub-Saharan African counties have similar conditions.

Adequate in both quality and location, affordable housing, defined as not being so expensive as to prevent its residents from meeting other essential living expenses or compromising their ability to exercise fundamental human rights UN-Habitat (2011), when non-existent, has wide-ranging repercussions for persons and communities. It inhibits social and economic growth, contributes to poverty and perpetuates socioeconomic inequities (Enwin and Ikiriko, 2021). Without the availability of decent and affordable housing, individuals and families might be unable to meet their fundamental needs, manage their resources effectively, and invest in education, healthcare and other basic amenities (Enwin and Ikiriko, 2023).

Addressing the housing issue in Sub-Saharan Africa and ensuring a sustainable future for its urban population is not an easy quest. A cursory review of literature indicates that strengthening urban planning strategies, promoting public-private partnerships, improving access to financing, investing in infrastructure, improving policy implementation, and increasing government support for affordable housing initiatives are deemed as laudable strategies. However, there is little emphasis on how community-led initiatives can be strengthened to play a crucial role in upgrading informal settlements. This research, therefore, sought to find answers to the

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

following research questions: (i) how can community-led initiatives supported by government and private sector partnerships contribute to the transformation of informal settlements into affordable and sustainable housing neighbourhoods in Ghana? (ii) what are the major challenges and opportunities for implementing community-led informal settlement upgrading projects in Ghana? and, (iii) how can community-led initiatives be strengthened to resolve the challenges of informal settlement upgrading?

2.0 LITERATURE REVIEW

This section overviews the concept of informal settlements and their upgrading approaches led by the public, private entities, and the community.

2.1 Concept of Urban Informal Settlements

Urban informal settlements are characterised by the proliferation of rapid urbanisation, especially in Sub-Saharan Africa. Slums, squats, shanty towns, spontaneous settlements, unregulated or unplanned, clandestine, subnormal or spontaneous, and many more names are used to describe informal settlements, making it extremely challenging to agree upon a single description (Agyabeng et al., 2022). UN-Habitat (2015) characterises informal settlements as suburban locales where residents frequently lack secure tenure of the land or residences they inhabit, and where neighbourhoods typically lack fundamental services associated with urban infrastructure, with housing that does not adhere to planning and building regulations.

Informal settlements are defined by inadequate infrastructure, absence of essential services, overpopulation, and precarious land tenure (Huchzermeyer, 2011). These communities arise from swift urban expansion, a scarcity of inexpensive housing alternatives, and insufficient urban planning structures. The issues presented by informal settlements are many, encompassing environmental degradation and socio-economic marginalisation. Informal settlements sustain a cycle of poverty, as residents frequently lack access to formal work, education, healthcare, and public utilities (UN-Habitat, 2020).

The great urban housing shortage is the main driver behind informal communities. The fast influx of inhabitants to metropolitan areas has outpaced the ability of both governmental and private entities to offer sufficient housing (Parnell and Pieterse, 2014). This has led in the emergence of informal housing alternatives that, although affording shelter, frequently do not satisfy acceptable living standards. According to UN-Habitat (2018), more than 50% of urban people in Sub-Saharan Africa reside in informal settlements, with Ghana, Kenya, and Nigeria exhibiting some of the highest rates of informal housing, thereby identifying the region as the worldwide epicentre of slum dwellers.

Despite the many challenges related to informal settlements, they also present opportunities for innovative urban reform. Informal settlements often feature dynamic local businesses, strong social networks, and high levels of community cohesion (Huchzermeyer and Karam, 2006). Recognizing these qualities, urban development initiatives have increasingly prioritised participation-based approaches to informal settlement reform. This move from eviction and resettlement to in-situ upgrading highlights the significance of inclusive urban planning activities that prioritise the needs and wants of affected people (UN-Habitat, 2022).

In certain areas, the literature has consistently examined old theories and discussions, but there is a paucity of new material or thinking addressing the subject of informal settlements and how society may strive to meet demands, therefore research arguably remains an emerging topic in this area (Atkinson, 2024).

2.2 Informal settlement upgrading

The term "upgrading" refers to actions taken to improve housing quality and the availability of housing-related services and infrastructure to communities that are technically classified as "slums" or that were founded illegally, including squatter settlements (Satterthwaite, 2012). One of the most notable underpinnings of upgrading took place when the World Bank began to finance 'slum' upgrading programmes in the early 1970s (Satterthwaite, 2012). Since then, there have been disputes that informal settlement inhabitants may not be all that bad, and thus, there is a need to upgrade such communities to guarantee that settlers have excellent infrastructural facilities (Amoako & Cobbinah, 2011). Perhaps this is because scholars have developed a new perspective on informal settlements by emphasising informal dwellers' influence and potential for economic and urban development (Roy 2010). For example, creative entrepreneurship and 'informal exceptionalism', portray informal residents as innovative entrepreneurs (Chien 2018; Dinardi 2019; Oteng-Ababio et al. 2019). Informal residents benefit from formal sector wholesalers and retailers in this regard, as they contribute to the tax base and profit margins of the formal sector (Crush et al. 2019).

Many of the people of informal settlements have effectively exploited their expertise to build small and medium-sized enterprises that employ other informal settlers (Agyabeng et al., 2022).

2.3 Public sector-led approaches

The very concept of upgrading involves an assumption by governments that the settlement to be 'upgraded' is genuine and that the residents have a right to dwell there (Satterthwaite, 2012). Governments disregarded and aggravated the problems by bulldozing informal communities. Even if they did not bulldoze the communities, governments viewed them as illegitimate and hence with no claims on government infrastructure and services (Satterthwaite, 2012). How a government decides to approach informal settlements speaks much about policy and ideals, but likewise the government itself, and how the government is or is not reacting to changing expectations and settings (Atkinson, 2024).

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Government actions to informal settlements may follow numerous courses, from no action, allowing the informal settlement process to develop and its endemic problems to potentially grow more severe, to removal from the disputed region. Governments may choose to merely allow for informal settlements and pay some stipend to occupants rather than providing more comprehensive strategies to address the core causes of informal settlements (Yonder, 1987).

Governments also have alternatives to eviction, such as improvement (including granting infrastructure access or improving building approaches (Deekshit and Sumbre, 2022)), though upgrades may re-create marginalisation for some groups if coordinated initiatives are not made to avoid such outcomes. However, informal settlements may be allowed to continue solely because the alternatives, including displacement with no alternative home, are intolerable (Atkinson, 2024). This change from eviction and resettlement to in-place upgrading emphasises the significance of inclusive urban planning initiatives that focus on impacted communities' needs and aspirations (UN-Habitat, 2022).

The government must handle the issues that arise while improving informal communities. Informal settlements present a wide range of difficulties, including environmental deterioration and socioeconomic marginalisation.

2.3.1 Policy Intentions and Implementation Gaps

There is frequently a noticeable gap between the goals of policies and their actual implementation, even with the best of intentions expressed in programs like the Upgrading of Informal Settlements Programme (UISP). The Department claimed to have upgraded 400,000 units in 2014, for example, however, it is thought that only roughly 10% of these were actual UISP projects, with the majority being traditional housing complexes (Yap 2023). This calls into question the necessity of coordinating practice with policy goals and the efficacy of current upgrading targets.

2.3.2 Example of Government-Led Informal Settlement Upgrading

South Africa recounts a significant endeavour is the National Upgrading Support Programme (NUSP), established to integrate informal settlement upgrading into national housing policy. Despite the development of two million residences post-1994, over 2,600 informal communities still existed, containing an estimated 1.4 million households (Cities Alliance, 2014). In response, NUSP sought to offer basic infrastructure, services, and land tenure to 400,000 informal settlement residents by 2014. This initiative stressed a participatory in-situ upgrading process, involving locals in planning and implementation, building a sense of ownership, and ensuring that renovations meet community needs (Cities Alliance, 2014).

The eThekweni Municipality Upgrading Project in Durban adopted a pragmatic approach by focusing on providing basic services such as water, sanitation, and electricity, rather than solely constructing housing units. This strategy acknowledged the rapid pace of urbanization and the limited resources available for housing provision. By 2019, the municipality had built 1,500 ablution blocks, provided electricity to 102,000 informal dwellings, and installed over 80,000 urine diversion toilets in rural households (Metropolis, 2019). This shift from a traditional housing provision model to one prioritizing essential services allowed the municipality to address health, safety, and living condition challenges more effectively within budget constraints (Metropolis, 2019).

In Cape Town, the N2 Gateway Project serves as a case study showing the challenges of a top-down approach to informal settlement upgrading. Initiated in 2004, the project aims to replace informal shacks along the N2 motorway with formal dwellings (Worcester Polytechnic Institute [WPI], 2012). However, the absence of community involvement led to suspicion and resistance. Residents were relocated to temporary accommodation distance from their workplaces and schools, affecting their livelihoods. The project's design and implementation problems underlined the necessity of community participation in upgrading projects (WPI, 2012).

2.3.3 Key Components of Successful Upgrading

Involving the community in the planning process must be a top priority for every successful government-led improvement initiative. For instance, the UISP recognises the value of community involvement in fostering a sense of ownership and sets aside 3% of the overall project budget for social facilitation (Yap 2023). Furthermore, considering the difficulties of upgrading informal settlements, efficient project management is essential, as evidenced by UISP's 8% budget allocation (Yap 2023). To maintain efforts over time and institutionalise the upgrading programs, upgrading is by its very nature an incremental process that requires steady and constant budgetary expenditures at both the national and local levels (Sishawu, 2023).

Financial and Institutional Aid: To successfully implement upgrading programs, the government must mobilise both public and private resources and create subsidies to assist large-scale projects (Sishawu, 2023). It is crucial to achieve coherence among different groups, which may contain a range of vested interests. By making inhabitants the primary stakeholders in the upgrading process, their needs and goals are met and a cooperative atmosphere is promoted (Sishawu, 2023).

2.4 Private sector-led approaches

In places where a government lacks resources, the private sector has often been cited as a possible source of assistance; informal settlements are no exception (Atkinson, 2024). Furthermore, according to Atkinson (2024), the dependency theory posits that the government is responsible for addressing these issues due to the extensive global dynamics between developed and developing nations, as well as the micro-level inequality that exists between urban and rural people and those with and without resources. However, in certain instances, governments have been accused of failing to provide necessary services, making them exclusive and unaffordable for client groups in need. There hasn't been enough participation in governance (Atkinson, 2024).

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Private-led approaches to upgrading informal settlements encompass a diverse range of strategies that leverage the engagement of businesses, non-governmental organizations (NGOs), and community-based organizations to enhance living conditions in urban areas characterized by informality. These strategies have become more important because of their potential to support sustainability, economic growth, and community empowerment as informal settlements continue to spread throughout the Global South due to growing urbanisation and housing shortages. The noteworthy growth of these strategies is indicative of a larger paradigm change in urban planning, from conventional top-down models to more participatory frameworks that give residents' demand and voice priority (Abbott, 2002).

2.5 Community-led informal approaches

Community-led methods of informal settlement upgrading are a spectrum of techniques and practices meant to enable people to actively contribute to improving their living conditions. Especially in the light of urban informality and climate resilience, community-led development projects are essential for resolving the special difficulties of informal settlements. These initiatives empower local communities to take responsibility for their development by engaging them in the discovery, planning, and implementation of projects suited to their specific priorities (Cornwall & Jewkes, 1995). This bottom-up approach not only increases community engagement but also fosters a sense of ownership among residents, which is vital for the sustainability of projects. As Arnstein (1969) observed, meaningful involvement goes beyond mere consultation and entails the redistribution of power, allowing communities to actively define their futures.

Community-led strategies for upgrading informal settlements have attracted substantial attention since the 1980s, reflecting a change from top-down to bottom-up approaches in development discourse (Rakodi, 1999). Community-led planning entails engaging residents in the planning process to ensure that interventions successfully meet local needs. This includes performing participatory needs assessments, formulating community action plans, and monitoring the execution of projects.

2.6 Theoretical Frameworks

2.6.1 System theory:

System theory offers a significant framework for understanding and supporting community-led upgrading efforts within informal settlements. This perspective emphasizes the connectivity and interaction of elements within a community, noting that informal settlements are not isolated entities but rather complex systems strongly entangled with the greater urban landscape. According to Bronfenbrenner's ecological systems theory, as depicted by Hasan (2022), terms like 'microsystem', 'mesosystem', 'exosystem', and 'macrosystem' explain how the different levels of the environment of an individual affect their development.

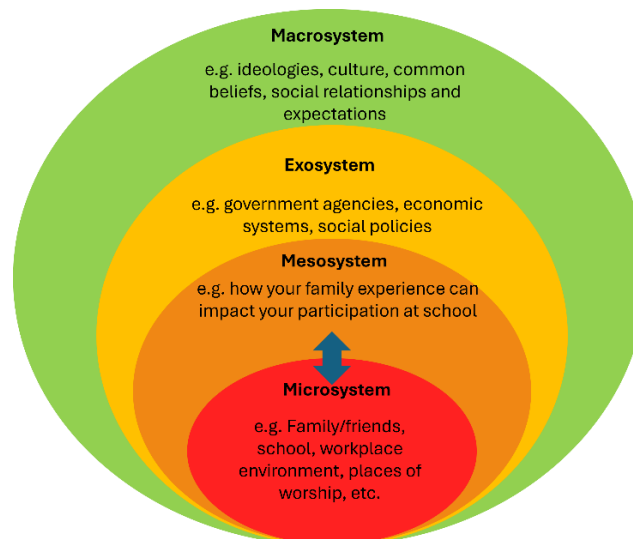


Figure 1. Bronfenbrenner's System Theory Explained

Source: (Hasan 2022)

The microsystem is the immediate environment, such as family or school, which shows the relationship between a child and the parents or teachers. The mesosystem is that which connects the two microsystems, exhibiting the effect of the child's home life on school, and vice versa. It also connects the parents in the attendance of parent-teacher meetings. The external environments, like office policies affecting the indirect dynamics at home is captured as the exosystem. The example of a parent having to move outside town due to an office duty can affect the time spent with the child. The macrosystem is a wider environment which stems from laws, culture and values of the community, or nation. An example is the compulsory basic school education programme with age attachments. The system theory explains that the effect of one offset the original balance of the others. Consequently, any intervention must reflect the holistic character of these systems. As Capra (1996) highlighted, "Systems thinking emphasizes that

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

any change in one part of the system will have repercussions throughout the system." This highlights the necessity for comprehensive and integrated approaches to upgrading.

2.6.2 Indigenous Worldviews:

By highlighting interconnectedness, holistic awareness, and the importance of local knowledge, indigenous worldviews offer a solid theoretical basis for community-led informal settlement upgrading (Berkes, 2012). These worldviews emphasise the importance of harmonious relationships between humans and their surroundings and view communities as inextricably linked to their ecosystems (Cajete, 1999). This viewpoint aligns with the collaborative character of community-led efforts by prioritising the well-being of the group over individual benefit (Whyte, 2018). Generation after generation, indigenous knowledge systems offer distinctive perspectives on culturally relevant solutions and sustainable resource management (Agrawal, 1995). When rooted in these worldviews, community-led upgrading respects regional customs and conventions, creating a feeling of cultural continuity and ownership (Smith, 2012).

Participatory and consensus-based decision-making is generally highlighted, emphasising the value of shared accountability and community wisdom (Simpson, 2017). This approach respects communities' inherent strengths and resilience, empowering them to address their own difficulties (Tuck & Yang, 2012). Indigenous worldviews also stress long-term sustainability, evaluating the impact of current acts on future generations, which corresponds with the community-led goals of producing durable and fair solutions (Salmón, 2000).

2.6.3 Types of Community-Led Approaches

Participatory urban planning is a vital component of community-led initiatives, enabling people of informal settlements to actively engage in decision-making processes. This paradigm emphasises that development programs developed without community input typically result in unsatisfactory outcomes and can even worsen existing disparities (Chambers, 1997). By combining the expertise and knowledge of people most affected by urban difficulties, participatory planning can lead to more relevant and sustainable solutions that correspond with community expectations. As Forester (1989) says, planning should be a collaborative process that respects multiple perspectives and facilitates reciprocal learning.

Tenure security is another key component, calling for the regularization of land tenure to preserve people's rights and promote community-led upgrading activities (Payne, 2002). Secure tenure provides residents with the motivation to invest in their homes and communities, supporting long-term growth. Housing and service delivery involves enabling communities to plan and implement housing improvements and basic service provisions that enhance living conditions. This can involve self-help building, community-managed infrastructure, and the provision of critical utilities such as water, sanitation, and electricity.

Climate risk management employs local knowledge and practices to build adaptation strategies that lessen the impacts of climate change on vulnerable people (Ensor & Berger, 2009). This can involve creating early warning systems, erecting flood barriers, and promoting climate-resilient livelihoods. Livelihood creation supports efforts that produce revenue and enhance economic stability within the community, such as micro-enterprises, skills training, and access to markets.

Community-based disaster Risk Reduction (CBDRR) focuses on empowering communities to prepare for, respond to, and recover from disasters. CBDRR stresses the utilisation of local knowledge and resources to promote resilience and reduce vulnerability (Twigg, 2015). Community-Based Natural Resource Management (CBNRM) includes communities in the management and conservation of natural resources, such as forests, water, and land. CBNRM promotes sustainable resource use and equitable benefit sharing (Ostrom, 1990).

2.6.4 Community-Led Informal Settlement Upgrading.

In Kenya, the Muungano wa Wanavijiji movement has proven the power of collective action in gaining land tenure and upgrading informal settlements. This movement, which began in the 1990s, comprises of organized savings organisations that engage in land negotiations and upgrading activities, such as water provision and housing upgrades (Lines & Makau, 2017). The success of this effort resides in its grassroots-driven strategy, which ensures that solutions correspond with community needs. Additionally, its capacity to build collaborations with NGOs and government organisations has boosted its efficacy. Weaknesses include the slow rate of formal land titling and legal recognition, which inhibits progress in some places. The initiative's potential involves spreading its strategy to other informal communities in Africa. However, factors such as government bureaucracy and resistance from landowners represent considerable hurdles (Weru, 2004).

The Informal Settlement Network (ISN) in South Africa, funded by NGOs like the Community Organization Resource Centre (CORC), shows a successful bottom-up strategy. By 2010/11, ISN had networked 600 settlements across major South African cities, increasing community engagement in upgrading projects. The "re-blocking" technique, which entails repositioning shacks to provide for access streets, amenities, and safe public areas, has been adopted in numerous settlements, notably Joe Slovo and Mtshini Wam in Cape Town (Cirolia & Scheba, 2019). These projects proved that community-driven initiatives, in cooperation with local governments, might lead to more effective and durable upgrading outcomes (Cirolia & Scheba, 2019).

2.6.5 Strategies for Community-Led Approach

Participatory in-situ upgrading is a core technique for enhancing informal settlements, emphasizing the crucial need to include inhabitants and stakeholders in the decision-making process. This approach reflects a considerable divergence from prior top-down

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

policies used in sub-Saharan Africa, where evictions were generally considered the key solution to informal settlements (Watson, 2002). Recent policy adjustments increasingly highlight the development of existing neighbourhoods through collaborative efforts that actively engage community members in planning and implementation (UN-Habitat, 2015; Roy, 2011).

The adoption of a transdisciplinary framework is important in the effective upgrading of urban informal settlements, enabling collaboration among varied stakeholders. This strategy integrates knowledge and practices from multiple disciplines, including urban planners, architects, engineers, and crucially, the community itself. By prioritizing secure, affordable housing alongside key infrastructure and services, this model attempts to build holistic solutions that are sustainable and inclusive (Pieterse, 2008; Parnell & Pieterse, 2010). The project's overarching purpose is to provide immediate assistance through improved living conditions as well as to empower communities by establishing trust and fostering strong, durable relationships (Mitlin & Satterthwaite, 2013). This paradigm emphasises that the complex nature of informal settlements requires a diverse response, drawing on expertise from numerous sectors to generate comprehensive and lasting change.

Innovative land management practices, such as land readjustment and Community Land Trusts (CLTs), are widely acknowledged as useful mechanisms for upgrading informal settlements. Land readjustment leverages the potential worth of land currently occupied by informal settlements, enabling economic sustainability through densification and cross-financing mechanisms (Angel, 2000). This technique enables for the restructuring of land parcels to improve infrastructure and public areas, while also creating potential for higher housing density and economic development. Meanwhile, CLTs provide a framework for collective land ownership, helping communities to gain control over their land and advocate for their rights despite political and economic constraints (DeFilippis et al., 2006). The Caño Martín Peña CLT in Puerto Rico offers as a great example of this strategy, empowering over 2,000 families to restore land rights through intense community organisation and sustained political activism (Madden, 2016). This type of land tenure helps communities to protect their housing and develop long term prosperity.

Incremental housing strategies, where residents gradually improve their living conditions as resources permit, have proven beneficial in informal settlements across the Global South. This technique coincides with residents' financial capacities, enabling them to engage in house modifications without incurring large debt (Turner, 1976). Incremental housing emphasises that housing is a process, not just a product, and allows people to modify their dwellings to their changing requirements and resources.

The development of continual evaluation procedures is vital for assessing the performance of upgrading projects and ensuring that they stay responsive to community requirements. This involves collecting feedback from community members and analysing indicators related to health, security, and empowerment to assess the impact of programs (Choguill, 1996). Regular community workshops and meetings facilitate ongoing dialogue, ensuring that the upgrading process remains responsive to the communities' needs and ambitions (Gaventa, 2004; Cornwall, 2008). This collaborative approach enhances the physical environment and strengthens community relationships and resilience, generating a sense of common ownership and responsibility (Miller, 2025). The evaluation must be a continual process, allowing for improvements to be made as needed, and ensuring that the project remains aligned with the community's goals.

3.0 METHODOLOGY

This review uses a comparative analysis methodology to investigate and synthesize the current literature on informal settlement upgrading programs in Sub-Saharan Africa, focusing notably on the contrasting methods of government-led versus community-led interventions. A comprehensive search strategy was created, utilizing a variety of electronic databases, including Scopus and Google Scholar, alongside focused searches of organizational websites such as UN-Habitat, Slum Dwellers International, and the World Bank. The search included a combination of keywords and Boolean operators, spanning topics such as informal settlement upgrading, community-led development, government intervention, Sub-Saharan Africa, and related themes. Inclusion and exclusion criteria were defined a priori to ensure the relevance and quality of the selected studies. Inclusion criteria focused on peer-reviewed journal articles, reports, and working papers published in English. Studies were eliminated if they focused on informal settlements outside of Sub-Saharan Africa, lacked a clear focus on upgrading, or were solely descriptive without presenting analytical viewpoints.

Following the selection of relevant research, a uniform data extraction form was developed and piloted to ensure consistency in data gathering. The synthesis of findings was undertaken using a thematic analysis technique, allowing for the identification of recurring themes and patterns across the literature. The comparative analysis focused on examining the strengths and weaknesses of government-led and community-led approaches across several key dimensions, including planning and implementation processes, socio-economic impacts, financial and economic considerations, governance and institutional frameworks, and sustainability and resilience. The evaluation concluded with a discussion of the significance of the findings for policy and practice and identified areas for future research.

4.0 RESULTS AND DISCUSSIONS

Informal settlement upgrading is a crucial way to enhance the living conditions of individuals in fast-urbanizing areas. This analysis compares government-led with community-led upgrading based on five major themes: Planning and Implementation Processes,

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Socio-Economic Impacts, Financial and Economic Considerations, Governance and Institutional Frameworks, and Sustainability and Resilience. Tables are used for further illustration of the analysis.

4.1 Planning and Implementation Processes

Government-led and community-led upgrading programs in informal settlements display striking disparities in their planning and execution procedures. Government-led initiatives, defined by a top-down, policy-driven manner, generally involve government agencies, engineering firms, and philanthropists as significant stakeholders. While these large-scale interventions focus on considerable infrastructure improvements, they usually suffer from slow implementation speeds due to bureaucratic impediments and a tight, policy-bound framework. This can lead to a gap between the planned actions and the real requirements of the inhabitants. Conversely, community-led upgrading uses a bottom-up, participatory strategy, bringing residents, community-based groups, and NGOs to the forefront. This strategy promotes small-scale, incremental improvements that are directly implemented by the community, resulting in faster implementation rates and a high degree of flexibility and adaptation to local demands. However, the magnitude of infrastructure improvement may be limited compared to government-led programs.

A fundamental advantage of government-led methods is their capacity to raise huge resources and conduct large-scale infrastructure projects that can solve systemic challenges. Yet, this typically comes at the cost of longer implementation and a lack of responsiveness to immediate community needs. In contrast, community-led approaches, while possibly limited in scope, offer the benefits of rapid deployment and fully contextualized solutions. The direct involvement of residents develops a sense of ownership and ensures that initiatives are matched with their goals (Cornwall & Jewkes, 1995). However, these projects may struggle with resource mobilization and the capacity to address large-scale infrastructure shortfalls. The rigid, policy-bound structure of government-led programs can inhibit creativity and adaptability, while the flexible, community-driven nature of bottom-up efforts can lead to more contextually suitable solutions. The bureaucratic processes of governmental projects can likewise delay growth (Rakodi, 1999). The contrast is illustrated in a table below.

Table 1: Planning and Implementation Processes

Themes	Government-Led Upgrading	Community-Led Upgrading
Approach system	Top-down, policy-driven.	Bottom-up, participatory.
Stakeholder Involvement	Government agencies, engineering firms, donors	Residents, community-based organizations, NGOs
Implementation Speed	Often slow due to bureaucratic processes.	Faster, as residents directly implement projects.
Flexibility	Rigid, policy-bound.	Flexible, and adaptable to community needs.
Infrastructure Focus	Large-scale infrastructure improvements.	Small-scale, incremental improvements.

Source: Authors' construct

4.2 Socio-Economic Impacts

Government-led and community-led upgrading efforts provide diverse socio-economic outcomes. Government-led initiatives produce employment through official contracts, potentially formalizing the economy, but can also displace informal jobs and disturb social cohesiveness through resettlements. While they enhance access to utilities, community control is generally limited. Conversely, community-led programs generate informal sector employment and boost local entrepreneurship, enhancing economic resilience. They promote community networks and cohesion, emphasising on affordable, decentralized service provision, and offer high levels of empowerment and self-determination.

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Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

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Table 2: Socio-Economic Impacts

Themes	Government-Led Upgrading	Community-Led Upgrading
Employment Opportunities	Creates jobs through formal contracts	Generates informal sector employment
Economic Integration	Tends to formalize the economy, sometimes displacing informal jobs	Supports local entrepreneurship, fosters economic resilience
Social Cohesion	Can lead to social disruptions due to resettlements	Strengthens community networks and cohesion
Access to Services	Improves access to utilities like water, electricity	Focuses on affordable, decentralized service provision
Community Empowerment	Limited community control	High levels of empowerment and self-determination

Source: Authors' construct

4.3 Financial and Economic Considerations

Government-led and community-led upgrading options face various financial and economic considerations. Government-led initiatives rely on public funding, international contributors, and large-scale investments, leading to high-cost projects that are often dependent on government budget cycles. While these projects might formalize the economy, they may increase expenses for people and represent a larger danger of gentrification, potentially displacing original occupants. Conversely, community-led programs leverage community savings, microfinance, and local NGOs, resulting in cost-effective, incremental expenditures that are more financially self-sustaining through community-based funding channels. These options retain affordability through self-built homes and represent a decreased risk of gentrification, as modifications are community-controlled.

While generating considerable financial resources, government-led upgrading can strain public budgets and develop dependency on external support (Angel, 2000). The large-scale nature of these projects sometimes results in significant expenses, which might ultimately be passed on to residents through increased rents or service fees. Furthermore, the formalization of land tenure and housing can drive up property values, leading to gentrification and displacement of vulnerable communities. In contrast, community-led upgrading, by leveraging local resources and community-based funding channels, improves financial self-sufficiency and minimises reliance on foreign aid. The gradual nature of these upgrades assures cost-effectiveness and affordability for residents. Moreover, community control over the upgrading process lessens the potential of gentrification, as locals are able to influence development in a way that matches with their needs and objectives. The community often exploits local expertise to cut expenses (Uphoff, 1992). The trade-off is often between the amount of government support and the sustainability of community finance.

Table 3: Financial and Economic Considerations

Themes	Government-Led Upgrading	Community-Led Upgrading
Funding Sources	Public funds, international donors, large-scale investments.	Community savings, microfinance, local NGOs.
Cost Efficiency	High-cost, large-scale projects.	Cost-effective, incremental investments.
Financial Sustainability	Dependent on government budget cycles.	Self-sustaining through community-based funding mechanisms.

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Affordability for Residents	Can increase costs due to formalization.	Maintains affordability through self-built housing.
Risk of Gentrification	Higher risk, displacing original residents.	Lower risk, as upgrades are community-controlled.

Source: Authors' construct

4.4 Governance and Institutional Frameworks

Government-led and community-led upgrading initiatives diverge greatly in their governance and institutional structures. Government-led programs exhibit centralized government authority in decision-making, harmonising with national housing and urban objectives, and are underpinned by legal and regulatory frameworks. However, these projects are sometimes prone to bureaucratic bottlenecks, and openness and accountability can be compromised. Institutional mechanisms are provided for dispute resolution. Conversely, community-led initiatives are characterized by decentralized, community-driven decision-making, which may face issues aligning with institutional policies and typically lack formal recognition and legal support. Nevertheless, they offer clear, direct responsibility to people and utilize community-based dispute resolution systems.

Government-led upgrading, while benefiting from existing legal and policy frameworks, can suffer from a lack of responsiveness to local demands due to centralized authority (Rakodi, 1999). Bureaucratic practices can hamper transparency and accountability, potentially leading to inefficiencies and corruption. However, the provision of institutional structures for conflict resolution gives a formal channel for addressing issues. In contrast, community-led programs, by placing decision-making power in the hands of residents, develop a sense of ownership and accountability (Uphoff, 1992). The direct engagement between community members and project implementers increases transparency and enables timely answers to emerging difficulties. However, the absence of formal recognition and legal support can create risks and limit the breadth of community engagement. Community-based dispute resolution can be very effective, but may not be accepted by formal institutions. The primary tension is the alignment of programs with national policy vs community-level flexibility.

Table 4: Governance and Institutional Frameworks

Theme	Government-Led Upgrading	Community-Led Upgrading
Decision-Making Power	Centralized government control.	Decentralised, community-driven.
Policy Alignment	Aligns with national housing and urban policies.	May face challenges aligning with formal policies.
Institutional Support	Backed by legal and regulatory frameworks.	Often lacks formal recognition and legal support.
Transparency & Accountability	Subject to bureaucratic inefficiencies.	Transparent, direct accountability to residents.
Conflict Resolution	Institutional mechanisms available.	Community-based dispute resolution.

Source: Authors' construct

4.5 Sustainability and Resilience

Government-led and community-led upgrading plans reveal differing approaches to sustainability and resilience. Government-led interventions, while frequently incorporating disaster mitigation measures and addressing climate change adaptation through external expertise and funding, can have environmental consequences due to large-scale infrastructure projects and are frequently dependent on government budget cycles for sustainability. Their adaptability to emerging needs can often be delayed. Conversely, community-led projects prioritize sustainable, small-scale interventions, employing indigenous knowledge for disaster preparedness and climate change adaptation through traditional coping methods. These systems are extremely innovative, integrate local knowledge, and are more sustainable owing to local ownership, however they may face obstacles in acquiring external expertise and money for large-scale changes.

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Government-led upgrading, while capable of executing comprehensive catastrophe resilience and climate adaptation methods, may accidentally create environmental degradation through large-scale building and resource consumption (Angel, 2000). The duration of these solutions is often connected to the continuation of government support, creating risks during periods of fiscal restriction. Moreover, the bureaucratic character of these initiatives might limit the acceptance of creative solutions and sluggish adaptability to evolving needs. In contrast, community-led upgrading, by stressing locally sourced materials and traditional building processes, minimizes environmental effect and encourages sustainable practices (Berkes, 2012). The incorporation of indigenous knowledge in disaster preparedness and climate adaptation promotes community resilience and self-reliance. Local ownership ensures the long-term maintenance and sustainability of upgrading programs, as citizens have a vested interest in their success. The adaptability of these initiatives enables for rapid answers to growing difficulties and the integration of novel solutions generated within the community. The trade-off is between the scale of government projects, and the embedded local expertise of community activities.

Table 5: Sustainability and Resilience

Theme	Government-Led Upgrading	Community-Led Upgrading
Environmental Impact	Large-scale infrastructure can have environmental drawbacks.	Sustainable, small-scale interventions.
Disaster Resilience	Often incorporates disaster mitigation measures.	Uses Indigenous knowledge for disaster preparedness.
Longevity of Solutions	Dependent on government budget cycles.	Sustainable due to local ownership.
Innovation & Adaptability	Slow to adapt to emerging needs.	Highly innovative, integrates local knowledge.
Climate Change Adaptation	Often requires external expertise and funding.	Locally driven, utilizes traditional coping mechanisms.

Source: Authors' construct

4.6 Similarities and Differences

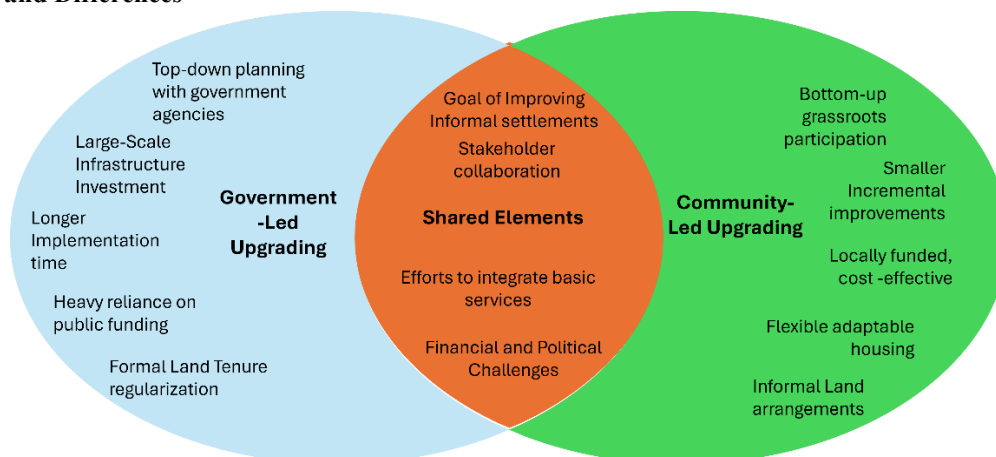


Figure 2. Similarities and differences in upgrading strategies

(Source: Authors' construct)

4.7 Challenges of community-led approach

Funding and Resource Constraints: One major constraint on community-driven projects is underfunding. A case study of the Huruma informal settlements in Nairobi identified funding and housing project costs as primary causes of delays in upgrading efforts. The study suggested that local governments should provide infrastructure to make housing more affordable, indicating that financial limitations at both community and governmental levels impede progress (M'ithai, 2012). Furthermore, inadequate or erratic funding sources in particular areas can make upgrading projects less sustainable. Research on community development in Ghanaian urban slums revealed that the main obstacle preventing the effective execution of programs is a lack of money (Kubi, 2018).

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Ineffective Community Participation: The success of efforts at informal settlement improvement depends on active community involvement. However, problems such as ethnic and tribal diversity, negative attitudes of locals towards initiatives, and lack of land ownership can hamper effective participation. These problems can cause inhabitants to be ignorant of important elements of project design and layout, therefore limiting their access to suitable accommodation and necessary services (Kubi, 2018). Furthermore, a study conducted in Durban, South Africa found that although community involvement is vital, it can be somewhat manipulative, so influencing the general effectiveness of the upgrading of the informal settlement (Thompson & Tapscott, 2013).

Social and Economic Sustainability: Achieving social and economic sustainability in informal settlement upgrading brings extra obstacles. While projects may focus on improving physical settings and providing basic infrastructure, they may not sufficiently address the underlying social dynamics of these communities. Critics claim that such modifications can disrupt established social relationships and lead to changes in community dynamics, potentially alienating long-term inhabitants. Balancing physical improvements with the requirement to sustain communal cohesion is a hard undertaking. The Durban study also emphasised that effective outcomes are inextricably related to the method in which the upgrade process is performed, underlining the need to understand informal power connections within the community (Thompson & Tapscott, 2013).

Variability of Outcomes: The outcomes of upgrading projects can be highly diverse, impacted by factors such as local context, community engagement, and the scale of interventions. Innovative initiatives often result in unexpected timeframes and methods that deviate from standard norms, leading to potential delays and the need for frequent re-planning. This diversity can complicate the measurement of success and sustainability, making it challenging to duplicate successful models across different situations. Research in South Africa indicated that while formal adjustments to housing were completed, the continuity of informal local leadership played a significant influence in the perceived effectiveness of the upgrading (Ntema et al., 2018).

Regulatory and Political Barriers: Regulatory and political hurdles can considerably affect the feasibility of community-led improvement projects. The lack of public sector support, such as resistance to negotiating property transfers or legislative impediments, might limit the development of Community property Trusts (CLTs) and other supportive frameworks. Without strong political will and sufficient legislative backing, the possibility for dramatic change in informal settlements remains restricted. The study in Ashaiman, Ghana, found unstable land tenure as a critical concern, limiting the viability of community development efforts (Kubi, 2018).

4.8 Challenges of government-led approach

Risk of Gentrification: Upgrading projects, while meant to increase living circumstances, can accidentally induce gentrification. This approach often leads to higher property values and external investments that ultimately displace vulnerable long-term residents. The instance of the Otodo-Gbame settlement in Lagos, Nigeria, highlights this dilemma. As the local government worked to rehabilitate the region, many inhabitants were compelled to leave owing to increased costs, ultimately destroying the community's social fabric (Salau, 2018).

Neglect of Livelihoods and Empowerment: Often, the focus on physical infrastructure upgrades overshadows the necessity for boosting residents' livelihoods and political empowerment. A lack of community engagement might fail to establish ownership over the initiatives, consequently limiting their sustainability.

Implementation Challenges: Implementation can be riddled with issues, frequently originating from poor planning and resource allocation. The prevalence of large engineering firms can contribute to a gap between the solutions supplied and the actual needs of local communities. This top-down approach frequently results in infrastructure that is not utilized properly or does not appropriately address the unique difficulties facing inhabitants (Khosravi, 2015).

Insufficient Community Involvement: A common difficulty in upgrading attempts is the lack of true community involvement. When local communities are not actively engaged in the planning and implementation processes, projects may miss the mark on community needs, resulting to resistance and limited success. In the instance of the Gobabis settlement in Namibia, activities spearheaded by the Shack Dwellers Federation showed the benefits of integrating local communities in decision-making, resulting in specialised and cost-effective solutions (Huchzermeyer, 2009).

Structural Inequalities: Many upgrading initiatives fail to address deeper structural inequalities, such as unstable land tenure and restricted access to economic possibilities. Physical improvements alone may not suffice to boost residents' quality of life without accompanying measures to tackle these systemic challenges. More complete approaches that involve legal land titles and assistance for local entrepreneurs have shown promise in fostering revolutionary changes (Roy, 2011).

5.0 CONCLUSION

There are benefits and drawbacks to both government-led and community-led initiatives to enhance informal settlements. Large-scale finance and institutional support are advantages of government-led projects, but they may also be slower and less sensitive to community needs. Community-led alternatives, on the other hand, provide flexibility, affordability, and empowerment, but they usually lack official legitimacy and substantial financial support. The most effective and long-lasting solutions for improving informal settlements can come from a hybrid strategy that combines community involvement with government resources.

Strategies for Upgrading Informal Settlements Towards a Robust Built Environment in Sub-Saharan Africa

Future Directions: Expanding participatory governance, enhancing community involvement, and putting creative strategies into practice that support equitable access to urban resources are key to the future of informal settlement upgrading (ISU). Community-led planning techniques must be incorporated into the upgrading process as urban environments continue to change to guarantee that residents actively participate in decisions about their living conditions (Terdo, 2024).

Strengthening Community Engagement: Participatory action planning is essential to the success of upgrading initiatives because it empowers local communities. The approach can foster trust and cooperation among stakeholders, which are essential for long-lasting results, by promoting meaningful discussions and agreements. Future initiatives should concentrate on expanding participatory methods so that locals can successfully impact the planning and execution of their communities.

Leveraging Technology for Scalability: The management and documentation of upgrading projects can be improved by incorporating digital tools into informal settlement upgrading (ISU). Transparent communication between landowners, local governments, and community representatives is made possible by the use of applications (apps) and technologies designed for collaborative planning (Brown & Smith, 2022). By encouraging replicability and scalability, this technological approach makes it possible to implement effective models in a variety of urban contexts and informal settlements (Johnson, 2021; Garcia, 2020).

Addressing Policy Gaps: There are still large gaps between the goals of policies and their actual implementation, even with the creation of thorough legislative frameworks (Miller, 2019). The goal of future studies and projects should be to pinpoint these differences and offer workable ways to close them (Davis, 2020). The upgrading process can accomplish its intended aims if financial instruments are in line with community empowerment and capacity-building initiatives (Nguyen, 2021; Patel, 2019).

Emphasising Health and Livelihood Improvements: Improving livelihoods, health, and infrastructure must be the major focus of future ISU projects. In addition to tackling public health challenges by promoting improved access to healthcare, programs should seek to ensure that individuals have access to basic utilities including garbage removal, energy, and sanitation (O'Brien, 2022; Smith & Taylor, 2020). Additionally, combining housing renovations with economic development programs can open up new possibilities for residents and encourage sustainability over the long run (Thomas, 2021; Lee, 2020).

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