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Title: Advancing Social Equity and Community Engagement through the Integrated and Inclusive Infrastructure Framework (3iF) for Kenya

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ABSTRACT

This paper aims to critically review the 3iF in the context of informal settlement upgrading programs, particularly focusing on the case studies of the Kenya Informal Settlement Improvement Project (KISIP) and Kenya Slum Upgrading Program (KENSUP). Drawing from the principles, the study critically analyzes KISIP and KENSUP to identify their gaps and assess how the 3iF principles can effectively enhance social equity and community participation to address the challenges and optimize these initiatives in the informal settlements. A qualitative methodology was used to critically examine the challenges and opportunities presented by the 3iF principles in the context of informal settlement upgrading programs. The study assessed how the 3iF principles can be effectively applied to enhance social equity and community participation, addressing challenges and optimizing the impact of the KISIP and KENSUP initiatives in informal settlements. Community engagement emerges as a critical element in ensuring communities are involved in the planning and implementing development projects. Two approaches for community engagement, social justice, and utilitarian approaches, are also discussed, including their advantages and disadvantages. Social equity is discussed in three dimensions: distributional, recognitional, and procedural equity. The main findings include the inconsistent engagement of the Ministry of Lands, Public Works, Housing, and Urban Development despite the emphasis on community engagement in the design and implementation of KISIP and KENSUP. In addition, the ministry did not effectively coordinate the two programmes, which operated independently despite being domiciled in the same ministry and aiming to address interconnected issues. Communication gaps were also a significant drawback in implementing KISIP and KENSUP. Past experiences, such as community opposition and coordination issues, should be scrutinized, and their insights should be used to inform future actions. The study concludes that the 3iF principles are rooted in social equity and community engagement and offer a transformative approach to informal settlement upgrading. Successful implementation of the 3iF will require continuous collaboration with more stakeholders, including the academia, the development of a practical guide tailored for use by communities, the establishment of robust monitoring and evaluation systems, and scaling up the model in all informal settlements in Kenya and East Africa facing similar challenges.

INTRODUCTION

The UN-Habitat reports that 56% of the world's population currently lives in urban areas, and seven of every ten urban residents globally live in developing countries¹. This inexorable population increase has contributed to the surge in the prevalence of poverty, inequality, and the proliferation of informal settlements. By 2030, 50% of Africa's population will be urban, underscoring the urgent need to address the demand for shelter, sustenance, and essential services².

Informal settlements provide shelter to a substantial proportion of the urban populace, exemplified by the African context, where approximately 60-70% of the urban population resides in these settlements¹.

These findings are further corroborated by the UN-Habitat (2020), which provides the following statistics of different African countries, underscoring the need to prioritize equitable service delivery in these settlements.

Country	Urban Population Living in Informal Settlements
Kenya	60%
Comoros	70%
Liberia	70%
Malawi	65%

¹ Simiyu, S., Cairncross, S., & Swilling, M. (2019). Understanding Living Conditions and Deprivation in Informal Settlements of Kisumu, Kenya. Urban Forum, 221- 241.

² UN-Habitat. (2020). UN-Habitat Sub Saharan Africa Atlas. United Nations Human Settlements Programme (UN-Habitat). <https://unhabitat.org/un-habitat-sub-saharan-africa-atlas>

Rwanda	61.3%
Zambia	70%

Source: UN-Habitat Sub-Saharan Africa Atlas 2020

Key urbanization challenges include rural-urban migration, the remnants of colonial-era principles, and the persistence of weak government structures (particularly within the domains of policy, planning, land, and urban management). These challenges are compounded by economic vulnerability, mass displacements resulting from conflicts, natural disasters, and the exigencies of climate change³.

Unfortunately, governments grapple with limited capacity, rendering them ill-equipped to meet the growing needs of burgeoning urban populations effectively. This inability to cope with the growing demand has given rise to a myriad of challenges of urban disparities, poor governance, acute deficits in essential infrastructure, and inadequate decent and affordable housing. The expanding informal settlements are often at the intersection of climate risk, political contention, poverty, and lack of basic infrastructure, relegating residents to sub-standard housing⁴.

In Kenya, civil society organizations and residents deliver basic services in low-income areas while the government undertakes major infrastructure investments such as residential development and road construction occur across the country. Although the nationwide investments are undoubtedly crucial, ideally, the government should direct resources towards providing essential services in the informal settlements and low-income neighbourhoods to meet the urgent needs of the urban majority. Through equitable resource distribution, the government can prioritize informal settlement inhabitants' basic rights and well-being alongside the broader urban development goals. While many of the planned 'slum upgrades' emphasize infrastructure development, there remains uncertainty about the planning and design of these systems and how they will effectively improve the lives of city residents⁴.

This study aims to critically review the Integrated and Inclusive Infrastructure Framework (3iF) in the context of informal settlement upgrading programs, focusing on the case studies of the Kenya Informal Settlement Improvement Project (KISIP) and Kenya Slum Upgrading Program (KENSUP). The study will assess how the 3iF principles can be effectively applied to enhance social equity and community participation, addressing the challenges and optimizing the impact of these two initiatives in informal settlements. Below, the definitions of community engagement and social equity as understood for this study are provided.

Community Engagement

Community engagement is the deliberate incorporation of communities in designing and implementing research and programme activities as partners rather than mere research subjects⁵. Opinion leaders and gatekeepers must be involved in planning, designing, and implementing infrastructure projects to give the community a sense of familiarity, security, and ownership. Community participation is an active process by which beneficiaries influence the direction and execution of people's well-being, going beyond the contribution of labor or money. Participation at all levels of infrastructure projects is crucial, even if this participation is through committees representing the target communities⁵.

Community engagement is critical as it gives a deeper understanding of the contextual factors necessary in developing strategies that solicit community involvement and support in a project⁵. Additionally, it promotes buy-in, development of mutual trust, sensitization of the community on the project's intention, and seeking the people's support. Community engagement demonstrates respect and optimizes the benefits for communities and can also minimize physical displacement as projects are implemented, especially in informal settlements. The distinctiveness of each informal settlement, however requires inclusive tailor-made approaches informed by an exhaustive understanding of the local communication channels

³ UN-Habitat. (2016). UN-Habitat Support to Sustainable Urban Development in Kenya. Nairobi: UN-Habitat.

⁴ Kounkuey Design Initiative (KDI), Architectural Association of Kenya (AAK), Akiba Mashinani Trust (AMT), Arup East Africa, & University College London. (2022). Integrated and Inclusive Infrastructure Framework (Vol. 01). Kounkuey Design Initiative, Inc. (KDI).

⁵ M'ithai, C. (2012). The role of community participation in the informal settlement upgrading: A case study of Huruma, Nairobi. Unpublished thesis. <http://erepository.uonbi.ac.ke/bitstream/handle/11295/6741/MI%20THAI%20C.%20K.%20M.A%20Construction%20Management%20012.pdf?sequence=1&isAllowed=y>

that will effectively communicate the project's intentions⁵.

Kabue (2022) suggests two community engagement approaches: social justice and utilitarian approaches. Social justice is geared towards community ownership and empowerment, engaging the community in identifying the needs and participating in planning and implementation processes⁶. This approach fosters a sense of community ownership, increasing the likelihood of long-term sustainability as the community is more inclined to maintain and protect the infrastructure they have been actively involved in. However, it is important to note that the social justice approach can be time-consuming and resource-heavy due to extensive community engagement. It may pose challenges in achieving consensus among diverse stakeholders, potentially leading to decision-making difficulties and conflicts.

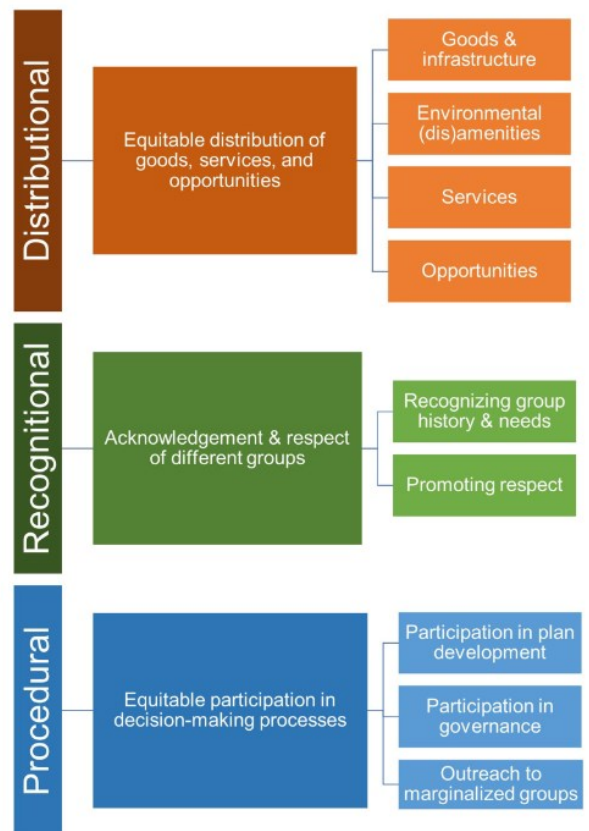
On the other hand, in the utilitarian approach, the community is involved after most decisions on the design, implementation, and monitoring of interventions have been made. The community, therefore, comes in to facilitate the attainment of specific outcomes crucial to the lead implementer⁶. This approach offers the advantage of clear goal definition and efficient decision-making driven by expert analysis and cost-benefit considerations. Nevertheless, it risks alienating the community and may not effectively identify or address underlying social injustices or inequalities, or may struggle to adapt to evolving community needs.

Some challenges that can impede community engagement include financial challenges, complex and conflicting interests among stakeholders, power dynamics, the necessity for a long-term commitment, and overlapping responsibilities¹⁰.

Social Equity

Social equity is the fair treatment and involvement of all people and communities, including historically marginalized or underserved groups, in developing, implementing, and enforcing policies and projects regardless of race, gender, national origin, or

income level. It is grounded on the principle that each individual is equal and has inalienable rights⁷.



Source: Meerow et al. (2019)

Meerow et al. (2019) adopt a tripartite framework for social equity that can shape communities' resilience, including distributional, recognitional, and procedural equity dimensions⁸. Distributional equity refers to equitable distribution of and access to goods and services, infrastructure, environmental amenities, and economic opportunities.

Recognitional equity, on the other hand, emphasizes the equal recognition and respect of diverse intersecting identities, such as race, gender, tribe, and age, along with their associated social status. This dimension also involves acknowledging that these identities are shaped by historical injustices and recognizing their role in influencing

⁶ Kabue, M., Abubakar, A., Angwenyi, V., Marangu, J., Njoroge, E., Ombech, E., . . . Lye, S. (2022). A community engagement approach for an integrated early childhood development intervention: a case study of an urban informal settlement with Kenyans and embedded refugees. *BMC Public Health*, 1-12.

⁷ Guy, M. E., & McCandless, S. A. (2012). Social Equity: Its Legacy, Its Promise. *Public Administration Review*, 72, 5-13. <https://www.jstor.org/stable/41688032>

⁸ Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social equity in urban resilience planning. *The International Journal of Justice and Sustainability*, 24(9), 793-808. 10.1080/13549839.2019.1645103

individual vulnerability to various shocks and stresses.

Lastly, procedural equity fosters transparent, fair, and inclusive participation in decision-making processes, from planning development to city governance and project implementation. This approach has been found to promote more inclusive, collaborative, and democratic forms of governance that better address the diverse needs, concerns, and solutions within communities¹².

BACKGROUND

Approximately 15 million people in Kenya currently live in urban areas, representing a third of the population. This urban population is expected to grow by almost 50% by 2050⁹, with a projected growth rate between 3.06 – 3.97% from 2021 to 2050³. Over the years, the capacity of urban areas to sustain and meet the demands of the population has been inadequate as the growth unfolds⁴.

Kenya's informal settlements are characterized by exclusion from planning, unemployment, poverty, limited access to opportunities, tenure insecurity, overcrowding, substandard housing, and inadequate or complete lack of core infrastructure and services³. The proliferation of informal settlements in the country exacerbates these conditions, adversely affecting urban residents⁴. Barely half of Kenya's urban population has access to clean water, while only 40% of Nairobi is connected to a sewerage system¹⁰. As a result, ad hoc infrastructure service systems and amenity provisions have been developed to bridge this gap.

Services such as water and sanitation are provided by the Nairobi City Water and Sewerage Company (NCWSC), and electricity is provided by the Kenya Power and Lighting Company (KPLC), which are private utility companies. A study conducted by Njoroge et al. in 2020 revealed that although 93% of households in Mathare were connected to the national electricity grid, 50% of the connections

were illegal and unmetered as the KPLC did not provide them¹¹. The associated connection fees and tariffs the companies charge may prevent access by every city resident. In addition, despite these companies being willing to expand access, the potential risks may hinder investments¹¹.

There have been widespread efforts to improve settlements in Kenya. The Kenyan government has also implemented various measures and projects to address the challenges of physical infrastructure and social services in the informal settlements through slum upgrading projects. The Kenya Slum Upgrading Programme (KENSUP) and Kenya Informal Settlements Improvement Project (KISIP) were initiated by the Ministry of Lands, Public Works, Housing, and Urban Development to enhance access to essential services and improve tenure security in Kenyan informal settlements by investing in infrastructure-based plans. The salient difference between the two initiatives is that KENSUP is a country-wide long-term strategy from 2005 to 2025. In contrast, KISIP is short-term (5 years) and has a more localized focus in 15 municipalities within 14 counties in Kenya namely Nairobi, Machakos, Kitui, Embu, Thika (Kiambu), Nyeri, Mombasa, Kilifi, Nakuru and Naivasha (Nakuru), Kericho, Eldoret (Uasin Gishu), Kakamega, Kisumu and Garissa¹².

The experiences from initiatives such as KENSUP and KISIP underscore the fundamental prerequisite for inclusive approaches that prioritize social equity and meaningful community participation. These initiatives have shown the limitations of top-down, fragmented, and less participatory strategies, resulting in disengaged communities, conflicts, and inefficiencies.

METHODS

This study followed a qualitative methodology where a comprehensive literature review was conducted to gather in-depth insights into the gaps identified by other studies in the KISIP and KENSUP initiatives. This was followed by a review of how 3iF can bridge the identified gaps.

⁹ Friedrich Erbert Stiftung. (2022). Towards the Just City in Kenya. Friedrich Erbert Stiftung, Kenya Office. <https://library.fes.de/pdf-files/bueros/kenia/19072-20220531.pdf>

¹⁰ World Bank. (2020). Providing Sustainable Sanitation and Water services to Low-income Communities in Nairobi. World Bank. <https://www.worldbank.org/en/news/feature/2020/02/19/providing-sustainable-sanitation-and-water-services-to-low-income-communities-in-nairobi>

¹¹ Njoroge, P., Ambole, A., Githira, D., & Outa, G. (2020, April 15). Steering Energy Transitions through Landscape Governance: Case

of Mathare Informal Settlement, Nairobi, Kenya. Land, 1-19. <https://www.mdpi.com/2073-445X/9/6/206>

¹² Anderson, M., & Mwelu, K. (2013). Kenya Slum Upgrading Programs: KISIP & KENSUP. Healthy Cities. <http://healthycities.berkeley.edu/uploads/1/2/6/1/12619988/kenya.pdf>

Guy, M. E., & McCandless, S. A. (2012). Social Equity: Its Legacy, Its Promise. *Public Administration Review*, 72, 5-13. <https://www.jstor.org/stable/41688032>

Analysis: Using the 3iF Principles

Developed through an extensive co-production process, the Integrated and Inclusive Infrastructure Framework for Kenya (3iF) was designed to help maximize the integration and inclusivity benefits of projects and learning by government agencies, built environment professionals, and academia⁴. The framework is meant to be used at any point of the project - in the policy formulation process and guide the planning, designing, and implementation of infrastructure development projects to reduce inequality and foster shared prosperity. The 3iF is based on five principles outlined below.

Rights and the City - All stakeholders, including the residents of informal settlements, women, youth, and people with disabilities, must be involved in the planning and implementation of infrastructure projects without discrimination. Only through collective involvement and equity can cities truly cater to the needs of their diverse populations and uphold their responsibilities.

Socio-ecological balance - There should be an equilibrium of preserving nature while exploiting natural resources for human activities. This balanced approach is necessary to create conditions where basic human needs are met without destroying nature, strengthening community resilience and prioritizing ecosystems to foster community engagement in urban planning.

Collaboration and co-design - In Kenya, the extent to which upgrading schemes have included participatory initiatives remains limited despite citizen participation having been enshrined as a core principle in Kenya's 2010 Constitution. In this case, collaboration entails treating local stakeholders, especially users, as equal partners, drawing from residents' local knowledge to ensure equitable and effective infrastructural solutions. The principle advocates for community members and urbanists as joint knowledge creators, emphasizing mutual learning and leveraging the community's tacit "knowing-in-practice."

Safety and resilience - For the long-term sustainability of informal settlements, the 3iF emphasizes the need to design infrastructure that is safe and resilient to shocks and stresses, such as flooding, drought, and conflict. In Kenya, safety provisions have been skewed to the wealthy, transferring risk to peri-urban areas. This principle emphasizes that true resilience is both a process and an outcome that requires a holistic approach

that engages communities, recognizes disparities in vulnerability, and prioritizes risk literacy.

Review and revise - The 3iF is a living document and is constantly evolving. The framework will need to adapt accordingly as new challenges and opportunities emerge. The framework also emphasizes learning from past experiences and incorporating these learnings into future projects. The core of this principle is the active engagement of communities in problem-solving, ensuring that infrastructure is rooted in technical and local knowledge. This also includes an iterative process that values feedback from residents, promoting adaptability and innovation from lived experiences, fostering greater social equity and genuine collaboration.

The 3iF further proposes a set of 12 tactics, which are methods and tools to support sustainable infrastructure development in Kenya's cities. These tactics are designed to be practical and implementable, and they can be applied to a wide range of infrastructure projects. They include:

1. Nature-Based Infrastructure
2. Streets for People
3. Disaster Risk Management
4. Standards for Context & Adaptation
5. Gender-responsive Approach
6. Participatory Budgeting & Prioritisation
7. Public Space and Networks
8. Public Lighting
9. Temporary & Meanwhile Use
10. Community-led Sanitation
11. Linkages to SDGs & AA'63
12. Understanding 24-hour Risk Cycle

RESULTS AND DISCUSSION

The 3iF principles, when implemented holistically, can offer comprehensive solutions for climate change mitigation within the context of sustainable infrastructure development. The review of the literature identified significant gaps in the Kenya Informal Settlements Improvement Project (KISIP) and Kenya Slum Upgrading Program (KENSUP), primarily poor community participation, inadequate coordination among stakeholders, communication gaps, and issues related to the longevity of projects. The 3iF principles (Rights and the City, Collaboration and Co-design, Safety, and Resilience, Social and Ecological Balance, and Review and Revise) were identified as potential solutions to these issues. In this section, we delve deeper into the results and discussions around these principles' application to the context of KENSUP and KISIP and how they can address the identified gaps, foster a more inclusive and

sustainable approach to informal settlements upgrading that mitigate climate change, through promoting social equity and community engagement.

Poor Community Participation

While both KISIP and KENSUP were designed with community participation as a key element, the process is flawed with inadequate community engagement⁶. Obare (2020) found that the failure to involve the target beneficiaries in all the project stages led to opposition of some of the projects implemented under KENSUP¹³. For instance, some residents in Gatwekera Village in Kibera prevented the establishment of a police post in their neighbourhood, saying that this was not a priority and they were safe and secure.

The Rights and the City Principle of the 3iF enshrines the fundamental rights of all urban inhabitants, regardless of their socio-economic status, to actively participate in developing their cities. This aligns with contemporary community engagement practices emphasizing treating communities not as passive subjects but as active partners in the development process. In the context of KISIP and KENSUP, this means acknowledging the agency of informal settlement residents and involving them as vital contributors to the decision-making and implementation stages of infrastructure projects.

The principle further promotes recognitional equity, emphasizing equal recognition and respect for diverse identities. This addresses the challenge of not understanding local contexts and identities in the KISIP and KENSUP initiatives⁷. The Rights and the City Principle also encourages evidence-based research that considers the specific needs of different user groups, such as gender, age, and abilities. Therefore, this approach bridges the gap in understanding and communication, promoting mutual trust and community support.

Perhaps most significantly, the Rights and the City Principle strongly emphasizes the importance of continuous community participation. This aligns well with the need for robust community engagement in initiatives like KISIP and KENSUP. Encouraging ongoing involvement addresses the issue of top-down decision-making, ensuring that the community's voice remains integral throughout the

project's duration. This, in turn, fosters a sense of ownership and skill transfer within communities, which can significantly enhance the long-term impact and sustainability of infrastructure initiatives in Kenya's informal settlements. The Rights and City Principle is integral to fostering sustainable infrastructure development that is both socially inclusive and environmentally responsive.

The Safety and Resilience Principle of the 3iF promotes a comprehensive approach to safety, considering both immediate and underlying needs. By actively involving the community in safety planning, KISIP and KENSUP can ensure that safety concerns are not transferred from one area to another, as the community can provide valuable insights into the root causes of safety issues. This addresses the issue of disengaged communities by fostering a sense of ownership by community members and responsibility for their safety. The *Safety & Resilience* Principle, when applied in the context of infrastructure development, can lead to designs that are adaptable, resilient, and responsive to both immediate and underlying safety needs.

The *Social and Ecological Balance* principle of the 3iF is a cornerstone for sustainable infrastructure as it advocates for a harmonious interaction between built environments and natural ecosystems, promoting resilience and climate change mitigation. The principle emphasizes not causing harm to natural ecosystems and biodiversity and encourages leveraging natural ventilation, optimize solar energy, integrate green spaces, promote low-carbon construction methods and materials that are locally sourced and culturally appropriate. This aligns with recognitional equity, which underscores the recognition and respect of diverse intersecting identities, including the environment. The call for nature-based elements and strengthening community resilience resonates with the need for community engagement. Engaging communities in understanding and harnessing their natural environment can enhance their resilience and minimize vulnerabilities, which is crucial in informal settlements susceptible to environmental hazards⁹. By integrating sustainable infrastructure concepts through the lens of 3iF principles, projects like KENSUP and KISIP can be pioneers in fostering eco-friendly and community-centric habitats that improve the quality of life in informal settlements.

¹³ Obare, M. (2020). An evaluation of slum upgrading schemes in Nairobi County: A case of Kibera slums. Research Gate. https://www.researchgate.net/publication/339069141_AN_EVALUATION_OF_SLUM_UPGRADING_SCHEMES_IN_NAIROBI_COUNT

Poor Coordination of Stakeholders

Another significant challenge was the apparent lack of coordination between partners⁶. Despite KISIP and KENSUP falling under the purview of the same ministry and targeting interrelated issues, there was an absence of a clear and cohesive plan for the complementary roles of the two programmes¹³. For instance, Anderson & Mwelu (2013) underscore that there was an implicit assumption that KENSUP would provide housing after KISIP resolved the land tenure and infrastructure issues in the 15 municipalities¹². This fragmented approach led to a lot of time spent on issues such as beneficiary compensation, relocation assistance provision, and resettlement action plan finalization, significantly contributing to delayed project implementation, strain exerted on the limited project resources, and increased community discontent. This underscored the need for a more holistic and integrated framework.

The *Collaboration and Co-design* Principle within the 3iF is instrumental in promoting community participation and ownership and facilitating stakeholder collaboration. This collaborative aspect becomes particularly crucial when addressing challenges like inadequate coordination among initiatives and partners, as observed in KISIP and KENSUP. Moreover, integrating the *Rights and the City* Principle ensures all urban communities, irrespective of their socio-economic conditions, have a say in the development of their cities. This is essential for the stakeholder coordination process as it emphasizes the importance of understanding and respecting local contexts and identities.

Furthermore, the *Review and Revise* Principle highlights the importance of continuous adaptation, feedback, and learning in the realm of stakeholder coordination. This iterative approach advocated by this principle suggests that projects should not be static but should evolve based on continuous stakeholder input and real-world feedback. This dynamism can be particularly helpful in addressing coordination challenges.

For instance, a study by Muchira in 2017 found that residents in KCC Village initiated a project to bring water closer to the village¹⁴. KISIP laid new water infrastructure that supplied water to all the willing households. Despite this infrastructure investment,

the village struggled with prolonged water shortages, compelling residents to revert to purchasing water from vendors they had previously relied on. Muchira attributed this persistent challenge to the lack of coordination between KISIP and the Nairobi City Water and Sewerage Company. Had Collaboration and Co-design been practiced, and if insights from both the Rights and the City and Review and Revise Principles were integrated, KISIP might have ensured a continuous water supply from NCWSC and engaged the community to identify alternative water sources like boreholes and water reservoirs, ensuring a more reliable water supply.

Moreover, the lack of coordination is not limited to specific projects but is a systemic issue in informal settlement upgrading efforts. KISIP and KENSUP, despite falling under the purview of the same ministry and targeting interconnected issues, often operated independently, leading to inefficiencies and fragmented approaches. This lack of coordination resulted in significant time being spent on issues such as beneficiary compensation, relocation assistance, and finalizing resettlement action plans.

Communication Gaps

According to Obare (2020), the communication gap in KENSUP emerged as a significant drawback to the effective operation and successful implementation of its programs. This compromised the initiative, causing programme sites to be volatile while misleading information was disseminated to residents⁷.

In addition, Civil Society Organisations were meant to mobilize communities but continuously decried the lack of involvement as the Ministry of Housing directs all activities from need identification to planning, designing, and implementing of infrastructure, leaving little room for other stakeholders to participate. This top-down decision-making strategy employed by the government significantly contributed to community indifference. Community-led planning and development would have been the best way of addressing the challenges in the informal settlements while boosting ownership and maintenance of infrastructural services¹⁵.

¹⁴ Muchira, R. (2017). Water and wastewater infrastructure improvement projects in informal settlements: A case study of KISIP Project in KCC Village, Nairobi County. Unpublished Thesis. http://erepository.uonbi.ac.ke/bitstream/handle/11295/103345/Muchira_Water%20And%20Wastewater%20Infrastructure%20Im

[provement%20Projects%20In%20Informal%20Settlements.pdf?sequence=1&isAllowed=y](#)

¹⁵ Solymari, D., Magera, J., Czirjak, R., & Tarrosy, I. (2021). Overview of Kenyan government initiatives in slum upgrading: The

The *Rights and the City* Principle strongly advocates for procedural equity through mechanisms like open access to information, the establishment of feedback loops, and ongoing community participation, addressing issues such as poor communication and limited community engagement seen in the slum upgrading programmes⁷. By adhering to the Principle's emphasis on procedural equity, future projects can learn from past shortcomings, fostering better partner coordination and reducing inefficiencies caused by unclear roles and assumptions⁶. Additionally, the principle's endorsement of continuous community participation aligns with the need for robust community engagement, addressing the issue of top-down decision-making strategies and fostering stronger community ownership and skill transfer within communities, ultimately enhancing the impact and sustainability of infrastructure initiatives in Kenya's informal settlements.

The *Collaboration and Co-design* Principle advocates for the active involvement of residents and all stakeholders throughout the project cycle. This approach fosters open communication, feedback loops, and ongoing collaboration among all parties. By adhering to this principle, future projects can learn from past coordination shortcomings and ensure better alignment among partners, thus reducing inefficiencies caused by unclear roles and assumptions.

Additionally, the *Social and Ecological Balance* Principle can play a role in addressing communication gaps through understanding the social-ecological systems in which projects are embedded, promoting a holistic perspective that takes into account both local community needs and broader environmental considerations. This understanding can help to bridge communication gaps between different stakeholders, fostering a shared vision for sustainable development.

Review and Revise Principle emphasizes the importance of iterative learning and adaptation, which is particularly relevant in the context of communication. By continuously reviewing and revising strategies based on feedback from all stakeholders, this principle ensures that communication remains effective and responsive to changing circumstances, which is common in informal settlements, addressing the potential communication gaps that may arise throughout project implementation.

Longevity of Projects

Michira (2017) further suggested that KISIP should have also engaged the community to identify alternative water sources, such as boreholes and the establishment of water reservoirs, to ensure a reliable water supply. Despite the noble goals, KENSUP encountered resistance from some of the targeted communities due to the failure to engage them all through the project stages. In addition, the coordination challenges and lack of comprehensive planning between the two programmes hindered their collective impact, leading to time-consuming disputes and resource allocation dilemmas.

The case of KCC Village highlights the significance of iterative designs. Residents initiated a project to improve water access in this scenario, but KISIP intervened by installing new water infrastructure. While this was a positive development, it did not fully resolve the water shortage issue. The persistence of water shortages was attributed to the lack of coordination between KISIP and the Nairobi City Water and Sewerage Company (NCWSC).

The *Review and Revise* Principle recognizes that achieving effective and inclusive infrastructure in informal settlements is an evolving process that requires continuous adaptation and learning. It acknowledges that addressing the complex challenges of informal settlements requires not just a one-time solution, but an ongoing process of adaptation and refinement involving active community engagement.

At its core, the Principle emphasizes the importance of learning from failure and seeking continuous improvement, aligning with the spirit of community engagement. By actively promoting a culture of learning from the gaps in KISIP and KENSUP, the outcomes of the projects can be significantly improved. Past experiences, such as community opposition and coordination issues, should be scrutinized, and their insights should be used to inform future actions. By doing so, they can avoid repeating mistakes and achieve better results.

Furthermore, the iterative design approach advocated by the *Review and Revise* Principle aligns with the *Collaboration and Co-design* principle. It ensures that infrastructure solutions are responsive to the evolving needs and perspectives of the community by encouraging ongoing feedback and collaboration between residents and urban

case of KENSUP and KISIP projects. Hungarian Journal of African Studies, 15(3), 37-59.

planners. This addresses a common gap where communities are often excluded from decision-making after the planning and design phases.

This principle also contributes to social equity by promoting equal stakeholder participation and community involvement in adjusting standards for infrastructure. It encourages consistency in incorporating community knowledge and context-specific circumstances, which helps resolve issues related to unequal representation and understanding among stakeholders. In this way, it mitigates the gaps in involvement and understanding that were evident in KISIP and KENSUP.

Moreover, the *Review and Revise* Principle highlights the importance of testing, getting feedback, and iterating, which can be time-consuming but ultimately lead to better interventions. This iterative process can help identify potential challenges early in the implementation phase, reducing the likelihood of dissatisfaction like those observed in previous initiatives.

Social and Ecological Balance Principle emphasizes the importance of creating a harmonious relationship between social needs and ecological capacities. By considering both social equity and environmental sustainability, the project benefits communities in the short term and long term while remaining sustainable in the long term.

The safety and Resilience Principle is key to ensuring the longevity of projects. It encourages the design of infrastructure that is resilient to social, economic, and environmental shocks. This approach ensures that projects are sustainable in the long term, even in the face of changing circumstances or unexpected challenges. By incorporating this principle into the project planning and implementation, projects like KISIP and KENSUP can become more resilient, adaptable, and ultimately successful in achieving their objectives.

CONCLUSION AND RECOMMENDATIONS

In the context of informal settlement upgrading programmes, particularly exemplified by the KISIP and KENSUP initiatives, this study examined the challenges and potential solutions offered by the 3iF principles. With a strong foundation on social equity and community engagement, the 3iF principles have the potential to reshape the landscape of urban development in Kenya's informal settlements.

As the Kenyan urban population continues to surge, the challenges of inadequate infrastructure, poverty, and inequality in informal settlements become more pressing. Traditional top-down approaches, such as those identified in KISIP and KENSUP, have proven inadequate in addressing the unique needs of these informal settlements.

By emphasizing the community's involvement as active partners in the development process, the *Rights and the City* principle recognizes the agency of informal settlement residents. It promotes recognition equity and evidence-based research, fostering trust and support within communities. Continuous community participation is championed, ensuring the community's voice remains integral throughout projects. This principle fundamentally alters the dynamic from passive beneficiaries to engaged stakeholders.

The *Social and Ecological Balance* principle underscores the significance of preserving natural ecosystems and biodiversity while concurrently harnessing natural resources to meet the essential needs of communities. The 3iF principles advocate for a holistic understanding of informal settlements and their susceptibility to environmental hazards by embracing nature-based elements and reinforcing community resilience. This perspective fosters community engagement with the natural environment and enhances long-term sustainability, which is crucial for informal settlements vulnerable to climatic stresses and shocks.

Furthermore, the 3iF principles tackle coordination challenges, a systemic issue observed in initiatives like KISIP and KENSUP. The *Collaboration and Co-design* Principle promotes collaboration among stakeholders, treating them as equal partners. It fosters open communication, reducing inefficiencies caused by unclear roles and assumptions. This can significantly enhance the efficiency and effectiveness of projects.

The *Safety and Resilience* principle further recognizes the breadth and multifaceted nature of safety within informal settlements. Beyond immediate safety concerns, it delves into the factors contributing to vulnerability, encompassing flooding, drought, and conflict. Projects like KISIP and KENSUP can identify the root causes of safety issues and develop context-specific solutions by actively involving the community in safety planning. This mitigates the disengagement of communities and fosters a sense of ownership and responsibility among residents for their safety.

The *Review and Revise* Principle acknowledges that informal settlement development is an ongoing

process requiring adaptation and refinement. It encourages learning from past experiences, iterative design, and equal stakeholder participation. This iterative approach identifies and addresses potential challenges early in the implementation phase, mitigating dissatisfaction observed in previous initiatives.

In conclusion, the 3iF principles, rooted in social equity and community engagement, offer a transformative approach to informal settlement upgrading and challenges that may arise within the process. However, successfully implementing the 3iF principles necessitates commitment, collaboration, and adaptability from all stakeholders involved. This commitment to social equity and community engagement lays the foundation for a more equitable and prosperous future for informal settlement residents, ultimately leading to more vibrant, inclusive, and resilient urban environments, setting an example for sustainable urban development worldwide.

In the future, there is a need to foster continuous collaboration with academia in Kenya and East Africa to ensure that the 3iF remains grounded on research and benefits from the diverse perspectives of the academic institution.

In addition, the 3iF partners are developing a practical guide for infrastructure development for use by communities. The toolkit has the potential to empower communities to participate in infrastructure development processes to meet their needs actively. The toolkit would need to be simple, user-friendly, and tailored to the specific needs of communities in informal settlements. Capacity building of civil society organizations and communities will also be crucial to help stakeholders understand the toolkit and how they can effectively participate in infrastructure projects.

Lastly, there is a need to implement a robust monitoring and evaluation system that is able to track the impact of the practical guide for communities. This will require regular assessment of the effectiveness of the tools and making necessary adjustments based on the feedback and the results, just as provided by the *Review and Revise* principle of the 3iF. If successful, the model can be scaled up to be used in informal settlements across Kenya and East Africa facing similar challenges to amplify the positive impacts of community engagement and social equity.

REFERENCES

1. Simiyu, S., Cairncross, S., & Swilling, M. (2019). Understanding Living Conditions and Deprivation in Informal Settlements of Kisumu, Kenya. *Urban Forum*, 221- 241.
2. UN-Habitat. (2020). *UN-Habitat Sub Saharan Africa Atlas*. United Nations Human Settlements Programme (UN-Habitat). <https://unhabitat.org/un-habitat-sub-saharan-africa-atlas>
3. UN-Habitat. (2016). *UN-Habitat Support to Sustainable Urban Development in Kenya*. Nairobi: UN-Habitat.
4. Kounkuey Design Initiative (KDI), Architectural Association of Kenya (AAK), Akiba Mashinani Trust (AMT), Arup East Africa, & University College London. (2022). *Integrated and Inclusive Infrastructure Framework* (Vol. 01). Kounkuey Design Initiative, Inc.(KDI).
5. M'ithai, C. (2012). The role of community participation in the informal settlement upgrading: A case study of Huruma, Nairobi. Unpublished thesis. <http://erepository.uonbi.ac.ke/bitstream/handle/11295/6741/MITHAI%20C.%20K.%20M.A%20Construction%20Management%202012.pdf?sequence=1&isAllowed=y>
6. Kabue, M., Abubakar, A., Angwenyi, V., Marangu, J., Njoroge, E., Ombech, E., . . . Lye, S. (2022). A community engagement approach for an integrated early childhood development intervention: a case study of an urban informal settlement with Kenyans and embedded refugees. *BMC Public Health*, 1-12.
7. Guy, M. E., & McCandless, S. A. (2012). Social Equity: Its Legacy, Its Promise. *Public Administration Review*, 72, 5-13. <https://www.jstor.org/stable/41688032>
8. Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social equity in urban resilience planning. *The International Journal of Justice and Sustainability*, 24(9), 793-808. 10.1080/13549839.2019.1645103
9. Friedrich Erbert Stiftung. (2022). Towards the Just City in Kenya. Friedrich Erbert Stiftung, Kenya Office. <https://library.fes.de/pdf-files/bueros/kenia/19072-20220531.pdf>
10. World Bank. (2020). Providing Sustainable Sanitation and Water services to Low-income Communities in Nairobi. World Bank. <https://www.worldbank.org/en/news/feature/2020/02/19/providing-sustainable-sanitation-and-water-services-to-low-income-communities-in-nairobi>
11. Njoroge, P., Ambole, A., Githira, D., & Outa, G. (2020, April 15). Steering Energy Transitions through Landscape Governance: Case of Mathare Informal Settlement, Nairobi, Kenya. *Land*, 1-19. <https://www.mdpi.com/2073-445X/9/6/206>
12. Anderson, M., & Mwelu, K. (2013). Kenya Slum Upgrading Programs: KISIP & KENSUP. Healthy Cities. <http://healthycities.berkeley.edu/uploads/1/2/6/1/12619988/kenya.pdf>
13. Obare, M. (2020). *An evaluation of slum upgrading schemes in Nairobi County: A case of Kibera slums*. Research Gate. https://www.researchgate.net/publication/339069141_AN_EVALUATION_OF_SLUM_UPGRADING_SCHEME_S_IN_NAIROBI_COUNTY_THE_CASE_OF_KIBERA_SLUMS_A_Research_Project_Report_Submitted_in_Partial_Fulfillment_for_the_Requirements_For_the_Degree_of_Bachelor_of_Environ?chan
14. Solymari, D., Mangera, J., Czirjak, R., & Tarrosy, I. (2021). Overview of Kenyan government initiatives in slum upgrading: The case of KENSUP and KISIP projects. *Hungarian Journal of African Studies*, 15(3), 37-59.
15. Muchira, R. (2017). *Water and wastewater infrastructure improvement projects in informal settlements: A case study of KISIP Project in KCC Village, Nairobi County*. Unpublished Thesis. http://erepository.uonbi.ac.ke/bitstream/handle/11295/103345/Muchira_Water%20And%20Wastewater%20Infrastructure%20Improvement%20Projects%20In%20Informal%20Settlements.pdf?sequence=1&isAllowed=y