

Navigating Urban Planning and Management in Africa: A Contemporary Perspective on Politics, Environment, and Climate Change

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Abstract

In contemporary Africa, urban planning and management are undergoing profound changes, shaped by the interplay of politics, environmental concerns, and the pressing issue of climate change. This article explores the evolving landscape of urban development in Africa, highlighting the pivotal role of political agendas, environmental policies, and the imperative to address climate change. It emphasises the synergy between urban planning and management as the linchpin for sustainable, climate-resilient cities. Using South Africa, Zimbabwe and Nigeria as case studies, this article elucidates the challenges and opportunities that lie ahead.

Keywords: urban planning and management; sustainable development; climate change; environmental policy; climate resilience; politics and governance

Introduction

Urbanisation in Africa is advancing at an unparalleled pace, fundamentally altering the continent's social, economic, and environmental fabric. With the majority of Africa's population now residing in urban areas, the challenges and opportunities arising from urbanisation have taken centre stage in political discourse and policy agendas. Yet, this transformation is not occurring in isolation; it is intricately linked to the evolving political landscape, the urgency to address pressing environmental concerns, and the growing threat of climate change. This article delves into the intricate relationship between urban planning, urban management, politics, and climate change in contemporary Africa. By exploring this complex interplay, our aim is to illuminate how these factors collectively shape the future of African cities.

African cities confront an unprecedented convergence of challenges stemming from rapid urbanisation, inadequate infrastructure, and the escalating impacts of climate change. The current urban development landscape in these cities is marred by insufficient planning and management strategies ill-prepared to tackle the intricacies of urban growth and the escalating environmental stressors. The mismatch between the pace of urban expansion and the existing urban systems' capacity to adapt to climate variations has led to a critical need for comprehensive and sustainable approaches to urban development. The compounded effects of inefficient urban planning, ineffective governance, and vulnerabilities to climate change manifest in increased strain on resources, amplified environmental risks and exacerbated socioeconomic disparities within these urban centres. This confluence of challenges necessitates an urgent reassessment and innovative restructuring of urban development frameworks to foster resilience and sustainability amidst the evolving urban landscape and climate uncertainties across African cities.

This research aimed to offer a comprehensive understanding of the interplay between urban planning, management, and climate change in African cities. The study that informed this article sought to provide insights into the challenges, opportunities, and effective strategies for achieving sustainable urban development in the face of environmental and climate challenges. The research objectives encompassed analysing current urban development challenges, assessing the impact of climate change on urban areas in Africa, and exploring best practices and policies promoting sustainability and resilience to climate change in African cities.

Literature Review

Urban development in Africa stands at a critical juncture, where rapid urbanisation intersects with longstanding challenges in infrastructure, governance, and climate resilience. Historically fragmented urban planning has led to informal settlements and inadequate infrastructure, exacerbating socioeconomic disparities. However, amidst these challenges, there is a notable shift towards sustainable urban development strategies, propelled by initiatives like the New Urban Agenda and the Africa Urban

Agenda (AUA). This literature review examines key themes such as urban infrastructure, climate change adaptation and financing, community engagement, and politics and governance, shedding light on the evolving landscape of urban development in Africa and the imperative of holistic approaches to address the continent's pressing urban challenges.

Urban Infrastructure

Urban planning in Africa has historically been fragmented and short-term, often leading to informal settlements and inadequate infrastructure. Rapid urbanisation exacerbates these issues, straining the capacities of many African cities. However, there has been a shift toward long-term visions that prioritise sustainable urban development. This shift is exemplified by initiatives such as the New Urban Agenda, which emerged from the United Nations Habitat III conference in 2016, emphasising inclusive, resilient, and environmentally sustainable cities (Moreno et al. 2016).

The Africa Urban Agenda (AUA) programme, an initiative by UN-Habitat, aims to elevate the significance of sustainable urbanisation as a catalyst for structural transformation in Africa. Its primary goals include fostering collaborations between governmental and non-governmental entities, developing national urban policies, and realising people-centred sustainable urban development. The Nigerian government's financial support for the AUA programme, including the Presidential Initiative (PI) and the Strengthening Partnerships Project (SPP), highlights the importance of such comprehensive approaches (UN-Habitat 2015).

Rapid population growth, projected to increase from 7.7 billion in 2019 to 9.7 billion by 2050, poses significant challenges, particularly in urban areas where most of this growth is expected. North Africa, in particular, is experiencing a dramatic 46% growth rate. This urban shift, with the global urban population projected to rise from 55% in 2018 to 68% by 2050, will place immense pressure on existing infrastructure, especially since more than 60% of the urban areas expected by 2030 have yet to be built. Discrepancies in infrastructure—such as energy, water, transport, and ICT—are exacerbated by rapid population growth, urban migration, and limited investment. These challenges highlight the need for sustainable development approaches, including sustainable construction, integrated infrastructure, sustainable land management, green and blue infrastructure, and enhanced connectivity in urban planning, particularly in the African context (El-bouayady and Radoine 2023).

In response to these challenges, the nationalisation of extra-urban houses through Proclamation 47/75 in 1975 negatively impacted the physical environment of Addis Ababa, Ethiopia. The administration of these nationalised houses was transferred based on the amount of monthly rent, either to Kebele administrations or a dedicated government agency. Many of the Kebele houses are single-story, mud-constructed tenements. To address neighbourhood upgrading, the Public Participation Development Agency (PPDA) was established in 2011 under the Addis Ababa City Government's

Construction and Housing Development Bureau. The PPDA facilitates collaboration between the city government and residents, handling physical infrastructure and communal facility maintenance and construction. It also coordinates and supports public participation in maintaining houses for the poorest residents, operating through Public Participation Development Offices (PPDOs) in 10 sub-cities and 116 woreda administrations. PPDA officials highlight that the programme promotes resident involvement in planning, implementation, monitoring, and managing public goods and communal facilities to enhance community ownership (Alem Gebregiorgis et al. 2022).

Effective urban infrastructure involves strong legal frameworks, such as green building codes and mixed-use zoning, which are essential for sustainable cities. Prioritising public transportation, green spaces, and well-connected neighbourhoods fosters community and reduces vehicle dependency. Financial strategies must support sustainable projects, leveraging public-private partnerships for necessary investments. This approach aligns with Sustainable Development Goal 11, which aims to make cities inclusive, safe, resilient, and sustainable (United Nations 2023).

In Nigeria, the implementation of green building codes and the development of sustainable urban policies have been instrumental in modernising urban infrastructure. For instance, Lagos State has introduced policies to regulate building standards and promote energy efficiency, significantly improving the quality of urban living and reducing environmental impact (This Day Sustainable Campaign 2022).

Climate Change Adaptation and Financing

Africa's vulnerability to climate change is increasingly evident, with cities experiencing more frequent and severe climate-related events, such as floods and heat waves. These events disrupt urban infrastructure, displace populations, and exacerbate existing socioeconomic inequalities (UN-Habitat 2015). Climate resilience and mitigation measures are thus critical components of urban development strategies.

Nairobi, Kenya, has initiated a series of flood-resilient housing projects to mitigate the impacts of recurrent floods, safeguarding lives and property (Nairobi City County 2018). Similarly, Cape Town's Integrated Development Plan incorporates climate-resilient infrastructure, green spaces, and water conservation initiatives, aligning urban planning with environmental and climate objectives (City of Cape Town 2018).

In Zimbabwe, the Cyclone Idai disaster highlighted the need for robust climate adaptation strategies. The aftermath saw the implementation of more resilient housing structures and improved disaster response mechanisms, showcasing a practical response to climate vulnerabilities (Chanza and Jakarasi 2020). However, the current drought in Zimbabwe exacerbates water shortages, placing 2.6 million people at risk of water insecurity, as highlighted in the 2023 Zimbabwe Vulnerability Assessment Committee (ZimVAC) Report. Even before the drought, inadequate water access affected 35% of

rural households, with 45% travelling over half a kilometre to fetch water. El Nino further amplifies these risks, potentially increasing the distance to water sources.

Additionally, 46% of households lack basic sanitation services, compounding the risk of waterborne diseases. Zimbabwe is currently grappling with a cholera outbreak linked to poor water hygiene and sanitation services, with over 31 000 cases and 591 deaths reported as of April 8, 2024. Addressing these challenges requires community engagement, strengthening WASH and health services, and enhancing district Rapid Response Teams' capacity to bolster the country's resilience against future health risks (Office for the Coordination of Humanitarian Affairs [OCHA] 2024). Serious economic hardships, massive poverty levels, high unemployment levels, intense political conflict and high levels of corruption in Zimbabwe make it extremely difficult, if not impossible, to tackle climate-induced calamities; hence, the country heavily depends on donor funding.

It should be noted, therefore, that equitable resource allocation is essential for effective climate change adaptation. Research by Trisos et al. (2022) emphasises that unequal access to resources exacerbates vulnerabilities among marginalised urban populations. At the Summit for a New Global Financing Pact in Paris, Prime Minister Mia Amor Mottley of Barbados emphasised the dire need for equitable financing for third-world countries, highlighting that the current global financial system disproportionately disadvantages these nations in addressing climate change and sustainable development needs. This narrative has resonated throughout global discussions, including the United Nations General Assembly (UNDP 2018) held in the USA.

Financial strategies play a crucial role in supporting climate-resilient projects. Leveraging public-private partnerships for necessary investments ensures sustainable projects' long-term viability. The Climate Financial Pact, discussed at global forums, emphasises innovative solutions to finance climate adaptation, ensuring that developing countries receive fair access to resources for mitigating climate impacts (UNDP 2018). France's commitment to this pact highlights the role of international cooperation in addressing global climate challenges.

Community Engagement

Community engagement is vital for successful urban planning and development. Involving local communities ensures that urban projects meet residents' needs and harness local knowledge for more effective solutions. The Mukuru Special Planning Area project in Nairobi, led by the national government in collaboration with UN-Habitat, exemplifies this approach. The project aims to improve living conditions in informal settlements by providing basic services, secure land tenure, and better housing and infrastructure (Horn et al. 2020).

Rwanda's Green City Kigali pilot project integrates cultural aspects and climate resilience into affordable housing. This community-centred approach not only addresses

housing needs but also considers residents' cultural and environmental contexts, ensuring sustainable and accepted urban development (Koigi 2021). Empowering local communities in decision-making processes fosters inclusivity and enhances the sustainability of urban development initiatives.

In Namibia, community engagement has been crucial in developing the Shack Dwellers Federation, which has helped provide housing for low-income families. This initiative demonstrates how community involvement can lead to significant improvements in living conditions and urban development (Mitlin 2008). The Community-led Infrastructure Planning (CLIP), initiated in 2007 by NHAG/SDFN with support from the Ministry of Urban and Rural Development (MURD), empowers informal settlement residents to understand their communities, prioritise development needs, and negotiate for improved living conditions. In Gobabis, Namibia, residents conducted a city-wide enumeration, emphasising security of tenure as their primary concern. Following discussions and data sharing with the Gobabis Municipality, facilitated by a learning exchange with Shack/Slum Dwellers International (SDI), an agreement was reached for the upgrading of Freedom Square. This collaborative effort, underscored by a Memorandum of Understanding signed in 2013 between NHAG/SDFN and the Gobabis Municipality, illustrates the efficacy of community-driven initiatives in achieving sustainable urban development and inclusive planning (Shack Dwellers Namibia 2019).

In Egypt, urban development challenges such as the neighbourhoods problem are influenced by a combination of socioeconomic and physical factors, with varying degrees of integration. These socioeconomic factors underscore the importance of community involvement in addressing the issue. However, existing rules and regulations have constrained community participation, particularly among low-income groups, leading them to construct informal housing without professional guidance from architects or urban designers. As a result of the challenges arising from these informal settlements, efforts have shifted towards integrating local communities as active partners in urban upgrading and development processes.

The ATHARLINA project, a collaboration between the Ministry of Antiquities and the Danish Egyptian Dialogue Institute, emerged to address these issues (Kenawy and Abdelsalam 2015). Focused on redeveloping the Elkhalfa and ElAshraf neighbourhoods in Cairo, the project facilitated workshops, debates, and meetings to discuss the relationship between historical monuments and the surrounding communities, involving residents, government, and civil society stakeholders. These neighbourhoods, home to significant historical and Islamic landmarks, required renovation to preserve their beauty and identity. Through participatory design, all stakeholders were engaged in decision-making processes to bridge the gap between the community and its heritage, fostering a sense of ownership and responsibility. The success of the ATHARLINA project demonstrates the long-term nature of participatory processes, emphasising the importance of community engagement in fostering awareness and influencing social and cultural change. It serves as a prototype for similar

projects, showcasing the potential for collaboration and inclusive development at various levels and phases (Kenawy and Abdelsalam 2015).

Politics and Governance

The interplay between urban planning and politics in contemporary Africa is dynamic and multifaceted. Political agendas have increasingly prioritised sustainable urban development, recognising the pivotal role of cities in driving economic growth and social progress. A notable example is the African Union's Agenda 2063, a strategic framework that includes sustainable urbanisation as one of its key pillars. This demonstrates a growing acknowledgement among African leaders that urban planning must align with broader political objectives to secure a sustainable future for African cities (African Union 2015). The growing concern over the pervasive influence of politics in urban planning and management, particularly in Southern Africa, cannot be understated. This concern is exacerbated by issues of corruption and state capture that have gained notoriety in the region. This political influence in decision-making processes has far-reaching consequences, impacting the extent and effectiveness of initiatives aimed at addressing critical regional challenges, including economic migration. This migration issue has emerged as a significant point of contention, notably between South Africa and Zimbabwe, further exacerbating regional tensions.

In this context, the influence of politics on decision-making processes often hampers the ability to develop comprehensive and sustainable solutions to pressing regional issues. Executives and policymakers are frequently swayed by political considerations rather than adopting a constructive approach, contributing to the perpetuation of these challenges. Additionally, advanced societies often exploit weaker ones, capitalising on political divisions and instability, which perpetuates the cycle of inequality and exacerbates the difficulties faced by these societies. To address these complex problems effectively, there is an urgent need for a concerted effort to depoliticise decision-making processes and promote collaboration, transparency, and inclusive governance in urban planning and management across Africa.

The key to unlocking Africa's urban potential lies in a three-pronged approach focusing on urban legislation, planning and design, and finance and economy. Strong legal frameworks, such as green building codes and mixed-use zoning, are essential (UN-Habitat 2015). Other African cities are utilising technology to enhance efficiency and address urban challenges. Lagos, Nigeria, has implemented a smart traffic management system that leverages data analytics to optimise traffic flow, reduce congestion, and improve air quality. This system, developed by a public-private partnership between the Lagos Metropolitan Area Transport Authority (LAMATA) and technology companies like IBM, utilises real-time traffic data to adjust traffic signals and provide dynamic route guidance for drivers in a bid to enhance the efficiency of traffic systems and ensure sustainable, responsive urban designing (Echendu and Okafor 2021, 82–93). Despite political advancements, fair economic progress remains incomplete due to enduring distortions from apartheid, resulting in income and opportunity disparities and limited

access to basic services. Structural inequalities pose significant obstacles to advancement (World Bank 2022, 10). Notable spatial disparities exist over Africa's settlement patterns, showing a perpetual history of colonial capitalist urban development strategies that were essentially restrictive, racial, and, in most cases, made to force native Africans into "reserves" (Seekings 2000, 832). Reserves initially served as designated areas for indigenous labourers in the industry. As reported by Chirisa (2009, 266), these settlements have now become hotspots for widespread diseases like cholera, diarrhoea, and typhoid, and have also become hubs for antisocial activities marked by elevated unemployment rates.

Fundamentally, the period spanning from 1940 to 1995 witnessed a transformation in society due to the liberation struggle. Many African governments, inspired by liberal movements, sought to address land issues and urban settlement privileges. However, the transition brought about a notable continuation of repressive and authoritarian approaches to development, compounded by significant technical inadequacies, corruption, flawed regional policies, and a substantial influx of urban migrants since the early 1990s (Kamete 1997, 83). This shift in power dynamics, coupled with a lack of devolution, fiscal autonomy, and financial independence, which were often driven by a desire to consolidate power, led to the failure of centralised growth strategies even to date, a common challenge faced by African states (Lewis 2014, 571).

In conclusion, while the literature provides a comprehensive understanding of urban infrastructure, climate change adaptation, community engagement, and governance in African cities, several gaps remain. First, there is a lack of detailed, comparative studies on the effectiveness of different climate adaptation strategies across various African cities. Second, more research is needed on the long-term impacts of community engagement initiatives on urban development outcomes. Additionally, the intersection of governance, management, climate change, and politics needs further exploration to understand how these factors are reshaping the dynamics of development in Africa. Technical inadequacies, financial incompetence, corruption, and nepotism, although mentioned, require deeper investigation to develop effective countermeasures.

Research Methodology

Case Studies

The research methodology involved an in-depth analysis of three African cities: Cape Town, Harare, and Lagos. These cities were purposefully selected to represent a spectrum of urban and climate conditions across Africa, facilitating the identification of diverse challenges and adaptive strategies applicable to similar contexts continent-wide.

Selection Rationale

Cape Town, South Africa

Cape Town's selection is grounded in its pronounced vulnerability to climate change-induced hazards, such as floods, storms, wildfires, and heat waves. These events have inflicted significant damage on residential and commercial properties, necessitating robust resilience measures. Cape Town also exemplifies proactive urban planning initiatives, such as the Integrated Development Plan (IDP), which prioritises climate resilience and fosters collaboration among various stakeholders.

Harare, Zimbabwe

Harare was chosen due to its susceptibility to climate-related risks, including water stress, reduced agricultural yields, and heightened food insecurity. The city's reliance on rain-fed agriculture underscores its vulnerability to changing environmental conditions, necessitating adaptive measures. The case study highlights community-based adaptation projects, such as "Coping with Drought and Climate Change in Chiredzi District," which demonstrates the efficacy of localised strategies in bolstering resilience.

Lagos, Nigeria

Lagos represents a dynamic urban landscape grappling with environmental challenges exacerbated by rapid urbanisation. The city's "Sustainable Campaign for Clean Air in Lagos Communities" underscores its commitment to addressing environmental degradation through innovative policies and initiatives. Lagos serves as a case study in integrating sustainability principles into urban governance and fostering community engagement in climate action. Lagos is emblematic of many African cities experiencing similar urbanisation trends, such as rapid population growth, informal settlements, and infrastructure deficits. By studying Lagos, insights gained can be extrapolated to inform urban development strategies in other African cities facing similar challenges.

Sampling Techniques

The research employed purposive sampling to ensure representation across diverse stakeholder groups within each city. Semi-structured interviews were conducted with urban planners, policymakers, community leaders, non-governmental organisations' (NGO) representatives, and residents to capture a comprehensive range of perspectives on sustainable urban development and climate change adaptation.

Interviews and Surveys

The research utilised a comprehensive approach to gather insights and perspectives from key stakeholders involved in urban development in African cities. Semi-structured interviews and structured surveys were conducted to capture a diverse range of viewpoints and experiences.

Interview Design

Semi-structured interviews were conducted with a purposively selected group of stakeholders, including urban planners, policymakers, community leaders, representatives from NGOs, and residents in various African cities. The aim was to obtain in-depth insights into the challenges, strategies and experiences related to sustainable urban development and climate change adaptation. The interviews were guided by a set of predetermined open-ended questions, allowing for flexibility in the conversation and encouraging participants to share their perspectives, experiences, and concerns. The discussions primarily revolved around current urban development challenges, the effectiveness of existing policies, the integration of climate change considerations, and the community's engagement in urban planning and management processes.

Survey Design

Structured surveys were administered to a broader sample of residents within the selected African cities (Cape Town, Harare, and Lagos). The survey questions were designed to gather diverse perspectives on the impact of urban development on their lives, the awareness of climate change concerns, and their feedback on the effectiveness of implemented initiatives. The survey sought to quantify certain perceptions, preferences, and experiences related to urban development and climate change. It focused on specific aspects such as accessibility to green spaces, awareness of environmental policies, satisfaction with public infrastructure, and willingness to engage in sustainable practices.

Pretesting and Validation

Both the interview guides and survey instruments underwent pretesting and validation to ensure reliability and validity. Pretesting involved conducting pilot interviews and surveys with a small sample from each stakeholder group, followed by revisions based on feedback to improve clarity, relevance and comprehensiveness.

Data Collection and Analysis

Data Analysis Techniques

Qualitative Analysis

Qualitative data from interviews underwent thematic analysis to identify common patterns and recurring themes. The thematic analysis involved coding the data and categorising it into themes related to urban challenges, climate change integration, and community engagement.

Quantitative Analysis

Quantitative data from surveys were analysed using statistical tools to derive trends and patterns. Descriptive statistics summarised the data, and inferential statistics were used

to explore relationships and differences between variables. By integrating these methodological enhancements the research ensures transparency, rigour and reproducibility in its approach, thereby enriching the validity and reliability of the findings. The insights from interviews and surveys contributed significantly to the study's findings, enriching the understanding of urban challenges, community perspectives, and the effectiveness of ongoing urban development strategies in the context of climate change in African cities. The diverse range of views and experiences collected through these methods added depth and richness to the research analysis, enabling a more comprehensive examination of sustainable urban development challenges and opportunities.

Results

The results section presents the findings from the data collected through interviews and surveys conducted in Cape Town, Harare, and Lagos. The analysis of these findings provides valuable insights into urban planning, management, politics, and climate change, offering lessons and best practices for sustainable urban development in African cities.

Awareness of Environmental Policies

Table 1: Awareness of environmental policies

City	High Awareness (%)	Moderate Awareness (%)	Low Awareness (%)
Harare, Zimbabwe	32	45	23
Cape Town, South Africa	48	36	16
Lagos, Nigeria	25	50	25

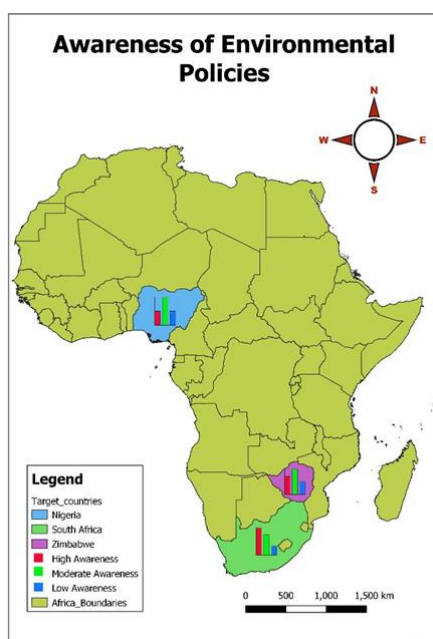


Figure 1: Awareness of environmental policies

Cape Town shows the highest level of awareness of environmental policies, reflecting the city's robust engagement with climate change initiatives and public awareness campaigns. Harare and Lagos exhibit moderate to low awareness, indicating a need for enhanced educational efforts and community outreach to improve public understanding and engagement with environmental policies. The differences in awareness levels can be attributed to varying local governance structures, the extent of public engagement by authorities, and the socioeconomic conditions influencing access to information and resources.

Satisfaction with Public Infrastructure

Table 2: Satisfaction with public infrastructure (average ratings)

City	Average Rating (1–5)
Harare, Zimbabwe	3.2
Cape Town, South Africa	4.0
Lagos, Nigeria	2.8

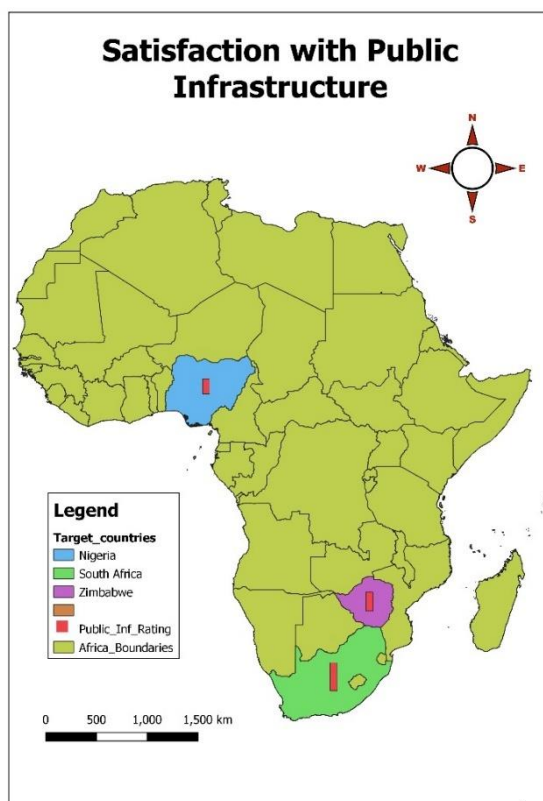


Figure 2: Satisfaction with public infrastructure

Cape Town residents report the highest satisfaction with public infrastructure, likely due to significant investments in urban planning and development. Harare shows moderate satisfaction, whereas Lagos has the lowest satisfaction ratings, highlighting the challenges of rapid urbanisation and inadequate infrastructure in the city. These differences underscore the impact of governance quality, resource allocation, and infrastructural development on public satisfaction.

Willingness to Engage in Sustainable Practices

Table 3: Willingness to engage in sustainable practices

City	Willing to Engage (%)	Neutral (%)	Unwilling to Engage (%)
Harare, Zimbabwe	58	30	12
Cape Town, South Africa	72	20	8
Lagos, Nigeria	45	35	20

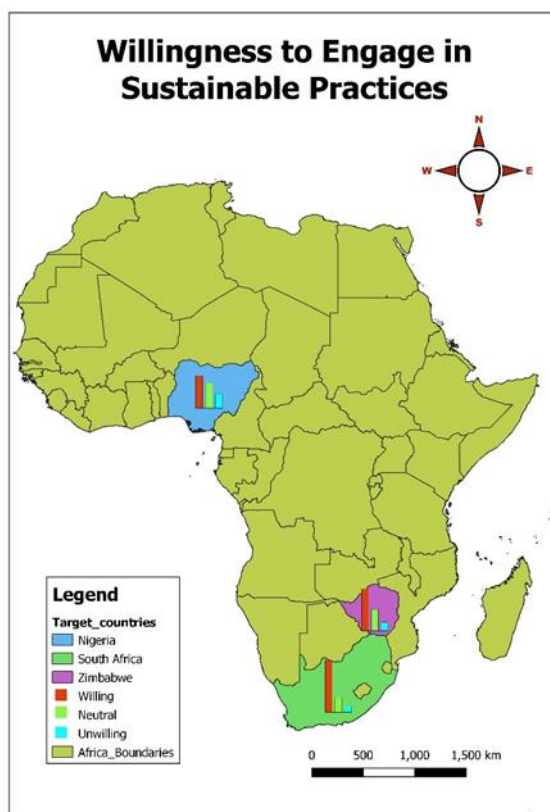


Figure 3: Willingness to engage

Cape Town demonstrates the highest willingness to engage in sustainable practices, reflecting strong community support for environmental initiatives. Harare shows a significant willingness, though with a higher percentage of neutral responses. Lagos exhibits a lower willingness to engage, pointing to potential barriers, such as lack of resources, awareness, and institutional support. These findings indicate how socioeconomic conditions and the availability of supportive infrastructure influence residents' willingness to participate in sustainable practices.

Interview Findings

Table 4: Interview findings

Interview Findings	Key Themes
Challenges in urban development	<ul style="list-style-type: none">• Inadequate infrastructure• Rapid urbanisation• Ineffective waste management
Climate change integration	<ul style="list-style-type: none">• Limited practical implementation of climate considerations in policies• Call for more stringent climate-resilient strategies
Community engagement	<ul style="list-style-type: none">• Desire for more involvement in decision-making processes• Call for community-driven approaches

Discussion

The interview findings reveal common challenges in Cape Town, Harare, and Lagos, particularly inadequate infrastructure and rapid urbanisation, compounded by climate change hazards. All three cities require better integration of climate-change considerations into their urban policies. Cape Town needs enhanced flood defences and wildfire prevention initiatives, Harare must address water scarcity and support climate-smart agriculture, and Lagos requires measures to mitigate air pollution and the urban heat island effect. Stakeholders emphasised the critical role of community engagement and the need for inclusive planning processes. While each city has successful local initiatives, such as Cape Town’s community-driven projects and Lagos’s “Sustainable Campaign for Clean Air,” there remains a need for broader inclusion and support, particularly for marginalised groups. Differences in local governance, socioeconomic conditions, and infrastructure significantly influence the responses and adaptive strategies of each city. Cape Town benefits from higher governance capacity and resource allocation but must ensure equitable resource distribution. Harare’s economic and political instability necessitates community-based solutions due to challenges in implementing and maintaining policies. Lagos’s rapid growth and socioeconomic diversity require innovative governance approaches to address environmental, social, and economic challenges. The findings highlight the need for context-specific strategies and enhanced collaboration among government agencies, communities and international partners to develop effective urban resilience and climate adaptation measures.

Comparative Analysis

Conducting a comparative analysis of the three cities—Cape Town, Harare, and Lagos—revealed specific factors contributing to differences in survey responses and interview insights. This analysis provides a deeper understanding of how local context, governance, and socioeconomic conditions influence urban development and sustainability outcomes.

Table 5. Comparative analysis matrix

Criteria	Cape Town South Africa	Harare Zimbabwe	Lagos Nigeria
Public satisfaction with infrastructure	4.0 (High)	3.2 (Moderate)	2.8 (Low)
awareness of environmental policies	48% (High)	32% (Moderate)	25% (Low)
Key urban planning initiatives	Integrated Development Plan (IDP): Prioritises climate resilience, water scarcity management, renewable energy, and green infrastructure.	Community-based Adaptation: Initiatives like Coping with Drought and Climate Change in Chiredzi District.	Sustainable Campaign for Clean Air: Focus on air quality, afforestation, and sustainable transportation.
Community engagement	High willingness to engage in sustainable practices (72%); strong community involvement and awareness campaigns.	Moderate willingness to engage in sustainable practices (58%); community-based adaptation projects emphasise local planning.	Lower willingness to engage in sustainable practices (45%); significant challenges due to socioeconomic disparities and rapid urbanisation.
Economic and resource conditions	Significant public investment in infrastructure; higher governance capacity.	Economic instability and resource limitations hinder extensive urban development.	Rapid urbanisation and limited infrastructure development; strong political will but hampered by resource constraints.
Climate change vulnerability	Proactive strategies in place for climate resilience; effective water management and renewable energy initiatives.	High vulnerability due to reliance on rain-fed agriculture; substantial NGO and UN agency support for adaptation measures.	Severe challenges due to high population density and socioeconomic disparities; innovative initiatives but constrained by resources.

Comparative Summary

Cape Town, South Africa

- **Proactive urban planning and public investment:** Cape Town excels in public satisfaction and environmental policy awareness due to proactive urban planning and significant public investments. The Integrated Development Plan (IDP) is a comprehensive approach focusing on climate resilience, water management, and renewable energy, supported by strong governance and community collaboration. High community engagement is evident, with a 72% willingness to participate in sustainable practices.

Harare, Zimbabwe

- **Economic instability and resource limitations:** Harare's moderate satisfaction and awareness reflect ongoing economic instability and resource constraints, limiting extensive urban development and infrastructure maintenance. The city's dependence on rain-fed agriculture increases climate change vulnerability. Community-based adaptation initiatives like the "Coping with Drought and Climate Change in Chiredzi District" emphasise local planning and adaptive capacity, although broader implementation is hindered by limited resources. The willingness to engage in sustainable practices is significant at 58%.

Lagos, Nigeria

- **Rapid urbanisation and infrastructure challenges:** Lagos faces the lowest satisfaction and environmental awareness, highlighting the challenges of rapid urbanisation and insufficient infrastructure. Despite these issues, the city shows strong political will and innovative planning, such as the "Sustainable Campaign for Clean Air" initiative. However, socioeconomic disparities and high population density complicate these efforts. The willingness to engage in sustainable practices is lower at 45%, reflecting the broader challenges of implementing effective urban strategies.

Broader Implications

The comparative analysis of Cape Town, Harare, and Lagos highlights the diverse challenges and opportunities faced by African cities in pursuing sustainable urban development. Key factors such as governance quality, economic stability, public investment, and community engagement play crucial roles in shaping urban resilience and sustainability outcomes.

- **Cape Town's model:** Cape Town's experience underscores the importance of integrated planning and substantial public investment in achieving high levels of satisfaction and awareness. Its approach to community engagement and climate resilience offers valuable lessons for other cities.

- **Harare's adaptation efforts:** Harare's focus on community-based adaptation and local knowledge integration provides insights into how vulnerable cities can build resilience despite economic and resource limitations.
- **Lagos's innovative approaches:** Lagos's innovative initiatives and strong political will demonstrate the potential for urban transformation, even in the face of significant challenges. However, the city's experience also highlights the need for addressing socioeconomic disparities and infrastructural deficits to achieve sustainable outcomes.

By comparing these cities, broader conclusions about sustainable urban development in African cities can be drawn, informing policies and practices that promote resilience, inclusivity, and sustainability across the continent.

Contextual Interpretation

These findings align with the broader literature on sustainable urban development, which emphasises the importance of governance quality, public engagement, and infrastructure development in fostering urban resilience and sustainability. The results confirm existing knowledge that well-planned urban areas with robust governance structures are better equipped to handle climate-related challenges. Cape Town's success in integrating climate resilience into its urban planning exemplifies this principle, reinforcing the idea that comprehensive, inclusive planning and investment are critical for urban sustainability.

Moreover, this study expands the understanding of how local socioeconomic conditions and governance practices influence urban development outcomes. Harare's moderate responses and challenges highlight the significant impact of economic instability and resource limitations on urban sustainability efforts. Meanwhile, Lagos's struggles with rapid urbanisation and limited infrastructure, despite strong political will, underscore the complexities faced by rapidly growing cities in developing countries. These insights contribute to a nuanced understanding of the diverse factors that shape sustainable urban development in African contexts.

Implications and Recommendations for Policy and Practice

The findings have significant implications for policy and practice, emphasising the need for targeted educational efforts to raise awareness of environmental policies, enhanced infrastructure development to meet urban demands, and greater community involvement in decision-making processes.

Enhancing Public Awareness Campaigns

- **Education and outreach:** Local governments should invest in continuous public awareness campaigns to educate residents about environmental policies and climate change. These campaigns should utilise various media platforms and community events to reach a broad audience.

- **Tailored messaging:** Campaigns should be tailored to address the specific environmental challenges and policy measures relevant to each city. For instance, Cape Town can focus on water conservation and renewable energy, while Lagos might emphasise air quality improvement and waste management.

Investing in Infrastructure

- **Targeted investments:** Prioritise investments in infrastructure projects that address the specific needs of rapidly urbanising cities like Lagos and Harare. This includes improving public transportation, expanding green spaces, and enhancing waste management systems.
- **Resilience projects:** Infrastructure development should incorporate resilience measures to withstand climate-related impacts. For example, Cape Town's focus on enhancing drainage systems and early warning systems can be a model for other cities.

Promoting Community Engagement

- **Inclusive platforms:** Develop platforms for community participation in urban planning processes to ensure that development projects reflect the needs and preferences of local populations. This can include town hall meetings, participatory budgeting, and digital engagement tools.
- **Empowerment programmes:** Implement programmes that empower local communities to take an active role in urban development. Training and resources should be provided to community leaders and organisations to facilitate meaningful participation.

Strengthening Governance and Policy Frameworks

- **Integrated policies:** Ensure that urban development policies are integrated with climate change adaptation and mitigation strategies. This requires coordination across different levels of government and sectors.
- **Capacity-building:** Strengthen the capacity of local government officials and urban planners through training and development programmes focused on sustainable urban development and climate resilience.

By implementing these recommendations, policymakers and practitioners can address the unique challenges faced by African cities, fostering more resilient, inclusive, and sustainable urban environments. The lessons drawn from Cape Town, Harare, and Lagos provide valuable insights that can inform urban development strategies across the continent, ultimately contributing to the broader goal of sustainable development in Africa.

Integration of Theory and Practice

The findings contribute significantly to theoretical frameworks in urban planning and climate change adaptation by illustrating practical challenges and opportunities in implementing sustainable urban development strategies. The key theoretical insights include:

- **Adaptive governance:** The study underscores the importance of adaptive governance, which involves flexible and responsive urban planning and policy-making processes that can adjust to changing environmental and socioeconomic conditions. Cape Town's Integrated Development Plan (IDP) exemplifies adaptive governance by incorporating climate resilience and sustainability into its long-term planning.
- **Participatory planning:** The research highlights the critical role of participatory planning, where community engagement and involvement are central to the planning process. Harare's community-based adaptation projects showcase how involving local communities in decision-making can lead to more effective and sustainable outcomes.
- **Infrastructure resilience:** The necessity of building infrastructure resilience to withstand climate-related impacts is evident from the case studies. Cape Town's investments in enhancing drainage systems and early warning systems for extreme weather events provide practical examples of how urban infrastructure can be fortified against climate risks.

These findings validate and expand upon existing theoretical frameworks by demonstrating how these concepts are operationalised in different urban contexts within Africa. They highlight the interconnectedness of governance, community engagement, and infrastructural development in achieving sustainable urban development.

Bridging the Gap between Research and Practice

To bridge the gap between academic research and practical implementation, it is essential to highlight successful examples from the case studies and facilitate their replication in other contexts. This can be achieved through several approaches:

- **Knowledge exchange platforms:** Establish platforms for knowledge exchange where urban planners, policymakers, and researchers can share best practices and successful strategies. These platforms can include conferences, workshops, online forums, and collaborative research initiatives.
- **Model frameworks:** Cape Town's Integrated Development Plan (IDP) serves as a robust model for integrating climate resilience into urban planning. Its emphasis on water scarcity management, renewable energy, and green infrastructure can be adapted and implemented in other cities facing similar challenges.
- **Localised strategies:** Harare's community-based adaptation projects, such as the "Coping with Drought and Climate Change in Chiredzi District" initiative,

demonstrate the effectiveness of localised strategies. These projects highlight the importance of leveraging local knowledge and involving communities in the planning process to enhance resilience.

- **Policy recommendations:** Develop policy recommendations based on the insights gained from the case studies. For example, Lagos’s efforts in sustainable urban planning, despite its challenges, can inform policies aimed at managing rapid urbanisation and improving infrastructure in other cities.
- **Capacity-building:** Implement training and capacity-building programmes for urban planners and local government officials to equip them with the skills and knowledge needed to apply these best practices in their own contexts.

By sharing these best practices and facilitating their adoption across different urban contexts, it is possible to bridge the gap between research and practice. This approach can lead to more effective and sustainable urban development strategies, ultimately enhancing urban resilience and sustainability across African cities.

Limitations and Further Research

Limitations

While this study provides valuable insights into sustainable urban development in African cities through the analysis of Cape Town, Harare, and Lagos, it is essential to acknowledge its limitations:

- **Scope of cities surveyed:** The study focused on three cities—Cape Town, Harare, and Lagos—which may not fully represent the diversity of urban contexts across Africa. The findings may not be entirely generalisable to other African cities with different socioeconomic, political, and environmental conditions.
- **Potential bias in sample selection:** There might be inherent biases in the sample selection process for both interviews and surveys. Certain groups or perspectives may have been overrepresented or underrepresented, leading to skewed findings. Additionally, the sample sizes in some areas may not have been large enough to capture the full range of diversity within each city.

Further Research

To address these limitations and deepen our understanding of sustainable urban development in Africa, further research is warranted:

- **Extensive data collection across a broader range of urban areas:** Future studies should aim to collect data from a more extensive range of African cities to ensure the generalisability of findings. By including cities with diverse socioeconomic, environmental, and governance contexts, researchers can obtain a more comprehensive understanding of the challenges and opportunities for sustainable urban development across the continent.

- **Delve deeper into the nuances of sustainable urban development:** Further research should delve deeper into the nuances of sustainable urban development within varied African contexts. This could involve qualitative studies exploring specific themes or issues identified in this research, such as community engagement strategies, governance models, or infrastructure development approaches. By conducting in-depth case studies or comparative analyses, researchers can uncover the complexities and dynamics shaping urban sustainability in different African cities.

By addressing these avenues for further research, scholars can contribute to a more robust and nuanced understanding of sustainable urban development in Africa, ultimately informing policies and interventions aimed at creating resilient, inclusive, and thriving cities across the continent.

Conclusion

In conclusion, this study offers significant insights into the complexities of sustainable urban development across African cities, as evidenced by the analysis of Cape Town, Harare, and Lagos. Through a multifaceted examination of awareness levels, public satisfaction, community engagement, and climate change integration, we have gained valuable perspectives on the challenges and opportunities within diverse urban contexts.

The findings underscore the critical importance of governance quality, community engagement, and infrastructure development in fostering urban resilience and sustainability. While Cape Town demonstrates commendable progress with its proactive planning and robust infrastructure, Harare and Lagos face distinct challenges stemming from economic constraints and rapid urbanisation.

Despite the achievements and challenges observed in these cities, it is essential to recognise the limitations of this study, including the scope of cities surveyed and potential biases in sample selection. Further research is warranted to expand the scope of data collection across a broader range of African cities and delve deeper into the nuances of sustainable urban development within varied contexts.

By addressing these avenues for further research and building upon the insights gleaned from this study, scholars and policymakers can work towards fostering resilient, inclusive, and thriving cities across Africa. Through collaborative efforts and evidence-based interventions, we can collectively strive towards a more sustainable urban future for all inhabitants of the continent.

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