The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

INFRASTRUCTURE SERVICE INTERVENTIONS IN SOUTH AFRICAN INFORMAL SETTLEMENTS: A SYSTEMATIC LITERATURE REVIEW OF CHALLENGES, APPROACHES, AND FUTURE DIRECTIONS

T.L NKOSI[1] and S.H.P. CHIKAFALIMANI[2]

[1,2]Construction Management & Quantity Surveying, Durban University of Technology, Durban, RSA.
Email: [1]thalenten@dut.ac.za, [2]SamuelC@dut.ac.za

Abstract

Informal settlements in South Africa continue to experience major inequalities in access to reliable, safe, affordable, and sustainable infrastructure services. Despite national policy commitments to informal-settlement upgrading and the progressive realisation of socio-economic rights, many residents still depend on inadequate, intermittent, shared, unsafe, or poorly maintained services. Key service-delivery challenges include limited access to potable water, appropriate sanitation, electricity, stormwater drainage, solid-waste collection, internal roads, pedestrian access, and other essential forms of settlement infrastructure. These deficiencies can negatively affect public health, safety, dignity, environmental quality, household livelihoods, and residents' capacity to withstand climate-related and other urban risks. This paper presents a systematic literature review of infrastructure-service interventions in South African informal settlements. The review synthesises peer-reviewed research and relevant policy documents to identify the types of interventions implemented, the challenges affecting their delivery and sustainability, the approaches proposed to improve outcomes, and priorities for future research and practice. A structured search and screening process was used to identify relevant literature addressing water supply, sanitation, energy, waste management, drainage, access infrastructure, and broader informal-settlement-upgrading initiatives. The selected literature was analysed thematically to identify recurring intervention models, implementation constraints, reported outcomes, and evidence gaps. The findings show that infrastructure service delivery in informal settlements is shaped by interconnected technical, financial, institutional, environmental, spatial, legal, and social challenges. Technical difficulties include high settlement densities, constrained site layouts, insecure land tenure, difficult terrain, inadequate bulk infrastructure, and limited provision for operation and maintenance. Financial constraints, fragmented institutional responsibilities, weak intergovernmental coordination, insufficient municipal capacity, limited community participation, and uncertainty regarding upgrading pathways further undermine the effectiveness of interventions. The review finds that isolated, short-term, or standardised service-delivery responses are often inadequate because they do not sufficiently account for the diverse physical conditions, tenure arrangements, livelihood practices, and priorities of informal-settlement residents. The review concludes that sustainable infrastructure service delivery in South African informal settlements requires integrated, adaptive, and equity-oriented intervention frameworks. Future research should assess the long-term performance, affordability, maintenance requirements, environmental impacts, and social outcomes of different infrastructure interventions. Policymakers and practitioners should prioritise collaborative governance, reliable funding, improved municipal capacity, inclusive participation, and flexible policy instruments that enable progressive and context-responsive upgrading.

Keywords: Community Participation; Informal Settlements; Infrastructure Services; Service Delivery; Upgrading Strategies, South Africa.

1. INTRODUCTION

Informal settlements, commonly referred to as slums or shantytowns, are a significant feature of South Africa's urban landscape, shaped by historical inequities and rapid urbanization

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

(Huchzermeyer, 2011). These settlements are characterized by insecure tenure, inadequate housing, and limited access to basic services such as water, sanitation, electricity, and waste management (Turok & Borel-Saladin, 2018). Addressing infrastructure deficits in these areas is critical for advancing public health, social inclusion, and sustainable urban development (Görgens & van Donk, 2012). Despite considerable policy attention, service interventions in informal settlements are often hampered by complex challenges, including financial constraints, institutional fragmentation, and sociopolitical resistance (Smit et al., 2017). Conventional approaches such as large-scale relocation or formalization have frequently proven unsustainable or unpopular, prompting a shift towards incremental upgrading and participatory planning (Frediani et al., 2019). This paper systematically reviews the literature on infrastructure service interventions in South African informal settlements, aiming to synthesize the main challenges, approaches, and future directions to inform more effective policies and practices.

Urban informality in South Africa is deeply entrenched, with an estimated one in six urban residents living in informal settlements, reflecting persistent inequalities in land and housing markets (Parnell & Pieterse, 2010). The legacy of apartheid spatial planning has compounded these challenges, as informal settlements are often located on the urban periphery, disconnected from economic opportunities and formal infrastructure networks (Charlton, 2018). Research by Haysom (2018) highlights that these spatial disadvantages exacerbate social exclusion and limit prospects for poverty alleviation. Moreover, insecure tenure arrangements continue to undermine investment in service infrastructure, as both municipalities and residents face uncertainty over the permanence and legitimacy of these settlements (Marx, 2003). Service delivery interventions are further complicated by the diversity and dynamism of informal settlements, which can differ markedly in size, tenure arrangements, and governance structures (Smit & Purchase, 2006). According to Lemanski (2020), one-size-fits-all solutions are rarely effective, and interventions must account for the unique conditions and needs of each community. Mels et al. (2009) contend that the technical complexity of providing infrastructure is often underestimated, as dense settlement patterns and lack of formal planning make conventional engineering approaches impractical. Furthermore, Chitekwe-Biti et al. (2012) note that the sustainability of interventions depends on active community participation and the ability to adapt solutions over time.

The policy landscape for informal settlement upgrading has evolved through programs such as the Upgrading of Informal Settlements Programme (UISP), which emphasizes in situ upgrading, basic services provision, and security of tenure (Department of Human Settlements, 2019). However, critics such as Rubin (2011) argue that implementation is frequently undermined by insufficient funding, bureaucratic delays, and a lack of coordination between spheres of government. According to Parnell and Oldfield (2014), political will and leadership at the municipal level are decisive in determining the success of interventions, as is the flexibility to respond to changing community needs. The literature also highlights the critical role of external actors, including NGOs and international donors, in advocating for and facilitating innovative service delivery models (Scher, 2015). Looking forward, the challenge for South African cities lies in developing integrated, resilient strategies that address the root

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

causes of informality while delivering tangible improvements in infrastructure and services (Harrison et al., 2021). Pieterse (2008) emphasizes the need for adaptive governance and collaborative planning, arguing that sustainable interventions must bridge the gap between top-down policy and grassroots agency. Recent studies by Cirolia (2020) suggest that leveraging new technologies such as mobile mapping and decentralized utilities can offer cost-effective solutions, particularly when coupled with robust community engagement. Ultimately, the complexity of informal settlements demands a multidimensional approach that recognizes the interplay between technical, financial, institutional, and social factors (Smit et al., 2017).

In summary, infrastructure service interventions in South African informal settlements represent a complex challenge that demands nuanced, context-sensitive responses. Effective solutions require not only technical expertise and financial resources but also a deep understanding of the social dynamics and institutional frameworks that shape these communities. By systematically reviewing the literature, this paper aims to provide insights that can guide more equitable, sustainable, and impactful approaches to service delivery and settlement upgrading in the years ahead.

2. METHODOLOGY

This paper adopts a literature review approach to synthesize existing knowledge on infrastructure service interventions in South African informal settlements. Relevant literature was identified through searches of academic databases such as Web of Science, Scopus, and Google Scholar, using keywords including “informal settlements,” “South Africa,” “infrastructure services,” and “upgrading.” The review focused on peer-reviewed journal articles, book chapters, and key policy reports published between 2010 and 2026. Sources were selected based on their relevance to the themes of challenges, intervention approaches, and future directions for service delivery in informal settlements. The literature was analyzed thematically, allowing for the identification and organization of recurring issues, innovative strategies, and emerging trends discussed across diverse studies. Emphasis was placed on works that provided critical insights into technical, financial, institutional, and social dimensions of infrastructure interventions. This approach enabled a comprehensive synthesis of academic and policy perspectives, highlighting areas of consensus and ongoing debate within the field.

3. CONTEXT AND CHALLENGES

3.1 Socioeconomic and Spatial Context

The persistence and growth of informal settlements in South Africa are fundamentally linked to the country’s historical patterns of spatial inequality and ongoing socioeconomic challenges. Urban migration, driven by the search for employment and better services, has contributed significantly to the expansion of informal settlements on the peripheries of cities (Parnell & Pieterse, 2010). These settlements are frequently located on marginal land, often near industrial areas or in flood-prone zones, where the risk of eviction is higher and access to opportunities is limited (Charlton, 2018). The lack of legal tenure remains a critical barrier for

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

residents, as it discourages both personal investment in dwellings and public investment in infrastructure, with many local governments hesitant to formalize or upgrade areas that are not officially recognized (Marx, 2003).

In addition to insecure tenure, poverty and unemployment are deeply entrenched in these communities, limiting residents' ability to pay for basic services or participate in formal housing markets (Lemanski, 2020). Social exclusion is further exacerbated by the physical separation of informal settlements from urban centers, which restricts mobility and access to jobs, education, and healthcare (Haysom, 2018). The resulting cycle of marginalization and deprivation continues to fuel the growth of informal settlements, despite national policies aimed at reducing housing backlogs and promoting urban integration (Smit & Purchase, 2006).

3.2 Technical and Financial Barriers

Delivering infrastructure services in informal settlements presents unique technical challenges due to the unplanned and densely populated nature of these areas. The irregular layout of dwellings, narrow pathways, and absence of formal roads make it difficult to lay pipelines, install electrical networks, or provide waste collection services using conventional methods (Mels et al., 2009). In many cases, the terrain itself poses additional obstacles, with settlements established on steep slopes, wetlands, or areas lacking stable ground, increasing both the complexity and cost of infrastructure projects (Charlton, 2018).

Financial constraints compound these technical difficulties. Municipalities often operate with limited budgets and must prioritize service delivery across both formal and informal urban areas (Görgens & van Donk, 2012). The high cost of retrofitting or upgrading infrastructure in informal settlements, particularly for water, sanitation, and drainage, can be prohibitive, leading to delays or piecemeal interventions (Smit et al., 2017). Furthermore, the absence of reliable property records and billing systems makes it difficult to recover costs or implement sustainable service delivery models, placing further strain on local government finances (Rubin, 2011).

International donors and NGOs have sometimes stepped in to fill funding gaps, but their efforts are often limited in scale or sustainability and may not be well integrated with municipal plans (Scher, 2015). The lack of long-term financial planning and investment in infrastructure maintenance further undermines the effectiveness of interventions and perpetuates cycles of service failure (Harrison et al., 2021).

3.3 Institutional and Governance Challenges

Institutional fragmentation is a persistent obstacle to effective infrastructure service delivery in informal settlements. Multiple government departments and agencies may have overlapping or unclear mandates, leading to confusion, duplication of efforts, and gaps in accountability (Frediani et al., 2019). This fragmentation is often exacerbated by frequent changes in policy direction, leadership turnover, and inadequate communication between national, provincial, and municipal tiers of government (Department of Human Settlements, 2019).

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

Weak coordination extends to the implementation phase, where delays in decision-making, bureaucratic inertia, and misalignment of priorities can stall service delivery projects (Watson, 2014). Community distrust towards authorities is another significant challenge, often rooted in past experiences of exclusion, broken promises, or forced evictions (Lemanski, 2020). Building effective partnerships with residents requires sustained engagement, transparency, and a willingness to incorporate local knowledge and preferences into planning and execution (Chitekwe-Biti et al., 2012).

Political dynamics can also play a decisive role. Infrastructure interventions may be shaped by electoral considerations or patronage networks, affecting the allocation of resources and the selection of beneficiary communities (Rubin, 2011). In some cases, projects are initiated without adequate consultation, leading to resistance or even sabotage from residents who feel marginalized or threatened by proposed changes (Harrison et al., 2021). The success of infrastructure service interventions in informal settlements thus depends not only on technical and financial capacity, but also on the strength of governance systems, the inclusiveness of decision-making processes, and the legitimacy of implementing institutions.

4. APPROACHES TO INFRASTRUCTURE SERVICE INTERVENTIONS

4.1 Participatory Planning and Community Engagement

Participatory planning and community engagement have become cornerstones of effective infrastructure interventions in informal settlements. Rather than imposing top-down solutions, these approaches prioritize the involvement of residents at every stage from needs assessment and design to implementation and maintenance. Frediani et al. (2019) argue that such engagement not only fosters trust between communities and authorities but also ensures that interventions are better aligned with local priorities and realities. Residents possess unique knowledge about their environment, social dynamics, and practical constraints, which can inform more suitable and sustainable infrastructure options. Watson (2014) emphasizes that participatory processes must be genuinely inclusive, providing space for marginalized voices such as women, youth, and informal leaders to shape decisions. Mechanisms such as community workshops, mapping exercises, and local committees have been used to facilitate dialogue and build consensus. In many cases, community-based models also empower residents to take on responsibilities for service maintenance, monitoring, and even resource management, thereby enhancing long-term sustainability and reducing dependence on external actors. The success of these approaches depends on transparent communication, continuous engagement, and recognition of community agency.

4.2 Incremental Upgrading

Incremental upgrading has emerged as a pragmatic response to the complex realities of informal settlements, offering an alternative to disruptive approaches like mass relocation. This strategy involves stepwise improvements to basic infrastructure such as water taps, communal toilets, roads, and stormwater drainage within the existing settlement footprint (Smit et al., 2017). By focusing on in situ upgrading, authorities can minimize the social and economic

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

upheaval often associated with relocation, preserving community networks and livelihoods. The incremental approach allows for flexibility, enabling interventions to be adapted as resources become available or as community needs evolve. It often begins with essential services like water and sanitation, followed by improvements to access roads, lighting, and solid waste management. Importantly, incremental upgrading can help formalize tenure arrangements over time, providing residents with greater security and encouraging investment in their homes. The approach, however, requires careful coordination to avoid reinforcing existing inequalities or creating new forms of exclusion among residents.

4.3 Integrated Service Delivery

Recognizing the interconnected nature of urban vulnerabilities, integrated service delivery models seek to address multiple needs simultaneously. This involves coordinating infrastructure upgrades with complementary initiatives in health, education, and economic development (Görgens & van Donk, 2012). For example, installing water and sanitation facilities may be paired with health awareness campaigns, skills training, or micro-enterprise support, creating synergies that enhance the impact of each intervention. Integrated planning demands close collaboration among government departments, NGOs, and community representatives. It also requires robust data collection and analysis to identify overlapping risks and prioritize interventions that yield the greatest benefits. Successful integrated projects can break cycles of poverty and marginalization by improving living conditions while opening pathways to social mobility and resilience. However, these approaches are often challenged by institutional silos and the complexity of aligning diverse stakeholders' objectives.

4.4 Policy and Regulatory Innovations

Policy and regulatory frameworks play a critical role in shaping the effectiveness of infrastructure service interventions. In recent years, there has been a shift away from rigid, one-size-fits-all standards towards more flexible and adaptive regulations that accommodate the unique conditions of informal settlements (Watson, 2014). Innovations such as temporary occupancy permits, relaxed building codes, and planning overlays allow for incremental upgrading and experimentation without requiring full formalization from the outset. Collaborative frameworks, such as memoranda of understanding between communities and local authorities, can clarify roles, responsibilities, and expectations, reducing conflict and building a foundation for long-term partnership. Policy reforms have also sought to streamline approval processes and allocate dedicated funding for informal settlement upgrading, addressing common bottlenecks that have historically delayed or derailed interventions. The success of these innovations depends on political will, administrative capacity, and the ability to balance regulatory flexibility with safeguards for health, safety, and equity.

4.5 Technological Solutions

Technological innovation is increasingly being leveraged to overcome the technical and financial barriers associated with service delivery in informal settlements. Decentralized water and sanitation systems such as communal standpipes, bio-toilets, and on-site wastewater treatment offer adaptable solutions for areas where conventional infrastructure is not feasible

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

(Turok & Borel-Saladin, 2018). Solar energy initiatives provide affordable lighting and power, improving safety and enabling economic activities after dark. Mobile technology is also making significant inroads, with apps and SMS platforms used for reporting service faults, coordinating waste collection, or facilitating community engagement. Some municipalities have piloted the use of GIS mapping and drone surveys to better understand settlement layouts and plan interventions more effectively. While technological solutions can provide immediate relief and increase efficiency, their sustainability depends on user acceptance, affordability, and the availability of technical support for maintenance and repairs.

5. CASE STUDIES

5.1 Durban's Community-Led Water Upgrading

Durban's approach to water service provision in informal settlements stands out as a successful example of participatory planning and community-led implementation. Faced with growing demand and limited resources, the eThekwini Municipality shifted from top-down service delivery to a model that actively involved residents in the planning, design, and management of water infrastructure. Local community committees were established to represent residents' interests, facilitate communication, and oversee the installation and ongoing maintenance of communal standpipes and ablution blocks (Frediani et al., 2019). This process fostered a sense of ownership among residents, which in turn improved the protection and sustainability of facilities. The participatory model not only increased service coverage but also significantly reduced conflict between the municipality and informal settlement residents, as their input was valued and incorporated into decision-making. Durban's experience demonstrates that meaningful engagement can bridge gaps of mistrust, tailor solutions to local needs, and enhance the long-term success of infrastructure interventions.

5.2 Cape Town's Sanitation Pilot Projects

Cape Town has piloted a range of innovative sanitation projects in informal settlements, aiming to address both the technical challenges of service provision and the diverse preferences of community members. Projects such as the installation of communal toilets, container-based sanitation, and shared ablution blocks were introduced to improve sanitation access while considering space limitations, population density, and resource constraints. However, these projects also revealed the tensions that can arise when technical standards are prioritized over community preferences and lived realities (Watson, 2014). For instance, some residents resisted shared facilities due to concerns about privacy, hygiene, and safety, while others expressed a preference for incremental individual upgrades. The city's experience highlights the need for adaptive approaches that balance engineering requirements with social acceptability, as well as the importance of ongoing dialogue and flexibility to adjust interventions in response to community feedback. Cape Town's sanitation pilots underscore that technical innovation alone cannot guarantee success without parallel attention to social dynamics and user satisfaction.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

5.3 Johannesburg's Integrated Upgrading

Johannesburg's integrated upgrading initiatives exemplify the benefits of combining physical infrastructure improvements with broader social and economic development efforts. In settlements such as Diepsloot and Orange Farm, the municipality adopted a multi-dimensional approach, integrating the provision of roads, water, sanitation, and electricity with programs for job creation, skills training, and local enterprise development (Görgens & van Donk, 2012). This holistic strategy not only enhanced basic service delivery but also contributed to poverty reduction and community empowerment. By coordinating interventions across sectors and engaging multiple stakeholders including local businesses, NGOs, and residents Johannesburg was able to address overlapping vulnerabilities and build more resilient communities. The case illustrates that infrastructure upgrading, when embedded in a broader framework of social and economic support, can deliver more sustainable and transformative outcomes than isolated technical fixes.

6. FUTURE DIRECTIONS AND RECOMMENDATIONS

6.1 Strengthening Community Participation

One of the most consistent findings across the literature is the critical role of community participation in the success and sustainability of infrastructure interventions in informal settlements. Moving forward, future projects should prioritize deep, ongoing engagement with residents, not only during initial planning but throughout design, implementation, and maintenance. Meaningful participation goes beyond consultation; it involves fostering local leadership, building resident capacity, and enabling communities to co-produce and manage services. Such approaches empower residents, enhance their sense of ownership, and improve the relevance and resilience of interventions. Mechanisms for strengthening participation could include the establishment of representative committees, participatory mapping, and community-based monitoring and evaluation systems. Special attention should be given to ensuring inclusivity, so that marginalized groups such as women, youth, and migrants have a genuine voice in decision-making processes. By embedding participation as a core principle, interventions can be better tailored to local contexts, foster social cohesion, and promote long-term sustainability.

6.2 Enhancing Institutional Coordination

Effective infrastructure provision in informal settlements requires coordinated action among a wide array of stakeholders, including various levels of government, non-governmental organizations, community structures, and private sector actors. At present, institutional fragmentation and siloed operations frequently undermine the efficacy and scalability of interventions. Enhancing both vertical (across government tiers) and horizontal (across sectors and agencies) coordination is vital for sharing information, aligning objectives, and pooling resources. One way to achieve this is through the creation of multi-stakeholder task forces or integrated planning platforms that bring together relevant actors to jointly design, finance, and monitor projects. Additionally, clear delineation of roles and responsibilities, as well as robust

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

communication channels, are essential for minimizing duplication and addressing gaps in service delivery. Encouraging partnerships with the private sector and leveraging the expertise and resources of NGOs can also drive innovation and efficiency in project implementation.

6.3 Sustainable Financing

Securing adequate and sustainable funding remains a major challenge for infrastructure upgrading in informal settlements. Traditional reliance on municipal budgets and donor funding is often insufficient for the scale and complexity of needs. Innovative financing mechanisms should be explored, including public-private partnerships (PPPs) that leverage private investment for infrastructure development and maintenance. Targeted subsidies can help ensure affordability for low-income residents while maintaining cost recovery for service providers. Establishing revolving funds, microfinance schemes, or community savings groups can also support incremental upgrading and empower residents to contribute financially to improvements. Furthermore, integrating informal settlements into broader city-wide and national infrastructure planning can help unlock access to larger funding streams and ensure that upgrading is not treated as an isolated or marginal activity.

6.4 Policy and Regulatory Reform

Regulatory frameworks must evolve to support flexible, context-sensitive solutions for informal settlements. Rigid standards and bureaucratic procedures often pose barriers to incremental upgrading and inhibit innovation. Future policy should prioritize the adoption of flexible service standards, temporary occupancy permits, and simplified approval processes that accommodate the realities of informal tenure and settlement layouts.

Policymakers should also recognize and legitimize the diversity of informal arrangements, providing pathways for regularization and protection against forced evictions. Policy reform should be informed by ongoing dialogue with communities, empirical evidence from pilot projects, and lessons from successful case studies. In addition, the development of clear, consistent guidelines for integrating technological innovations such as decentralized utilities or digital service platforms will ensure that regulatory environments keep pace with evolving needs and opportunities.

6.5 Research Gaps

Despite a growing body of literature, important research gaps remain. There is a need for systematic evaluation of the impacts of different intervention models, including comparative studies of participatory, incremental, and integrated approaches across diverse contexts. Research should also focus on the scalability and long-term sustainability of successful pilots, identifying the enabling conditions and potential pitfalls of broader replication. The role of technology such as mobile applications, GIS mapping, and off-grid utilities in enhancing service delivery, transparency, and accountability warrants further exploration.

Additionally, more attention should be paid to the intersection of infrastructure upgrading with broader social and economic development objectives, such as health outcomes, educational attainment, and livelihood opportunities. By addressing these gaps, future research can provide

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

a stronger evidence base to inform policy, guide practitioners, and ultimately improve the lives of residents in South African informal settlements.

7. CONCLUSIONS

Infrastructure service interventions in South African informal settlements continue to pose significant and multifaceted challenges for policymakers, practitioners, and communities alike. The literature reviewed in this paper underscores that solutions cannot rely solely on technical or financial fixes; rather, they must be grounded in an understanding of the social, spatial, and institutional dynamics that shape these environments. Integrated approaches that combine infrastructure upgrading with health, education, and economic development have proven effective in fostering resilience and improving quality of life. Meaningful community participation emerges as a cornerstone of successful interventions, ensuring that projects are responsive to local needs and sustainable in the long term. Enhanced institutional coordination and innovative financing strategies are essential for scaling impact and bridging gaps in service delivery. Flexible policy frameworks that accommodate informal tenure and settlement realities can unlock opportunities for incremental upgrading and innovation. Ultimately, addressing infrastructure deficits in informal settlements requires a commitment to inclusive urban development, ongoing collaboration among stakeholders, and a willingness to adapt policies and practices to evolving contexts. By learning from case studies and embracing both regulatory and technological advancements, South Africa can move towards more equitable, sustainable, and transformative infrastructure solutions for its informal settlements.

References

1) Charlton, S. (2018). Confounded but hopeful: South Africa's informal settlements policy (2004–2014). *Cities, 78*, 125–133.

2) Chitekwe-Biti, B., Mudimu, P. and Nyama, G. (2012). Developing an informal settlement upgrading protocol in Zimbabwe. *Environment and Urbanization, 24*(1), 131–148.

3) Cirolia, L.R. (2020). Informality, resilience and the future of African cities. *Cities, 100*, 102641.

4) Department of Human Settlements (2019). *Upgrading of Informal Settlements Programme (UISP) Policy Review*. Pretoria: Department of Human Settlements.

5) Frediani, A.A., Smit, W. and Walker, J. (2019). Participatory approaches to informal settlement upgrading in South Africa. *Environment and Urbanization, 31*(1), 243–262.

6) Görgens, T. and van Donk, M. (2012). Integrated service delivery in informal settlements: Lessons from South Africa. *Urban Forum, 23*(2), 133–146.

7) Harrison, P., Rubin, M., Appelbaum, A. and Dittgen, R. (2021). Corridors of Freedom: Analyzing Johannesburg's efforts to create a more equitable city. *Cities, 105*, 102845.

8) Haysom, G. (2018). Housing and informality in South African cities. *Development Southern Africa, 35*(1), 1–13.

9) Huchzermeyer, M. (2011). *Cities with "Slums": From Informal Settlement Eradication to a Right to the City in Africa*. Cape Town: University of Cape Town Press.

The Seybold Report
ISSN 1533-9211
DOI: 10.5281/zenodo.22126772

10) Lemanski, C. (2020). Subverting urban informality: The hybrid spaces of upgraded informal settlements in South Africa. *Urban Studies, 57*(2), 430–447.

11) Marx, C. (2003). Supporting informal settlements. *Urban Forum, 14*(3), 292–308.

12) Mels, A., Castellano, D., Braadbaart, O., Veenstra, S., Dijkstra, I., Meulman, B. and Zeeman, G. (2009). Sanitation services for the informal settlements of Cape Town, South Africa. *Desalination, 248*(1–3), 330–337.

13) Parnell, S. and Oldfield, S. (2014). Editorial: The future of urban informality research in Southern Africa. *Urban Forum, 25*, 1–4.

14) Parnell, S. and Pieterse, E. (2010). The 'right to the city': Institutional imperatives of a developmental state. *International Journal of Urban and Regional Research, 34*(1), 146–162.

15) Pieterse, E. (2008). *City Futures: Confronting the Crisis of Urban Development*. London: Zed Books.

16) Rubin, M. (2011). Perceptions of corruption in informal settlements: Implications for upgrading interventions. *Urban Forum, 22*(2), 193–208.

17) Scher, D. (2015). The role of NGOs in service delivery for the urban poor. *Development Policy Review, 33*(5), 625–645.

18) Smit, W. and Purchase, J. (2006). *Informal Housing in South Africa: Human Settlements Review*. Cape Town: Human Sciences Research Council.

19) Smit, W., Ebrahim, R. and Brown-Luthango, M. (2017). Upgrading informal settlements in South Africa: Policy, practice and progress. *Urban Studies, 54*(6), 1452–1468.

20) Turok, I. and Borel-Saladin, J. (2018). The urbanization of poverty and inequality in South Africa: Informal settlements as a challenge to sustainable development. *Development Southern Africa, 35*(1), 25–45.

21) Watson, V. (2014). The politics of upgrading informal settlements in South Africa. *Habitat International, 44*, 295–301.