

Original articles

Relocation and informal settlement upgrading: impacts on residents' wellbeing and housing security in Kigali, Rwanda

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Background

Informal settlements pose significant health, environmental, and social challenges, affecting over 70% of Kigali's urban population. In response, the government of Rwanda launched major urban redevelopment efforts in Kigali, including in-situ upgrades and relocation to formal housing settlements. While these policies aim to reduce disaster risk and improve living conditions, their impact on residents' wellbeing and housing security has been underexplored.

Methods

This qualitative study assessed the experiences of residents across two key settlements: Mpazi (in-situ upgrading) and Busanza (relocation). Six focus group discussions were conducted with 85 participants in June 2023, divided into tenants and landlords living in either informal settlements or formal apartments. Discussions covered housing conditions, compensation, service access, and community ties. Discussion recordings were transcribed and translated from Kinyarwanda to English. Data was coded and thematically analyzed using MAXQDA to identify major themes, including safety, affordability, livelihoods, and social networks.

Results

Residents in formal housing reported improvements in safety and environmental resilience. However, in Busanza, relocation led to financial strain, social isolation, and job disruption due to spatial dislocation. In Mpazi, in-situ upgrading preserved social ties and access to livelihoods but raised concerns about infrastructure quality and affordability. Across all groups, participants emphasized the need for more involvement in planning and decision-making.

Conclusions

Urban redevelopment in Kigali has resulted in significant infrastructural improvements, but it has also introduced new vulnerabilities related to affordability, employment, community cohesion, and health access. Future relocation strategies should integrate community engagement and long-term wellbeing to avoid exacerbating social inequities.

Informal settlements present significant and multidimensional challenges for urban areas particularly in developing cities.¹ Residents often lack access to adequate sanitation and clean water, leading to the spread of diseases like diarrhea, cholera, typhoid, malaria or dengue.^{2,3} Research from lower and middle income countries including Kenya shows that inadequate sanitation disproportionately affects vulnerable groups, especially women and children.² Additionally, uncontrolled expansion of these settlements contributes to increased pollution and strain on local ecosystems, including degrading water and air quality.⁴

These global challenges are mirrored in African cities, where rapid urban growth often outpaces infrastructure development, leading to informal settlements in environmentally vulnerable areas. Kigali, the capital of Rwanda, offers a critical case study of these dynamics. The city expanded from 358,200 in 1997 to 1,745,555 million in 2022,⁵ with this growth being driven by rural-to-urban migration, economic expansion, and the return of approximately 700,000 refugees following the 1994 genocide.⁶ Consequently, 79% of the city's residents live in unplanned housing, with many

of them in high-risk zones such as steep slopes and wetlands.⁷⁻⁹

In response, the Rwandan government implemented urban redevelopment policies, including the Kigali Master Plan 2050 and the National Urban Informal Settlements Upgrading Strategy, aiming to regulate land use, relocate residents from high-risk areas, and introduce modern infrastructure. While these policies promote sustainability, they have been criticized for their impact on low-income residents, particularly those forced to relocate without adequate compensation.¹⁰ Such interventions can inadvertently disrupt livelihoods, displace social networks, and exacerbate economic insecurity, a dynamic identified across Sub-Saharan African cities.¹¹ Similar patterns are evident in Beira where infrastructure projects on occupied land led to resident displacement.¹² In Addis Ababa, resettlement projects disrupted livelihoods and worsened conditions for low-income households.¹³ These cases highlight a recurring tension between ambitious development goals and the lived realities of low-income urban residents, raising concerns about spatial justice which is the fair and equitable distribution of resources, services, and opportunities across urban space.

To explore this phenomenon, this study focuses on two sites in Kigali: Mpazi and Busanza. Mpazi in Nyarugenge District, has an estimated 34,817 residents across 137 hectares and is near the central business district of Kigali.^{14,15} This settlement is in a flood-prone valley and represents an in-situ redevelopment model meaning that formal housing was constructed within the existing community as shown in [Figure 1](#). Busanza located in Kicukiro District on the southeastern outskirts of Kigali, comprises 1,260 housing units and was developed as a planned resettlement zone for residents relocated from high-risk informal settlements as shown in [Figure 2](#).^{16,17} These two sites were selected because they illustrate different spatial, social, and infrastructural dynamics of Kigali's urban renewal strategy. Employment in both sites is largely based in the informal sector, though Busanza also has a minority engaged in formal work. By comparing these models, the study highlights the trade-offs involved in different resettlement strategies and examines the implications for inclusive and sustainable urban development.

While previous studies have examined the experiences of informal settlement residents affected by Kigali's redevelopment policies, there remains a critical gap in comparative research that evaluates how different redevelopment strategies influence resident outcomes. Much of the existing literature focuses on land acquisition and participation processes, showing how limited community involvement can weaken redevelopment outcomes.^{8,18} Other work highlights barriers to affordable housing, raising doubts about whether formal housing is accessible to low-income groups.¹⁹ More recently, land readjustment has been examined as a planning tool, offering potential for more organized settlements but with mixed implications for equity.²⁰ Despite these contributions, there is limited analysis that compares in-situ upgrading with off-site resettlement particularly in terms of their effects on housing stability, eco-



Figure 1. Mpazi with formal and informal housing



Figure 2. Busanza formal housing

omic resilience, and social cohesion. These different cases offer an opportunity to assess the strengths and limitations of Rwanda's urban redevelopment plan. While both cases reflect the government's strong commitment to improving housing conditions and reducing disaster risks, they also expose critical trade-offs. Comparing these models helps illuminate how redevelopment strategies can either support or undermine resident wellbeing. Thus, the objectives of this study were:

1. Conduct a qualitative analysis of experiences of Kigali's informal settlements residents and those who have been relocated.

2. Foster a comprehensive understanding of residents' perspectives, hopes and concerns, which will contribute to more inclusive and successful urban development.
3. Assess how living in informal settlements affects residents' health and how relocation to new apartments influences that impact.

This study uses qualitative methods, specifically focus group discussions with residents in both formal and informal areas of Mpazi and Busanza, to assess how urban redevelopment affects housing security, access to services, economic opportunities, social ties and general wellbeing. By centering the perspectives of those most affected, this research highlights the importance of tailoring redevelopment strategies to community needs. As Kigali continues to develop, it is essential to create flexible, inclusive, and participatory planning models to ensure that all residents benefit equitably from urban modernization.

METHODS

To gain a comprehensive understanding of the experiences of Kigali's informal settlements residents and those who have been relocated, we developed and translated interview guides into Kinyarwanda. Participants were selected purposively, ensuring diversity in age and gender. Recruitment was facilitated through community leaders within the settlements. Eligible participants were landlords or tenants (18 years and older) living in informal settlements or newly developed apartments. Landlords were only included if they lived in the settlements being studied. We excluded residents in leadership positions to create an environment conducive to open discourse. Due to limited access to accurate population estimates at the time of data collection, sampling was guided by thematic saturation rather than proportion.

Ethical approval was granted from the National Science and Technology Council in Rwanda and the Medical College of Wisconsin. Informed consent was obtained from all participants prior to their participation. Six focus groups were conducted in June 2023, with a total of 85 participants, each lasting an average of 2 hours. Groups were organized by site (Mpazi, Busanza), housing type (formal, informal), and tenancy status (landlord, tenant). Facilitators followed structured questions with flexibility to follow the flow of the group conversation. Discussions were audio-recorded, transcribed verbatim and translated into English.

Data were coded using MAXQDA software. An initial code list, developed from six transcripts, was refined as new themes emerged. Researchers independently coded the transcripts, with discrepancies resolved by discussion until consensus was reached. Data saturation was considered achieved when no new themes appeared.

To reduce bias, the team held regular debriefing sessions. The research team comprised both local and international members providing a range of perspectives and insights. Local researchers provided cultural and contextual insights, such as understanding community norms and lan-

guage nuances. International researchers contributed perspectives from similar urban redevelopment studies in other countries.

DISCUSSION THEMES

1. Resident background and income
2. Housing and property
3. Health and sanitation
4. Settlement upgrade and relocation experiences
5. Community and social ties

FOCUS GROUP COMPOSITION

1. Landlords – Mpazi informal settlements
2. Tenants – Mpazi informal settlements
3. Landlords – Mpazi formal settlement
4. Tenants – Mpazi formal settlement
5. Landlords – Busanza formal settlements
6. Tenants – Busanza formal settlements

RESULTS

The findings highlight how relocation affected financial stability, housing conditions, and social networks among landlords and tenants in Busanza and Mpazi. A central difference was the relocation process itself: Busanza residents were moved to a distant site, disrupting livelihoods and social ties, while Mpazi's redevelopment occurred within the same neighborhood, allowing greater continuity in daily life. Despite these contrasts, both sites offered shared benefits, particularly improved safety and resilience against environmental hazards. [Table 1](#) summarizes these differences, which are explored thematically in the sections that follow.

RENTAL INCOME

Landlords' livelihoods were closely tied to rental income, and relocation strongly affected this. In Busanza, many lost rental opportunities, especially those who received only one apartment in exchange for multiple units. This posed significant economic challenges, particularly for those who relied on informal employment. Furthermore, many landlords lost access to their primary sources of income, such as rentals, market vending, and tailoring, as they could no longer operate in their usual locations. By contrast, Mpazi landlords, who remained in the same neighborhood, retained customer bases and often continued renting properties, contributing to greater stability, both financially and transitionally. However, some who received only a single unit reported losing a key source of income.

“I used to earn enough to support my family, but after moving here, I lost my business and now rely solely on my spouse's income.” – Landlord, Busanza (formal)

COMPENSATION – HOUSING SIZE

Compensation shaped overall satisfaction with redevelopment. In Busanza, particularly in the second relocation

Table 1.

Themes	Busanza -Landlords	Busanza -Tenants	Mpazi Formal - Landlords	Mpazi Formal – Tenants	Mpazi Informal - Landlords	Mpazi Informal - Tenants
Rental Income	Decrease in rental income following relocation to the formal settlement as new units had fewer rooms than previous homes	N/A	Decrease in rental income post-transition to the formal settlement as new units had fewer rooms than previous homes	N/A	Rent was the primary income source with some landlords owning up to 10 houses; prices varied by housing size.	N/A
Compensation – Housing size	Landlords who voluntarily relocated in the initial phase received equitable compensation, with some receiving homes of up to three bedrooms	N/A	Many landlords received housing that did not correspond to their household size, with only a few obtaining three-bedroom units	N/A	N/A	N/A
Maintenance and infrastructure	Initial construction defects were addressed by contractors. However, water drainage issues persisted. Renovation efforts were constrained by strict permitting regulations	N/A	Repairs by contracted construction firms were often delayed	The multi-level housing infrastructure presented accessibility challenges for elderly and disabled residents due to staircases. Water supply was inconsistent, particularly on upper floors	Landlords faced difficulties obtaining renovation permits	N/A
Environmental concerns	The settlement included designated recreational areas for both children and adults	N/A	No designated recreational areas within the settlement	Although the formal settlement was generally cleaner, certain areas remained unsanitary due to proximity to informal settlements	Presence of open sewers contributed to mosquito breeding and associated health risks	N/A
Health Concerns	Two private clinics were available within the settlement but remained unaffordable for most residents	The Busanza Health Center was not expanded to accommodate the increased population following the resettlement	The nearest health center was a 30-minute uphill walk, posing accessibility challenges for some	The closest health center offered limited services compared to another facility located farther away	Nearby health posts experienced service delays due to provider shortages	Patients with medical insurance faced longer wait times, whereas cash-paying individuals received expedited care
Social disruptions	Lack of enough rooms affected privacy, prompting some residents to move to rural areas and rent out their homes	Limited trust among residents, as relocation disrupted pre-existing community networks	Housing design with stairs restricted mobility for some individuals, making social visits more challenging	Minimal interaction between residents of formal and informal settlements	N/A	N/A
Financial strain	Lack of appropriate ownership documents hindered residents from using property as collateral for loans	Some tenants struggle to consistently afford utilities such as garbage collection	Some households had to take out loans to cover temporary rental expenses as financial assistance was insufficient	Some tenants faced challenges affording rent in the new apartments	N/A	Most tenants had low income and larger families to house

phase, many residents felt their new apartments were smaller than promised and undervalued compared to their former properties. In contrast, most Mpazi landlords reported fairer compensation and valued having the option to either upgrade existing homes or move into new apartments, allowing more informed decisions. Ultimately, the degree of satisfaction among landlords in Busanza and Mpazi was largely tied to their level of agency in the relocation process.

"We were promised adequate compensation, but what we received does not match what we lost." – Landlord, Busanza (formal)

MAINTENANCE AND INFRASTRUCTURE

Residents across both sites raised concerns about building maintenance and design. Restrictions on renovations left landlords unable to address problems quickly, frustrating tenants and leading some to move out. The absence of resident committees or responsive management meant unresolved issues, with some residents reporting that construction companies ignored repair requests. Structural flaws such as leaky roofs, cracked walls, and poorly fitted doors allowed rainwater to seep into homes, especially on ground floors. Design limitations, including inadequate storage, lack of porches or space for drying clothes, and overcrowded shared outdoor areas, made daily routines more difficult and sometimes created conflict between neighbors. Overall, participants felt the housing design did not adequately account for residents' needs, leaving many dissatisfied.

"When it rains, water flows into the house because they did not put porches or proper doors. Sometimes you come home and find the whole house full of water." – Tenant, Busanza (formal)

ENVIRONMENTAL CONCERNS

In Mpazi, flooding remained a major challenge even after redevelopment, as the new apartments were built in the same flood-prone valley. Residents described water entering their homes during heavy rains, highlighting that relocation within the same area had not addressed this vulnerability. Other potential environmental concerns, such as the nearby slaughterhouse, butchery, and garages, were dismissed by both formal and informal residents, who noted that waste was regularly collected and air pollution was not an issue. A more pressing concern was the lack of recreational space in Mpazi, where children often played in unsafe areas, sometimes breaking windows or mingling with street children while seeking places to play. In contrast, Busanza residents highlighted the availability of designated playgrounds for both children and adults, which improved social life and reduced risks for youth.

"There is no place for children to play. If we had a playground here near the church, it would help our children to have where they can play football instead of going to the places that are very far from here such as Gatsata or Karuruma." – Tenant, Mpazi (informal)

HEALTH CONCERNS

Health concerns in both settlements were closely tied to waste management and housing design. In Mpazi, the absence of designated garbage pits meant residents stored waste near their doors, creating bad odors and attracting pests, especially when collectors failed to arrive for one or two weeks. Similar complaints arose in Busanza, where irregular collection raised fears of diseases. Indoor air quality was another issue, as many households continued using wood-burning stoves inside or near kitchens, with smoke spreading into neighboring units and causing breathing difficulties. Participants worried about the long-term health impacts of these conditions, particularly for children.

"The smoke from cooking enters my apartment and makes it hard to breathe." – Tenant, Busanza (formal)

SOCIAL DISRUPTIONS

Redevelopment disrupted social networks and family life, particularly in Busanza. Many described losing the neighborly support systems they had relied on in informal settlements, noting that most people in their new communities were strangers. Families also struggled with overcrowding, while Mpazi's in-situ upgrading preserved community bonds and stability.

"Living conditions have very negatively changed. We previously had properties, but now we are living a frustrating life. For example, I have a family of seven children, boys and girls. We were given a house with only one sleeping room, and now all the children sleep together and they are all adolescents. It is traumatizing. It is out of my control. There is nothing I can do about it." – Landlord, Busanza (formal)

FINANCIAL STRAIN

Financial pressure was an overarching theme across both sites. In Busanza, relocation disrupted informal businesses and limited access to employment opportunities due to the distance from the city center, which also increased commuting costs and reduced household income. In Mpazi, many tenants remained in informal housing because they could not afford formal rents, highlighting affordability as the main barrier to relocation. Even among those who moved, residents struggled to pay rent, leaving landlords frustrated with inconsistent or overdue payments.

"Progress is good, but there are those who lose from it and those who benefit. There will be a time when we won't find tenants in this city of Kigali because of poverty, and we can't keep up with the cost of living." – Tenant, Mpazi (informal)

DISCUSSION

This study highlights the complex interplay between informal settlement dynamics, government relocation policies and residents' socio-economic and health realities in Kigali. Key themes emerged across all settlements, includ-

ing financial strain, housing dissatisfaction, and disrupted social structures. While residents in Mpazi's informal settlement struggled with unsafe housing and flood vulnerability, they valued the affordability and strong sense of community. In contrast, those in formal settlements, particularly in Busanza, faced inadequate space, rising costs, and difficulty adjusting. Additionally, health and well-being emerged as a major concern across settlements. Residents in new apartments reported unreliable water supply, poor sanitation infrastructure, and limited healthcare access. In some cases, relocation increased financial burdens, limiting their access to healthcare. While some residents acknowledged improvements in hygiene, others noted increased stress, isolation, and declining mental health from disrupted support networks.

Significant efforts have been made in Kigali to improve urban living conditions and reduce informal settlements, as over half the city's population lives in informal housing. The government's commitment is evident in large-scale relocation projects, including in Busanza and Mpazi. Lessons from Busanza's earlier redevelopment appear to have shaped Mpazi's approach, where formal units were integrated within the existing informal settlement, potentially enhancing residents' continuity and stability. The intention behind these redevelopment policies is commendable as they aim to provide safer and structurally sound housing, particularly improved sanitation infrastructure and reduced flood risks. This is critical in Rwanda, given its steep slopes and frequent flooding. However, despite these good intentions, the implementation often led to unintended consequences, such as increased financial strain, weakened social networks, and persistent maintenance challenges in the new housing structures. Indoor wood-burning stoves in ventilated spaces introduced new health risks illustrating how housing policy can reduce some risks while creating others.

These findings align with previous research on informal settlements and urban displacement in Kigali. Like the work of Uwayezu and Vries, this study confirms that financial compensation often fails to cover the location costs, leaving residents struggling to secure temporary stable housing.¹⁰ Past studies also identified poor sanitation, irregular water supply, and land tenure insecurity as defining features of informal settlements, which are concerns that were strongly echoed in this study.²⁰ This research expands on existing work by highlighting how resettlement can disrupt social cohesion – from overcrowding provoking tension in shared spaces to adolescent boys and girls sharing room, a culturally sensitive issue that heightened family stress – ultimately increasing isolation and weakening neighborhood trust, particularly in Busanza.

The study's findings suggest that sustainable urban development requires more than just upgrading physical infrastructure. It must also prioritize economic stability, and social cohesion, while safeguarding residents' overall health and well-being. Challenges such as rising living costs, limited job opportunities, and restrictions on property modifications indicate that housing upgrades alone are insufficient to ensure long-term improvements in quality of

life. Without economic support mechanisms, these changes may inadvertently deepen vulnerabilities.

The findings highlight the critical role of participatory urban planning. The lack of resident involvement in decision-making contributed to dissatisfaction and resistance toward relocation efforts. Successful models from other urban contexts highlight the value of inclusive planning. For example, in Buenos Aires, community engagement in informal settlement upgrading included surveys, interviews, presentations, and workshops with affected families fostering transparency and ownership.²¹ Similarly, Nairobi's Mukuru Special Planning Area actively involved residents at every stage of redevelopment, building trust and ensuring that the planning reflected the lived realities of the community.²² Although such participatory processes require additional time and resources, they are more likely to yield durable, context-appropriate solutions.

Future research should examine long-term socio-economic and health outcomes for relocated residents, including financial security, healthcare access and mental health. Further studies should also explore strategies for enhancing community engagement in urban planning to ensure that resettlement policies align with residents' needs. Given the concerns about housing quality, sanitation, and healthcare accessibility, future studies should assess physical and environmental health risks. These studies should incorporate objective measurements of air quality, water quality, vector exposure, and other disease risk indicators to ensure that future improvements holistically enhance overall well-being.

CONCLUSIONS

This study highlights how urban development in Kigali reshaped housing, livelihood and community life with consequences for both social cohesion and mental health. The findings emphasize that inclusive planning, equitable compensation, and sustained support are essential to avoid deepening vulnerability. Relocation policies should integrate economic support, participatory planning, and stronger infrastructure systems to better align redevelopment with residents' needs. Lessons extend to other rapidly urbanizing cities, where redevelopment must balance modernization with social equity. Centering residents' voices offers a pathway toward urban futures that are not only resilient to environmental risks but also socially just and sustainable.

LIMITATIONS

While we included a diverse sample, subgroup analysis by gender, age or vulnerability was not possible which limited our ability to explore differential outcomes. As a qualitative study, findings are not statistically generalizable, though they provide critical insights into lived experiences.

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ETHICS STATEMENT

Ethical approval was granted from the National Science and Technology Council in Rwanda and the Medical College of Wisconsin. Informed consent was obtained from all participants prior to their participation.

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AUTHORSHIP CONTRIBUTIONS

- Mutsa Chiromo: Facilitated methodological design and data collection, led data analysis, and drafted the manuscript.
- Jean Bikomeye: Contributed to study design, assisted in data analysis, and critically revised the manuscript.
- Chidinma Ikonte: Assisted with data analysis and contributed to manuscript drafting.
- Edward Kadozi: Facilitated community engagement, coordinated fieldwork, contributed contextual expertise, and reviewed the manuscript.
- Hannah Kovacevich: Supported data collection and reviewed the manuscript.

- Julia Dickson-Gomez: Conceptualized the study, supervised the overall project, guided methodological design, and revised the manuscript for intellectual content.

All authors reviewed and approved the final manuscript and agree to be accountable for the integrity of the work.

DISCLOSURE OF INTEREST

The authors completed the ICMJE Disclosure of Interest Form and disclose no relevant interests.

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