

Surveyors' Journal

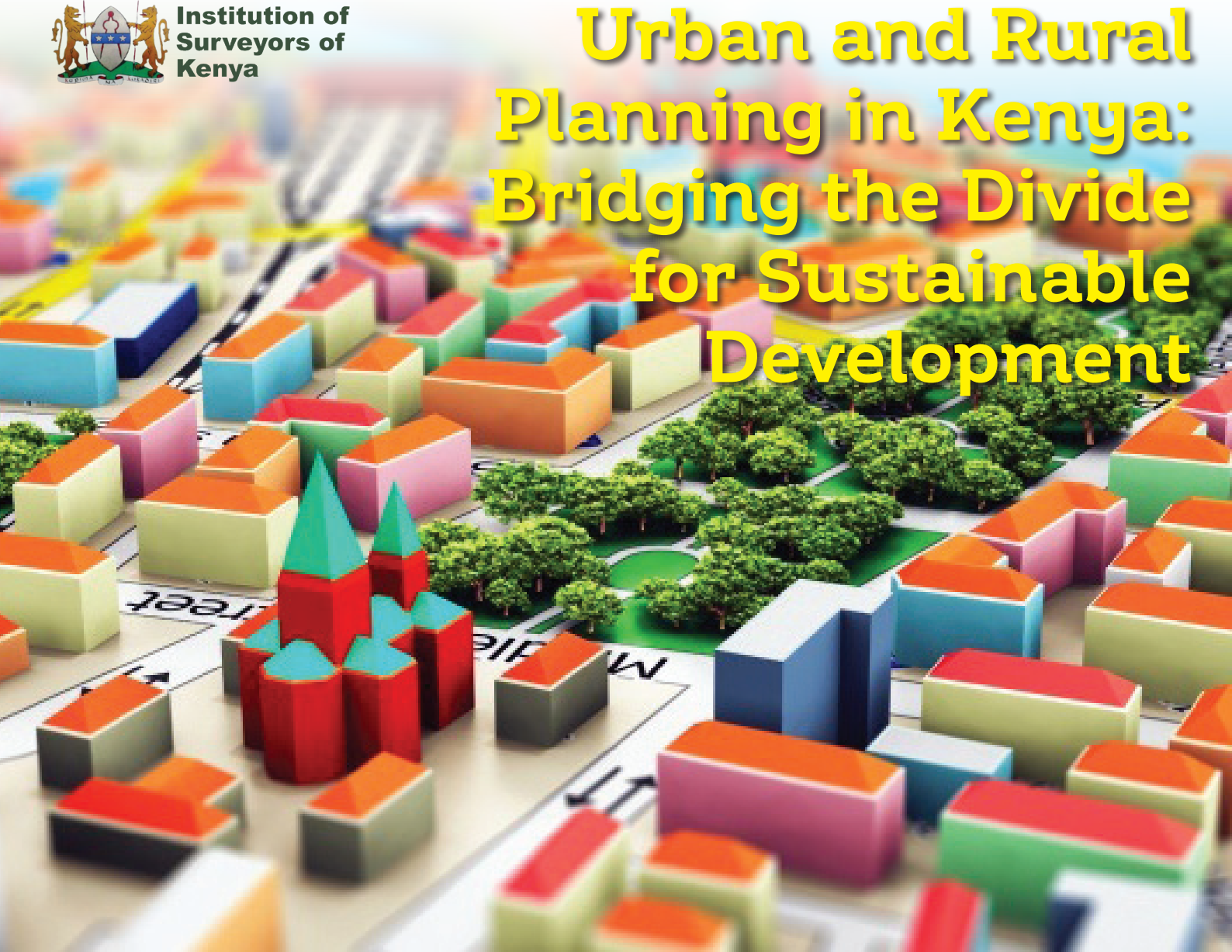
January 2026

A PUBLICATION OF THE INSTITUTION OF SURVEYORS OF KENYA ON LAND AND BUILT ENVIRONMENT



**Institution of
Surveyors of
Kenya**

Urban and Rural Planning in Kenya: Bridging the Divide for Sustainable Development



**Affordable Housing in Kenya:
Unlocking Opportunities
for Sustainable Urban
Development**

**Land and Built
Environment: Shaping
Sustainable Human
Settlements in Kenya**

**Building Construction in
Kenya: Balancing Growth,
Quality, and Sustainability**



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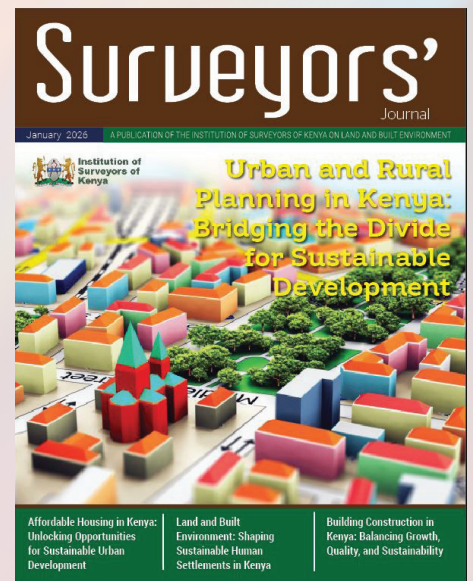


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“Every article is a building block that strengthens our profession’s voice and enriches our collective knowledge.”

Dorice Angote



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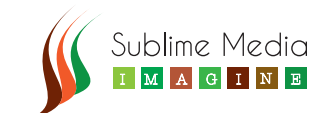
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“**B**ehind every edition of this journal lies teamwork, passion, and the collective spirit of our profession.”

Anthony Maina Wanjui



Message from the President

“The Surveyors’ Journal is more than a publication—it is a legacy of knowledge, innovation, and shared progress.”

It gives me great pleasure to present to you the I

Eric Nyadimo



Ian Karaba Kariuki

Affordable Housing in Kenya: Unlocking Opportunities for Sustainable Urban Development

Abstract

Affordable housing remains one of the most pressing socio-economic challenges in Kenya. Despite being prioritized under the government's Big Four Agenda and now the Affordable Housing Programme (AHP), the housing deficit continues to widen, particularly in urban centers such as Nairobi, Mombasa, and Kisumu. This article examines the dynamics of affordable housing in Kenya, highlighting policy interventions, financing mechanisms, urban land management, and the role of professionals in the built environment. It further explores

challenges such as rapid urbanization, land scarcity, high construction costs, and weak mortgage uptake, while proposing actionable strategies for bridging the housing gap sustainably.

1. Introduction

Kenya's population is projected to surpass 65 million by 2030, with an urbanization rate of approximately 4.4% annually (KNBS, 2023). This growth has heightened demand for housing, particularly in urban areas where more than 61% of residents live in informal settlements (UN-Habitat, 2022). The

government's Affordable Housing Programme (AHP) targets the delivery of 250,000 housing units annually. However, production still falls below 60,000 units per year, reflecting a major supply-demand gap.

Affordable housing is more than just shelter—it is a driver of economic growth, social stability, and sustainable urban development. Addressing affordability requires a multidimensional approach that integrates land policy, construction technologies, financing innovations, and regulatory frameworks.

Land remains the single largest cost driver, accounting for up to 40% of housing project expenses in Nairobi. High land prices in urban centers push developers to peri-urban areas, where infrastructure is often lacking.

2. Policy and Regulatory Framework

The Kenyan government has adopted several initiatives to promote affordable housing: now mainstreamed under the Housing Levy framework.

- Kenya Vision 2030: Anchors provision of adequate and decent housing as a foundation for urban transformation.
- Public-Private Partnerships (PPPs): Enabling developers to collaborate with government on large-scale housing projects.
- National Housing Development Fund (NHDF): Introduced to provide financing for both developers and end-buyers.

Despite these efforts, challenges persist in policy coordination, land acquisition, and bureaucratic delays, which increase costs and slow delivery.

3. Financing Affordable Housing

Affordability is often constrained by limited access to finance. Kenya's mortgage penetration remains below 3% of GDP (Central Bank of Kenya, 2022), significantly lower than peers such as South Africa (19%). Factors limiting financing include:

- High interest rates averaging 13–15%
- Low household incomes, with majority earning below KES 50,000 per month
- Lack of long-term credit instruments

Innovative financing approaches gaining traction include:

- Tenant Purchase Schemes (TPS) allowing gradual homeownership
- Cooperative Housing Models where SACCOs pool resources for members

- Green bonds and REITs to mobilize institutional capital
- Digital savings platforms supporting micro-mortgages

4. Land and Construction Dynamics

Land remains the single largest cost driver, accounting for up to 40% of housing project expenses in Nairobi. High land prices in urban centers push developers to peri-urban areas, where infrastructure is often lacking.

Adoption of Alternative Building Technologies (ABTs)—such as expanded polystyrene panels, modular housing, and prefabricated components—can reduce costs by 30% and accelerate delivery. However, low public awareness and resistance to change hinder adoption.

5. Case Study: The Pangani Affordable Housing Project

The Pangani Housing Project in Nairobi provides a practical illustration of affordable housing in action. Through a PPP arrangement between the Nairobi County Government and Technofin Kenya, over 1,500 units are being constructed with a mix of social and commercial housing. The project integrates modern designs, optimized land use, and cross-subsidization—where high-end buyers subsidize low-income units.

This model demonstrates the viability of PPPs but also highlights challenges such as community displacement, project financing delays, and infrastructure integration.

6. Challenges and Opportunities

Challenges:

- High construction and land costs
- Weak mortgage market penetration

- Bureaucratic regulatory processes
- Limited infrastructure in peri-urban areas

Opportunities:

- Leveraging technology and ABTs
- Expanding PPP frameworks
- Integrating housing with urban transport systems (e.g., BRT corridors)
- Strengthening cooperative housing models
- Mainstreaming green and energy-efficient housing designs

7. Conclusion and Recommendations

Affordable housing in Kenya requires a holistic ecosystem approach. Beyond policy pronouncements, practical implementation through land reforms, financing innovation, and technology adoption is critical. ISK professionals—including valuers, planners, and surveyors—must play a central role in shaping frameworks that balance affordability, sustainability, and livability.

Key Recommendations:

1. Scale up PPPs with clear contractual safeguards.
2. Promote ABTs through incentives, subsidies, and public education.
3. Expand mortgage access via SACCOs, microfinance, and digital lending.
4. Adopt integrated planning to ensure housing projects align with transport and infrastructure systems.
5. Mainstream environmental sustainability in all housing delivery models.



Harnessing Ephemeral Water: A SAR-Based Strategy for Sustainable Water Management in Kenya's ASALs

Nelson Mwova

Introduction

The arid and semi-arid lands (ASALs) of Kenya, exemplified by Marsabit and Isiolo Counties, represent a critical frontline in the challenge of achieving water security under a changing climate. Characterized by erratic, intense rainfall and prolonged

droughts, these regions experience a hydrological paradox: periods of severe water scarcity are punctuated by flash floods that generate vast quantities of ephemeral surface water, which quickly flows away and is lost [8]. Traditional water management, often reliant on scarce permanent sources, fails to

capitalize on this dynamic resource.

Effective environmental safeguarding and sustainable development in ASALs depend on accurately mapping and understanding these transient water bodies. As Magand et al. (2020) emphasize, intermittent rivers and ephemeral streams (IRES) are not

merely hydrological features but are fundamental to biodiversity and human resilience in drylands. This report presents a remote sensing methodology that reveals the true scale of ephemeral water in Marsabit and Isiolo, arguing that its optimized catchment is the key to transformative water sustainability.

The Critical Role of Ephemeral Water in ASALs

Ephemeral waters are the lifeblood of ASAL ecosystems and pastoralist economies. They recharge aquifers, create temporary wetlands that support unique biota, and dictate livestock migration routes. Their sustainable management is not an alternative but a necessity. As Bond & Cottingham (2008) note, the ecology of these temporary systems is intimately linked to their hydrology, meaning water management decisions directly impact ecosystem health and the services they provide.

However, managing what you cannot see is impossible. Conventional mapping using optical satellite sensors like Landsat, which employs indices such as the Normalized Difference Water Index (NDWI), is severely limited [4, 5]. Cloud cover often obscures the sky during rain events, and vegetation can mask underlying water [6]. Consequently, optical data grossly underestimates the extent and duration of surface water, rendering it inadequate for planning.

Advanced Detection: A Multi-Sensor Approach

To overcome these limitations, this study employed a multi-sensor remote sensing approach, integrating:

- Synthetic Aperture Radar (SAR) data from ALOS PALSAR: An active sensor that penetrates clouds and detects surface smoothness (a key characteristic of water), regardless of daylight or weather conditions [1, 2].
 - Optical data from Landsat 8 (NDWI): Provides proven detection of clear, persistent water bodies [4].
- Water masks derived from each sensor for 2020 were overlaid, yielding three classifications:

- Common Water (12.18 km²): Permanent water bodies detected by both sensors.
- NDWI-Only Water (0.75 km²): Negligible area, confirming optical data's limitations.
- SAR-Only Water (23,145.09 km²): The critical category—vast expanses of ephemeral, vegetated, or turbid water invisible to optical sensors [1, 7].

This result is staggering. The area of detectable ephemeral water is nearly 2,000 times larger than that of permanent water. This hidden hydrological landscape, revealed only by SAR, underscores a massive missed opportunity for water harvesting and environmental management.

The Multi-Sensor Water Mask (MSWM): Towards Precision Mapping

To leverage the strengths of both sensors, an experimental Multi-Sensor Water Mask (MSWM) was developed. The MSWM synergizes the NDWI and SAR-derived smoothness data to create a more robust and confident binary classification of water presence. This approach mitigates the individual limitations of each sensor: it reduces false positives from SAR (e.g., radar shadow on smooth rock) and false negatives from NDWI (e.g., water obscured by cloud or vegetation) [3, 6].

The resulting mask provides a more accurate delineation of water extent, identifying not only persistent water bodies but also complex but crucial zones like:

1. Inundated vegetation and seasonal wetlands
2. Turbid or shallow water after rainfall
3. Mixed pixels at the edges of water bodies

These zones are often the most hydrologically and ecologically active areas, representing prime targets for managed aquifer recharge and the protection of critical habitats, as highlighted in the management framework for IRES (Magand et al.,

2020).

Implications for Sustainable Water Management and Environmental Safeguarding

The ability to accurately map ephemeral water via the MSWM transforms the strategy for environmental sustainability in ASALs:

1. Optimized Water Catchment Infrastructure: The spatial data from the SAR-only mask and MSWM provides a robust evidence base for siting water harvesting structures. Sand dams, sub-surface dams, and water pans can be strategically placed in high-probability ephemeral flow pathways (wadis), maximizing capture of flash flood water [1].
2. Enhanced Drought Resilience and Pastoralist Livelihoods: Dynamic water maps can inform drought early warning systems and guide pastoralist communities to available, if transient, water sources [7]. This reduces over-concentration on permanent but dwindling sources, minimizing conflict and environmental degradation around those points.
3. Ecosystem Safeguarding: Understanding the true footprint of ephemeral water is essential for protecting these vital ecosystems. Management plans can be designed to ensure environmental flows are maintained even after water extraction, preserving the ecological functions described by Bond & Cottingham (2008).

Conclusion and Recommendations

The findings from Marsabit and Isiolo Counties demonstrate that a paradigm shift is needed. Sustainable water management in ASALs must move beyond a focus on perennial sources and place the mapping and harnessing of ephemeral water at the forefront of the discussion.

Going forward we recommend:

1. Integration of SAR Data: Water resource management agencies should integrate SAR-based



- monitoring and tools like the MSWM into national hydrological assessments to reveal the true picture of water availability in ASALs [2, 3].
2. Targeted Field Validation: Ground-truthing campaigns in identified “SAR-only” water zones to confirm water presence and quality, refining the remote sensing models [6].
 3. Community-Led Implementation: The spatial intelligence generated by this technology must be translated into actionable information for local communities and county governments to co-design and implement effective water catchment projects.
 4. By leveraging advanced remote sensing to see the unseen water, we can finally begin to capture the bounty of the rains, transform water security, and safeguard the fragile environments of the world’s drylands.

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Building Construction in Kenya: Balancing Growth, Quality, and Sustainability



Ian Karaba Kariuki

Abstract

The building construction sector in Kenya has emerged as a key driver of economic growth, contributing significantly to GDP and employment. Fueled by infrastructure expansion, urban housing demand, and private real estate investment, the industry has experienced rapid growth over the past decade. However, the sector faces pressing challenges, including high material costs, regulatory inefficiencies, poor workmanship, and inadequate enforcement of building codes. This article explores the dynamics shaping Kenya's construction sector, highlighting opportunities in technology adoption, green building practices, capacity development, and policy reforms. It argues that a robust and professionalized construction industry is essential for sustainable urban development and

national competitiveness.

1. Introduction

Building construction is central to Kenya's urban transformation and industrial growth. According to the Kenya National Bureau of Statistics (2023), construction contributes over 7% to GDP and employs more than one million people directly and indirectly. Rapid urbanization, population growth, and the government's push for affordable housing and infrastructure expansion have fueled demand for residential, commercial, and institutional buildings.

Despite its potential, the construction industry is plagued by cost overruns, project delays, safety concerns, and a growing perception of poor quality structures. The tragic collapse of buildings in Nairobi, Kisumu, and Kiambu between 2015–2022 underscores

systemic weaknesses in project planning, supervision, and regulatory oversight. Addressing these challenges requires a multi-stakeholder approach that integrates technology, capacity building, and strong governance.

2. Policy and Regulatory Framework

Kenya's building construction sector is governed by several laws and policies, including:

- **The Building Code (2009, under review):** Provides technical standards for construction.
- **The National Construction Authority (NCA) Act (2011):** Mandates registration and regulation of contractors, training, and enforcement of quality standards.

- **The Physical and Land Use Planning Act (2019):** Ensures construction aligns with approved land use and urban plans.
- **Occupational Safety and Health Act (2007):** Protects workers during construction.

While these frameworks exist, enforcement remains weak due to corruption, inadequate staffing, and fragmented institutional roles. The review of the Building Code and digitization of approvals by county governments are positive steps toward compliance and accountability.

3. Cost Drivers and Industry Dynamics

Building costs in Kenya are among the highest in East Africa. Key cost drivers include:

- **Materials:** Cement, steel, and imported fittings account for 60–70% of total project costs. Fluctuating global prices directly affect local affordability.
- **Labour:** Skilled labour shortages push up wages, particularly for masons, plumbers, and electricians.
- **Land and Permits:** Lengthy approval processes and high land costs escalate project budgets.
- **Energy:** High electricity and fuel costs increase production expenses for cement, steel, and prefabricated materials.

These dynamics have led to a shift towards **value engineering**, modular construction, and cost-optimized designs to balance affordability and quality.

4. Technology and Innovation in Building Construction

Adoption of technology is transforming construction practices:

- **Alternative Building Technologies (ABTs)** such as EPS panels and prefabricated modules are gaining acceptance in affordable housing.
- **Building Information Modelling (BIM)** improves efficiency by integrating design, cost, and



project management in real-time.

- **3D Printing** is emerging globally, offering potential for rapid, low-cost housing units in the future.
- **Digital Permitting Systems** at county levels reduce delays in approvals, enhancing transparency.

However, barriers such as low awareness, resistance to change, and inadequate training limit widespread adoption.

5. Case Study: The Global Trade Centre (GTC), Nairobi

The Global Trade Centre, completed in 2022, stands as one of Nairobi's most iconic mixed-use developments. The project involved advanced engineering techniques, green building designs, and adherence to international construction standards. Its delivery highlighted the importance of technology transfer, foreign investment, and compliance with global best practices.

Lessons from GTC demonstrate the potential of Kenya's construction industry to compete regionally, provided that quality control, project financing, and skilled manpower are prioritized.

6. Challenges and Opportunities Challenges:

- Poor enforcement of building regulations leading to unsafe structures.
- High construction costs that limit affordability.
- Fragmented professional roles and weak coordination among surveyors, architects, and contractors.

- Inadequate training and certification of artisans.

Opportunities:

- Expansion of **green building certifications** (EDGE, LEED) to promote sustainability.
- Leveraging PPPs for large-scale institutional projects.
- Promoting local material manufacturing to reduce import dependency.
- Strengthening TVET programs to build a skilled workforce.

7. Conclusion and Recommendations

The building construction sector in Kenya holds immense potential for driving sustainable urban development and economic growth. However, without structural reforms, safety enforcement, and adoption of innovation, the industry risks perpetuating inefficiencies and unsafe practices.

Key Recommendations:

1. Strengthen enforcement of building codes through NCA and county governments.
2. Invest in capacity building for contractors, artisans, and professionals.
3. Promote technology adoption such as BIM and ABTs for efficiency and cost reduction.
4. Incentivize green building practices to align with environmental goals.
5. Streamline approval processes through digitization to reduce delays and corruption.

Case Note: Guaranty Trust Bank Kenya Ltd Vs NW Realite Ltd [2025] KEHC 12495 (KLR)

Introduction

It is trite law that professionals owe a duty of care in the course of their dealings. Statements made by them and when relied by other parties have a legal repercussion if made in a negligent manner.

In September 2020, the Plaintiff, Guarantee Trust Bank filed a professional negligence case against the Defendant being NW Realite Ltd, a valuation firm.

The Plaintiff alleged the Defendant owed a duty of care to the Plaintiff in respect of a valuation it did undertake. The valuation report was then relied on by the Plaintiff to extend overdraft facilities of a sum of Ksh 80,000,000 to its customer by the name Micro Mobile Limited which later defaulted. For that reason, the Plaintiff claimed damages equal to the outstanding loan, amounting to Kshs 106,667,295.21 with interest plus cost of the suit.

Background of facts

Through an instruction letter dated 21st November 2014, the Plaintiff instructed the Defendant to value the suit property described as Title No. Kwale/Kiwegu Jego/11. Part of the instructions was to advise on the property's current market value, forced sale value and lastly insurance value.

Subsequently the Defendant dispatched the valuation report to the Plaintiff on 26th November, 2014 stating the open market value at Kshs 190,000,000, mortgage value at kshs 150,000,000 and forced sale value at Kshs 142,500,000. The Plaintiff later relied on this values to issue a facility of up to Kshs 80,000,000 to its customer, Micro Mobile Ltd. The customer, eventually defaulted causing the Plaintiff not to recoup the loan as the collateral could not cover for the outstanding balance. It alleged the Defendant had negligently overvalued the property.

In a separate court case, a joint valuation was done by Crystal Valuers Limited on 1st July 2019 which returned a market value of Kshs 50,000,000 & forced sale value of Kshs 37,500,000.

Legal Issue

The legal issue for determination was whether the Defendant owed a duty of care to the Plaintiff by providing an accurate valuation report. Or rather put, was whether the Defendant overvalued the property which the Plaintiff used to advance a loan to its customer.

Court Decision

The court found that the Defendant was negligent by not valuing the property in a manner that is ordinarily expected of a professional valuer. The court noted that the valuation report did not stipulate the methodology of arriving at the said value along with the conclusion of the property being prime yet it had mangrove forests which are protected under relevant statutes.

Having found the Defendant negligent, the court did not blame the Defendant for the entire loss and awarded the Plaintiff Kshs 29,750,000 to cover the outstanding loan with costs to the Defendant. In its analysis of the damages, the court deducted from the loan facility the forced sale value of the land (as returned from the joint valuation report) and the remainder factored in contributory negligence of the Plaintiff which was calculated at 30% thereby arriving at the damages to be paid by the Defendant.

Conclusion

It is settled law that professionals have a legal duty of care in their course of work. Apparently this principle of law has been furthered by precedents touching on surveyors and with this matter not being an exception. Courts infer to customs of trade when making decisions and in this matter Valuers Registration Board and Institution of Surveyors of Kenya were cited in finding out industry norms. It is therefore imperative for Valuers to be diligent in their work and be alive on the statutes which might affect the valuation process. In this case the over valuation was a result of not discounting the value of the property due to the presence of mangrove trees which are a protected ecosystem under relevant statutes.



Environmental Sustainability: Driving Resilience in Kenya's Built Environment



Ian Karaba Kariuki

Introduction

Environmental sustainability has become a defining agenda in the global discourse on land and property development. In Kenya, the real estate and construction sectors are increasingly under scrutiny for their environmental footprint, with attention drawn to energy efficiency, waste management, green building practices, and the preservation of ecological balance. As urbanization accelerates, the pressure on natural resources intensifies, demanding innovative approaches that align development with sustainability

goals.

This article interrogates the intersection between real estate development and environmental stewardship, with emphasis on Kenya's commitment to international sustainability frameworks, regulatory compliance, and the adoption of green technologies. The objective is to demonstrate how the integration of sustainability principles into the built environment can enhance long-term value, reduce ecological risks, and contribute to Kenya's economic resilience.

Environmental Challenges in Kenya's Built Environment

Kenya faces a unique set of environmental challenges that directly intersect with real estate and land development. These include:

1. **Energy Consumption:** The construction sector consumes large quantities of energy, primarily through cement production, steel works, and building operations.
2. **Water Scarcity:** Increased demand from urban expansion is straining limited water resources.



3. **Waste Management:** Inadequate systems for managing construction and demolition waste have created urban environmental hazards.
4. **Deforestation and Habitat Loss:** Real estate expansion, particularly in peri-urban and rural areas, threatens biodiversity and critical ecosystems.
5. **Climate Change Risks:** Flooding, droughts, and temperature fluctuations increasingly affect the durability and sustainability of property investments.

These challenges necessitate a paradigm shift from short-term profit-driven projects to long-term value creation anchored on sustainable practices.

Policy and Regulatory Framework

Kenya has made notable strides in embedding sustainability into its policy framework. The **Environmental Management and Coordination Act (EMCA)**, administered by NEMA, outlines obligations for developers to conduct Environmental Impact Assessments (EIAs) prior to project approval. Similarly, the **Kenya Green Building Society (KGBS)**, in collaboration with the World Green Building Council, has championed the adoption of green certification standards such as **EDGE (Excellence in Design for Greater Efficiencies)** and **LEED (Leadership in Energy and Environmental Design)**.

Additionally, Kenya's **Vision 2030** and the **National Climate Change Action Plan (NCCAP)** articulate sustainability goals, including promoting renewable energy, sustainable land use, and climate-resilient infrastructure. The alignment

of these frameworks with international obligations under the Paris Agreement reinforces Kenya's commitment to low-carbon growth.

Green Building Practices

A growing number of developers in Kenya are incorporating sustainability into their projects. For example:

- **Solar Integration:** Adoption of solar water heaters and photovoltaic systems to reduce reliance on grid electricity.
- **Sustainable Materials:** Use of locally sourced, recycled, or low-carbon materials in construction.
- **Water Efficiency:** Rainwater harvesting systems and greywater recycling are increasingly integrated into urban developments.
- **Passive Design:** Architectural designs that maximize natural lighting and ventilation reduce the need for artificial cooling and heating.

These approaches not only reduce environmental impact but also improve the long-term operational efficiency of buildings, thereby increasing their attractiveness to investors and occupiers.

Economic and Social Value of Sustainability

Environmental sustainability is not merely an ecological necessity—it is also an economic opportunity. Sustainable properties command higher rental yields, enjoy lower operating costs, and attract eco-conscious investors. Moreover, green-certified buildings often achieve **value premiums of 5–15%**, reflecting

their market competitiveness.

From a social perspective, sustainable urban environments contribute to healthier living standards, reduced pollution, and enhanced resilience to climate shocks. For communities, this means reduced vulnerability to flooding, access to cleaner energy, and improved water security.

Emerging Technologies and Innovations

Technological innovation is playing a crucial role in mainstreaming sustainability. **Smart building technologies** enable real-time energy monitoring and efficient resource management. **GIS and remote sensing tools** help planners assess environmental impacts before development. Furthermore, innovations in **green financing**, such as green bonds and sustainability-linked loans, are increasingly mobilizing capital for eco-friendly projects in Kenya.

Conclusion

Environmental sustainability is no longer optional; it is the defining standard for real estate and land development in Kenya. As stakeholders in the built environment, valuers, planners, developers, and policymakers must embrace sustainability not only as a compliance requirement but also as a strategic value driver.

The future of Kenya's property sector lies in developments that balance growth with stewardship of the natural environment. By embedding green practices, leveraging policy frameworks, and adopting innovative technologies, Kenya can achieve a built environment that is resilient, competitive, and sustainable for generations to come.

How the CHAN Tournament (August 2025) Affected Nairobi's Real Estate Market: One- Month Professional Brief



The co-hosting of the African Nations Championship (CHAN) in August 2025 placed Nairobi at the centre of regional attention and produced measurable, short-term shifts in the city's real-estate dynamics. This brief synthesises verifiable market movements observed during the tournament month and explains implications for investors, landlords and policymakers.

Event context and urban exposure

Kenya co-hosted the CHAN tournament (running 2–30 August 2025), with major fixtures staged in Nairobi – notably at Moi International Sports Centre (Kasarani) which hosted key matches and the final. The scale of the event amplified visitor flows, media presence and temporary business activity in the city.

Immediate demand shock: accommodation and short-term lettings

A predictable and rapid demand spike for short-stay accommodation took place. Hotels reported high occupancy rates while many permanent rental units were repurposed to short-term listings to capture event premiums. Industry reporting and market trackers indicate that an ongoing conversion of long-term units into short-stay accommodation has been a factor in Nairobi's rental dynamics – with estimates that around 15% of units have shifted and contributing to rent increases of about 10% over recent months in affected corridors. During August, this pressure

intensified in neighbourhoods servicing stadium access and hospitality clusters.

Price effects and spatial concentration

Price pressure was not city-wide but spatially concentrated. Areas proximate to Kasarani and match-day transport routes, plus established hospitality nodes such as Westlands, Kilimani and Upper Hill, experienced elevated short-term rates and a noticeable uptick in broker enquiries. Landlords in these micro-markets were able to command higher nightly and weekly rates, while some longer-term tenants faced displacement or temporary eviction to make units available to higher-paying visitors.

Commercial real-estate and ancillary demand

Beyond lodging, CHAN generated short-term demand for pop-up retail, event logistics space and temporary office space for broadcasters and organisers. The government and private sector's focus on event readiness also led to accelerated infrastructure works – both stadium upgrades and transport/access improvements – that marginally increased the attractiveness of adjacent parcels for short-term investment.

Policy and social responses

The tournament month also highlighted distributional tensions. Policymakers responded with politically salient measures: for example, the State announced housing incentives for national team athletes under the Affordable Housing programme – a

move reflecting the political economy interplay between sport and housing policy following the tournament. Such announcements can have signalling effects for the broader housing market.

Near-term outlook and lessons for stakeholders

By month-end, the market began normalising: occupancy fell as visitors left and many short-term listings returned to the long-term market, moderating the most acute price spikes. However, the event demonstrated (1) how episodic sports tourism can compress rental supply temporarily, (2) the value uplift that targeted infrastructure investment creates for proximate real-estate, and (3) the social trade-offs between short-term commercial gains and housing affordability. For investors and city planners, the lesson is to harness event-driven public investment for durable local benefits – upgrading transport, formalising short-term rental policy and protecting vulnerable tenants.

Conclusion

CHAN's one-month presence in Nairobi produced concentrated, verifiable impacts: transient rental inflation in stadium-adjacent submarkets, a commercial uplift for hospitality and event services, and renewed public interest in housing policy. While largely short-lived, these effects offer a blueprint for how the city can convert mega-event exposure into sustained real-estate and social value through deliberate policy and targeted infrastructure investment.

Land and Built Environment: Shaping Sustainable Human Settlements in Kenya



Ian Karaba Kariuki

Abstract

The relationship between land and the built environment forms the foundation of human settlement, urban growth, and national development. In Kenya, where land is both a cultural asset and an economic resource, the built environment reflects historical land policies, demographic pressures, and infrastructural development. This article critically examines how land management, tenure systems, and spatial planning interact with the built environment to influence housing delivery, urban form, and rural transformation. Case studies

from Nairobi, Kiambu County, and other urbanizing regions illustrate challenges and opportunities in harmonizing land use with sustainable development. Policy recommendations emphasize the need for integrated land governance, innovative land-use planning, and sustainable building practices to achieve equitable and resilient communities.

Introduction

Land is not merely a physical resource but also a socio-economic and political construct that shapes livelihoods, wealth distribution, and settlement patterns. In Kenya, the rapid growth of urban centers, driven by population growth, rural-urban

migration, and infrastructural expansion, has significantly altered the built environment. The Thika Superhighway, Konza Technopolis, and Nairobi Expressway exemplify projects that have reshaped land use and property development dynamics.

Yet, challenges such as informal settlements, land fragmentation, weak enforcement of spatial plans, and speculative land markets persist. Understanding the relationship between land and the built environment is critical in guiding sustainable growth while safeguarding the environment and ensuring inclusivity.

Land Tenure and Property Rights

1. Historical Evolution

Kenya's land tenure system is deeply rooted in colonial legacies, where alienation and redistribution shaped settlement patterns. Post-independence reforms sought to address inequalities but also generated disputes, corruption, and contested land ownership.

2. Tenure Security and Investment

Security of tenure directly affects the built environment. Landowners are more likely to invest in permanent structures and sustainable buildings when ownership is assured. Conversely, insecure tenure fuels informal settlements, as seen in Nairobi's Kibera and Mathare, where residents hesitate to invest in durable housing.

Urbanization and Spatial Transformation

1. Urban Sprawl and Informal Settlements

Kenya's urban population is projected to reach 50% by 2050. Urban sprawl, particularly in peri-urban counties such as Kiambu, Machakos, and Kajicho, has led to unplanned developments. In Juja and Ruiru, agricultural land has rapidly converted into mixed-use developments, highlighting the tension between food security and urban growth.

2. Infrastructure as a Driver

Major infrastructure, such as highways, commuter rail, and energy grids, significantly influence the built environment. The Nairobi Expressway has spurred vertical developments in Westlands and Syokimau, while the Standard Gauge Railway has triggered real estate expansion in Athi River and Kitengela.

Land Use Policy and the Built Environment

1. Planning Frameworks

Kenya Vision 2030 and the Physical and Land Use Planning Act (2019) emphasize orderly development and sustainable land use. However, weak enforcement and limited institutional

In Kenya, the rapid growth of urban centers, driven by population growth, rural–urban migration, and infrastructural expansion, has significantly altered the built environment.

capacity hinder effective planning.

2. Zoning and Density Management

The built environment thrives when zoning policies align with infrastructure capacity. Yet, weak controls have resulted in high-rise apartments in areas lacking adequate sewerage, roads, and open spaces.

3. Case Study: Nairobi's Mixed-Use Development Boom

Areas like Kilimani and Kileleshwa illustrate the pitfalls of weak zoning. Originally planned as low-density residential zones, they are now dotted with high-rise apartments, stressing water, power, and transport infrastructure.

Rural Transformation and the Built Environment

1. Changing Settlement Patterns

Rural areas are experiencing transformation through the growth of small towns and market centers. The upgrading of rural roads has facilitated new commercial and residential nodes, as observed in Murang'a and Meru counties.

2. Challenges in Land Subdivision

Excessive land fragmentation in rural Kenya threatens both agriculture and sustainable development. Small plot sizes encourage informal housing, weakening the rural built environment's resilience.

Environmental and Social Dimensions

1. Land Degradation and Urban Ecology

Unsustainable land use practices, including encroachment into wetlands and riparian reserves, have degraded urban ecosystems. Nairobi River and Mbagathi River corridors have witnessed pollution and unplanned settlements, undermining environmental sustainability.

2. Social Equity

Access to land is deeply tied to social justice. Inequitable land distribution perpetuates slum proliferation, while speculative land hoarding restricts affordable housing delivery.

Conclusion and Recommendations

The nexus of land and the built environment is central to Kenya's socio-economic transformation. To create inclusive, sustainable, and resilient human settlements, Kenya must:

- Strengthen land governance institutions to enforce spatial plans.
- Promote innovative land use models such as land readjustment and land banking.
- Balance rural–urban development by protecting agricultural land while enabling sustainable urban growth.
- Integrate environmental safeguards in urban development to preserve ecosystems.
- Encourage participatory planning to address community land rights and ensure social inclusion.

Through deliberate land-use policies, innovative planning, and sustainable building practices, Kenya can reshape its built environment to serve both present and future generations.

Building Surveyors:

Ensuring Safe, Sustainable, Affordable Housing in Kenya



Jo?????

Kenya faces a massive urban housing shortfall. The 2010 Constitution and Vision 2030 targeted **200,000 homes per year**, but actual delivery has lagged nearly 50,000 annually, according to the World Bank report 2023. This gap leaves an estimated **2-million-unit deficit** and over half of city dwellers in informal settlements (worldbank.org). In response, the government launched the Affordable Housing Programme (AHP) and set goals (e.g. National Housing Corporation plans 100,000 new units for low/middle-income families). Still, experts warn that building and financing processes must speed up (even exploring 3D-printed housing) to meet targets. In this challenging context, **building surveyors** play a critical role: they ensure that affordable homes are designed, built and maintained to legal

standards, protecting occupants and public investment at every stage.

Regulatory Framework for Housing and Construction

Kenya has strengthened laws and codes governing housing and construction. The **Housing Act (Cap. 117)** mandates public loans and grants for home building. In 2024, the **Affordable Housing Act** established processes for planning, approvals and occupancy of low-cost housing (e.g. requiring approved plans and title deeds under Section 53). Crucially, the **Building Surveyors Act (2018)** now formally recognises the profession. Under this law, a “building surveyor (BS)” is legally defined as someone registered with the Building Surveyors Registration Board (BSRB). Registered surveyors must be licensed annually and follow a code of conduct.

Building surveyors must also prepare **maintenance manuals** and schedules for every building, as mandated by the Act.

Meanwhile, the **Kenya National Building Code (2024)**, published as Legal Notice No. 47 of 2025, updates decades-old bylaws. This comprehensive Code lays out detailed technical standards, from siting and materials to structure, fire safety, ventilation and accessibility. For example, it explicitly defines key terms like a “building plan” (a detailed construction drawing) and “building services” (electrical, plumbing, fire-safety systems, etc.). In practice, this means every stage of a housing project must comply with national laws and regulations. Building surveyors, working with architects and engineers, use these legal standards to check plans, advise on designs, and confirm that construction

meets minimum safety and quality requirements.

BS Role in the Design and Construction Phase

In the design phase, building surveyors act as *guardians of code compliance and practicality*. They review architectural and engineering plans to ensure all aspects of the Building Code and County bylaws are met. This includes verifying structural designs, adequate fire exits, sufficient light and air, setback distances, sanitation systems, and disabled access, among other requirements. For example, the National Building Code specifies precise rules for space around buildings, stair dimensions and emergency egress. A surveyor will flag any violation as specified in available laws, and where required adjustments are needed before construction starts. By doing so, surveyors help avoid costly redesigns or penalties later on.

Building surveyors also help manage **building control** during construction. They may inspect foundations, framing, and services to confirm work matches the approved plans, and where the law requires a Certificate of Compliance or occupancy permit, the surveyor will verify that all conditions (including those in any gazetted housing regulations) are satisfied before a new home is occupied. In affordable housing projects, where cost pressures are high, surveyors advise on choosing cost-effective yet durable materials. They also coordinate with other professionals: for example, ensuring that a *quantified bill of quantities* prepared by a quantity

surveyor aligns with the architectural plan (as the Housing Act anticipates). In short, in the *design/pre-construction* phase, building surveyors bridge the gap between policy (code and law) and practical building. They prevent defects in the first place by insisting on quality, safety and adherence to regulations.

BS Role in the Maintenance and Operations Phase

After construction, building surveyors transition to facilities stewardship. In Kenya's laws, "**building maintenance**" is defined broadly – it includes inspections, testing, servicing, repairs, refurbishment, and even budgeting for upkeep. The surveyor's job is to turn this definition into action. For each housing project, they prepare a *Building Maintenance Manual* – a detailed schedule of upkeep tasks and standards. For example, the manual may specify how often to clean drains, test electrical installations, repaint surfaces, or service elevators. It will also outline a budget and timeline for major items like roof repairs or pavement replacement.

Regular **condition surveys** are another key duty. A building surveyor periodically inspects the property for issues: cracks, water leaks, faulty wiring, termite damage, or structural wear. They document these in reports and recommend repairs before small issues become serious. This proactive approach preserves the integrity and value of housing stock. For instance, if a block of apartments shows early signs of corrosion or settlement, a surveyor can flag it for immediate action, potentially averting a collapse. (Indeed,

Kenyan authorities note over 60 building collapses in recent years and are probing causes, including poor maintenance.)

Building surveyors often lead **asset management** teams. In multi-unit or multi-story housing developments, they coordinate with electricians, plumbers, janitorial staff and security. They ensure routine tasks (like servicing fire alarms or clearing gutters) are done on schedule. Because the Building Surveyors Act ties maintenance firmly to their role, surveyors also advise facility managers and residents. For example, they might instruct tenants on simple upkeep (keeping water systems clear of debris) or work with management companies to improve waste disposal and drainage around homes. In effect, during the *maintenance phase*, surveyors act as custodians, using their technical expertise to extend building lifespans, protect safety, and ensure the housing remains habitable and energy-efficient.

Current Challenges and Developments in Affordable Housing

Kenya's affordable housing push has spurred new thinking and challenges, many of which underscore the surveyor's importance. Rapid urban growth, a third of Kenyans now live in cities, hence an increase in housing needs. For example, companies have begun 3D-printing entire small homes to speed up delivery and reduce costs. Building surveyors must adapt, learning how to inspect and certify such novel structures.

Institutionally, the government is



strengthening oversight. In early 2024, Parliament launched inquiries into collapsing buildings and the broader construction sector. The Housing Committee is reviewing the **training and regulation of construction professionals**, including surveyors. This reflects concerns that Kenya needs more skilled surveyors and inspectors to enforce standards. Indeed, after the 2018 Act, there has been a drive to build the surveyor registry and licensure process, where building surveyor regulations were prepared, awaiting the cabinet secretary for Lands to sign them to become a policy; therefore, a positive move to register and regulate the profession.

New policies are also emerging. Besides the Housing Act, the **County Governments Act (2012)** and the **Urban Areas and Cities Act (2011)** give county governments authority over land use and building approvals. This devolution means many housing projects depend on county surveyors and planners as well. Surveyors now often liaise with county governments to secure building permits and ensure local by-laws (zoning, infrastructure connections, etc.) are met.

Affordability itself is a challenge. Rising material costs and financing bottlenecks mean that many “affordable” projects have limited features. Building surveyors can help here by recommending **value engineering**; for instance, suggesting durable local materials instead of expensive imports while still meeting the Code’s safety requirements. They also ensure that even the most basic housing has adequate sanitation and ventilation, preventing health problems that can arise in cheaply built units.

Throughout, credible data is needed. The **Kenya Housing Survey (2023)** and reports by the World Bank emphasise that most Kenyans under-estimate the housing gap and lack financing options. Building surveyors often serve as the on-the-ground “eyes” of policymakers and financiers: they verify conditions, certify progress on projects, and help produce the feasibility studies or cost estimates that banks and governments rely on.

Conclusion

In summary, building surveyors are indispensable at both **design and maintenance** stages of urban affordable housing in Kenya. In design, they



translate regulations into safe, buildable plans and inspect works for compliance. In the occupancy phase, they steward assets through maintenance manuals, condition assessments, and repair programs, safeguarding residents’ safety and investments. This dual role directly addresses Kenya’s housing challenges: it raises construction quality to prevent collapses and ensures the long-term viability of new homes. By enforcing the 2024 National Building Code and other standards, and by integrating sustainable practices into buildings’ life cycles, surveyors help meet Kenya’s goals for decent housing. As Kenya scales up its Affordable Housing Programme, strengthening the surveyor

workforce and integrating them early in every project will be key to delivering on those national housing ambitions.

References:

- ✓ Kenya Government (2018–2024);
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- ✓ Housing Act (Cap 117)
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- ✓ *Government publications and official gazettes*



Property Management in Affordable Housing: The Silent Pillar of Success

KIMUT RONO JR, MEMBER NO. 6419

In Kenya's rapidly urbanizing landscape, the Affordable Housing Program has emerged as a cornerstone of socio-economic transformation, promising to alleviate chronic housing shortages and improve living standards.

According to the Affordable Housing Act, 2024, "affordable housing" means housing that is adequate and costs not more than thirty percent of the income of a person per month to rent or acquire. An "affordable housing scheme" refers to the construction of such housing units, together with the necessary social amenities, infrastructure, and land development required for social welfare and trading. This statutory grounding emphasizes that affordability is not only about access to units but also about the sustainability of the living environment. The Act lays the foundation, but its success depends on how well these projects are managed in practice.

While much attention has been paid to the program's construction targets

and financing mechanisms, far less scrutiny has been directed towards a critical determinant of its long-term viability: property management. The success of affordable housing is not merely measured by the number of units delivered but by their ability to remain habitable, functional, and dignified over time. Without robust management frameworks, even the most well-intentioned housing projects risk deteriorating into liabilities, a reality already evident in some older public housing estates.

The ISK has a vested interest in addressing this gap, where property management intersects with the roles of Surveyors, Valuers, Estate Agents, and built environment professionals. From my practical exposure in Kenya's housing sector, I have been educated on some of the systemic challenges that threaten the sustainability of affordable housing. Maintenance budgets are frequently deprioritized, leading to deferred repairs and escalating decay.

Drainage systems clog, stairwells crumble, conflicts over common areas arise, and security systems falter; all symptoms of a reactive rather than proactive management culture. Compounding this, property managers frequently inherit developments post-defect liability period, discovering latent construction flaws with no recourse to contractors. This handover gap forces them to remedy issues beyond their control with inadequate budgets, further accelerating the cycle of decline.

Often, conflicts arise due to misunderstandings between homeowners and managing agents over responsibility for service charge payments. When roles are not clearly defined, compliance drops, funds are mismanaged, and essential services suffer. Even when service charges are collected, weak accountability and unmet expectations leave residents disillusioned, reducing compliance and weakening trust. The result is a breakdown of trust, not only in individual

housing projects but in the broader vision of affordable housing as a vehicle for social equity.

The solution lies in embedding property management considerations at the earliest stages of housing development. This means selecting durable materials, designing for ease of maintenance, and establishing transparent financial structures to ensure reserve funds for future repairs. It also requires stronger oversight mechanisms to hold managing agents, whether public or private, to account. Critically, residents must be engaged as stakeholders, with clear channels for feedback and dispute resolution. The ISK, as a key professional body, can lead this shift by advocating for standardized management protocols, promoting best practices in sustainable maintenance, and fostering collaboration between government agencies such as the National Housing Corporation, the State Department for Housing and Urban Development, the Affordable Housing Board, private operators, and communities.

In response to these systemic gaps, part of the professionalization of property management in Kenya has involved handing over the management of certain housing schemes to private estate agents registered under the Estate Agents Act (Cap. 533). This approach seeks to leverage professional expertise in financial accountability, tenant relations, and service delivery. However, without strong regulatory oversight, some schemes will still struggle with mismanagement or weak enforcement of service charge obligations.

The Estate Agents Act requires applicants for registration to be full members of the ISK in valuation, estate management, building surveying, or land management. This positions the institution as the professional gatekeeper of estate agency in Kenya, but it also creates a responsibility to enforce standards and monitor members. Without strict oversight, unprofessional practices can undermine the credibility and sustainability of affordable housing management.

Additionally, the Sectional Properties Act, 2020, directly links property management to how housing projects are structured and governed. It

mandates that only licensed surveyors can prepare sectional plans to subdivide buildings into units, ensuring proper ownership and the establishment of management companies. The Act also compels developers to disclose key documents such as by-laws, service charges, and management agreements before selling units, while empowering residents to later terminate exploitative agreements once they gain control. Additionally, unit owners remain accountable when renting, including liability for tenant-related damages. These provisions embed transparency, resident participation, and accountability into the life cycle of affordable housing, making property management not an afterthought but a legal requirement for long-term sustainability.

On the other hand, residents can contribute to effective management by paying service charges on time, reporting issues early and appropriately, attending meetings and voting on key issues, and participating in governance structures such as Residents' Associations or Management Committees. Crucially, stakeholder engagement must go beyond just attendance. Residents should participate in auditing service charge accounts and in procuring key services such as security, cleaning,

garbage collection, and fumigation. Just as importantly, establishment of well-structured management companies ensures professional oversight, financial transparency, and long-term sustainability. This participatory approach fosters a sense of ownership and responsibility among residents for the success of the housing schemes.

Affordable housing cannot be deemed successful if it merely provides shelter today but becomes unlivable by tomorrow. It cannot truly be affordable if it becomes expensive to maintain, difficult to live in, or emotionally exhausting to manage. The AHP's legacy will ultimately depend on whether these homes endure as thriving communities or devolve into neglected estates.

The ISK can play a central role in championing property management standards, strengthening professional accountability, and guiding both public and private sector actors toward sustainable practices. In doing so, the institution helps ensure that affordable housing in Kenya remains not just accessible, but truly livable for generations to come. Ultimately, property management remains the silent pillar on which the entire Affordable Housing Program will either stand or collapse.



Figure 1: A case in point is the Park Road AHP, which stands as a milestone in housing delivery. Its success also underscores a broader challenge: ensuring that affordable housing remains well-managed, affordable to maintain, and sustainable *in the long run*.

Smart Cities

A Pathway to Sustainable Urban Transformation in Kenya



Ian Karaba Kariuki

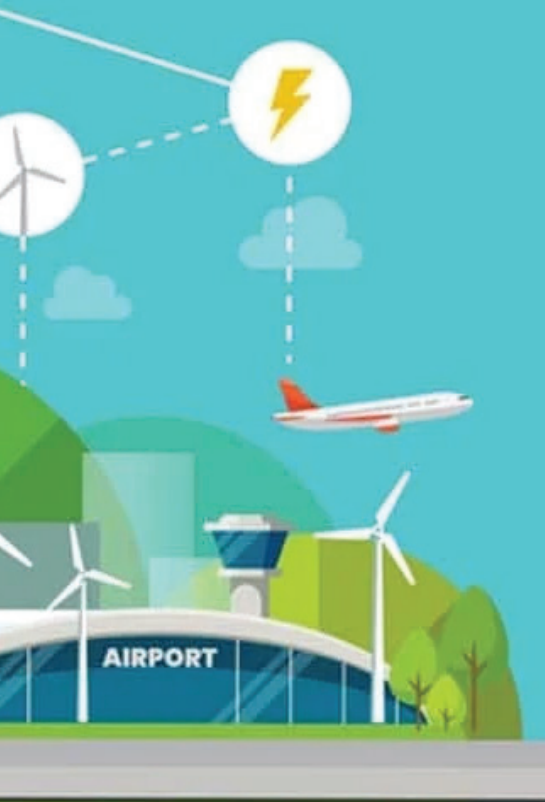
Abstract

Smart cities integrate technology, data-driven governance, and citizen-centered planning to enhance the efficiency, sustainability, and inclusivity of urban life. In Kenya, the transition toward smart urbanism is still at an early stage but shows significant potential, particularly in Nairobi, Mombasa, and the Konza Technopolis project. This

article critically evaluates the role of smart city frameworks in addressing pressing urban challenges such as traffic congestion, inadequate housing, poor waste management, and limited energy efficiency. It further examines barriers including governance gaps, infrastructural limitations, and affordability concerns, while proposing actionable recommendations for scaling Kenya's smart city agenda.

1. Introduction

Urbanization in Kenya is accelerating at an unprecedented rate, with projections suggesting that by 2050, nearly **50% of Kenyans will live in urban centers**. This rapid growth poses complex challenges to service delivery, environmental sustainability, and quality of life. The smart city concept—leveraging ICT, artificial intelligence, and integrated



infrastructure—has emerged as a transformative solution. In Kenya, flagship initiatives such as **Konza Technopolis** highlight government commitment, while local innovations in mobility apps, e-governance, and mobile money reflect citizen-driven adoption of smart technologies.

2. Smart cities rest upon interconnected systems that promote resilience and inclusivity:

- **Smart Mobility:** Intelligent transport systems, ride-sharing platforms, and data-driven traffic monitoring can reduce congestion, which costs Nairobi an estimated **KES 50 million daily in productivity losses**.
- **Smart Governance:** Digital platforms such as e-Citizen already streamline government services, but scaling these into fully integrated urban management systems could revolutionize service delivery.
- **Smart Energy:** Expansion of **renewable energy microgrids** and smart metering is critical to addressing power shortages while meeting sustainability goals.
- **Smart Housing and Infrastructure:** Integration of green building standards and ICT-enabled property management enhances livability and long-term value.
- **Smart Environment:** Deploying sensor networks for waste, water, and air quality monitoring ensures sustainable urban management.

3. Opportunities in Kenya's Context

Kenya enjoys unique advantages in adopting smart cities:

- **Mobile-first population:** With mobile penetration above 118%, digital platforms provide fertile ground for service innovation.
- **Public-private partnerships (PPPs):** Konza Technopolis exemplifies collaboration between government, academia, and investors.
- **Youth-driven innovation:** A tech-savvy generation fuels startups in fintech, logistics, and energy, aligning with smart city aspirations.
- **Regional positioning:** Nairobi's status as East Africa's commercial hub attracts global attention and investment into urban innovation.

4. Despite its potential, Kenya's smart city transition faces constraints:

- **High capital costs:** Smart city infrastructure requires heavy

investment in ICT, broadband, and resilient urban systems.

- **Governance fragmentation:** Coordination gaps between national and county governments slow implementation.
- **Digital inequality:** Marginalized groups risk exclusion if affordability and digital literacy are not addressed.
- **Security and privacy concerns:** Data-driven governance raises risks of cyberattacks and misuse of personal information.

5. Policy and Strategic Recommendations

To actualize smart cities, Kenya must:

1. **Strengthen governance frameworks** – develop clear policy roadmaps aligning county urban plans with national smart city objectives.
2. **Expand infrastructure investment** – prioritize broadband, renewable energy, and integrated mobility solutions.
3. **Promote inclusivity** – subsidize digital access and enhance literacy to bridge urban-rural divides.
4. **Leverage PPPs** – attract global investors while safeguarding local ownership and affordability.
5. **Institutionalize data protection** – adopt stringent laws that secure citizen privacy and foster trust in smart platforms.

6. Conclusion

Smart cities represent more than a technological shift; they are a blueprint for **inclusive, resilient, and sustainable urban transformation**. Kenya's journey toward smart urbanism requires sustained investment, governance reform, and citizen empowerment. If strategically implemented, initiatives like Konza Technopolis, coupled with localized smart innovations in transport, housing, and energy, can redefine Kenya's urban future, ensuring cities are not just "smarter" but also more equitable and livable.



Ian Karaba Kariuki

Abstract

The real estate industry in Kenya is undergoing rapid transformation, driven by technological advancements that are redefining how property is valued, marketed, managed, and transacted. Innovations such as Geographic Information Systems (GIS), Building Information Modeling (BIM), smart property management tools, and digital platforms for property listings are enhancing efficiency, transparency, and decision-making. This article explores key technological trends shaping the Kenyan real estate sector, their benefits, challenges, and the implications for professionals and investors.

1. Introduction

Technology has become a cornerstone of modern real estate practice. From the adoption of virtual tours and drone photography to sophisticated data analytics and blockchain-based transactions, the sector is increasingly leveraging digital tools to enhance

service delivery. In Kenya, the integration of technology into property development and management aligns with broader national strategies such as the **Kenya Vision 2030** and the government's push for digitization of land records through the **ArdhiSasa platform**.

2. Key Technological Innovations

2.1 Geographic Information Systems (GIS)

GIS enables spatial mapping of property trends, infrastructure networks, and land use patterns. It supports evidence-based valuation, urban planning, and investment decisions. For instance, GIS applications along Thika Superhighway have illustrated the relationship between infrastructure development and property value appreciation.

2.2 Building Information Modeling (BIM)

BIM facilitates collaborative planning,

design, and construction by creating digital representations of building projects. In Kenya, developers are increasingly adopting BIM to reduce construction errors, optimize resource allocation, and improve lifecycle management of buildings.

2.3 PropTech Platforms

Property Technology (PropTech) platforms such as online listing sites (e.g., BuyRentKenya, Property24) have revolutionized property marketing by offering wider reach, virtual property tours, and secure digital transactions.

2.4 Smart Property Management

Property managers are embracing digital platforms for rent collection, tenant communication, and maintenance tracking. These innovations improve efficiency and enhance tenant satisfaction.

2.5 Blockchain in Real Estate

Though still emerging, blockchain

The Kenyan real estate industry is poised to benefit further from the convergence of emerging technologies such as artificial intelligence (AI), Internet of Things (IoT), and machine learning.

technology holds promise for transparent, tamper-proof property transactions and smart contracts. Its adoption in Kenya could address issues of fraud and inefficiency in property transfers.

3. Benefits of Technology Adoption

- **Enhanced Transparency:** Digital platforms reduce information asymmetry between buyers, sellers, and agents.
- **Cost Efficiency:** BIM and GIS lower operational costs by reducing redundancies.
- **Data-Driven Decisions:** Analytics provide insights into market trends and investment opportunities.
- **Improved Access:** PropTech

increases access to property information for diaspora investors and local buyers.

4. Challenges and Limitations

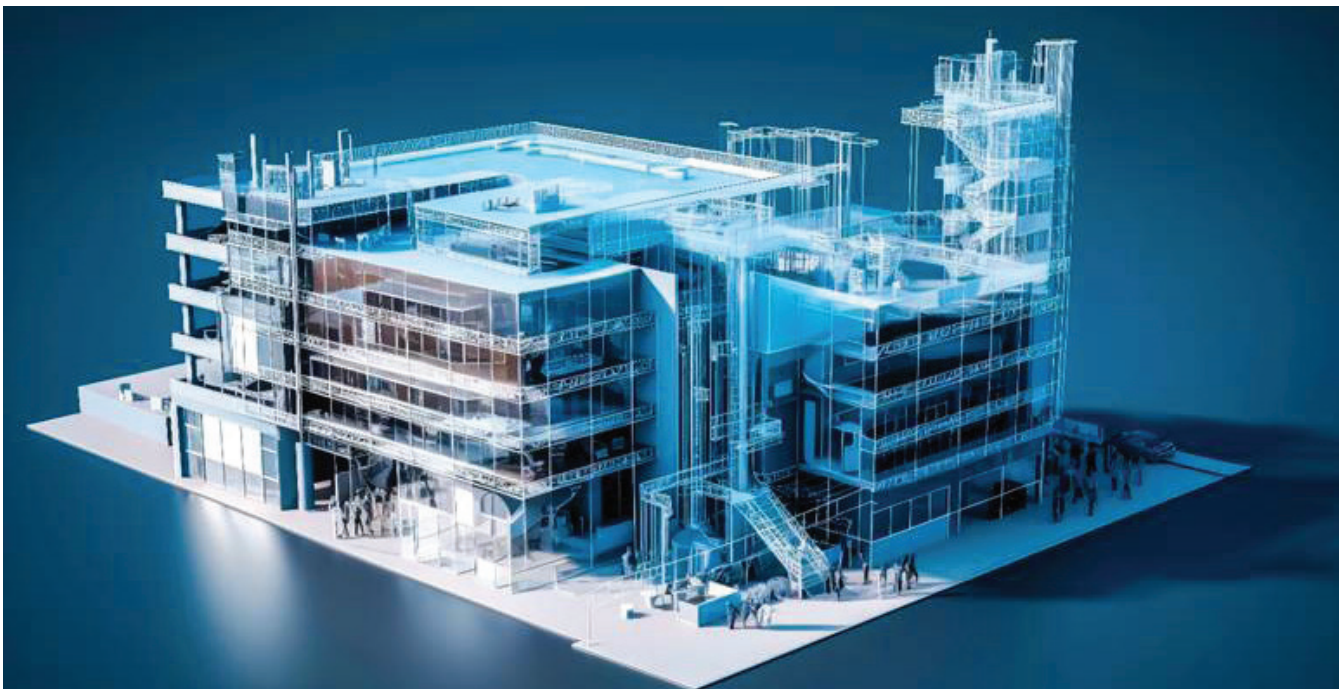
- **High Costs of Adoption:** BIM, GIS, and blockchain require substantial initial investment.
- **Digital Divide:** Limited access to high-speed internet and technological skills among some stakeholders hampers adoption.
- **Cybersecurity Risks:** Increased digitization exposes real estate transactions to data breaches and fraud.
- **Regulatory Gaps:** Lack of comprehensive legal frameworks for blockchain and PropTech creates uncertainty.

5. Future Prospects

The Kenyan real estate industry is poised to benefit further from the convergence of emerging technologies such as artificial intelligence (AI), Internet of Things (IoT), and machine learning. Smart city initiatives, digitization of land registries, and the growing PropTech ecosystem will shape the sector's competitiveness regionally and globally.

6. Conclusion

Technological advancements are reshaping real estate practice in Kenya by driving efficiency, transparency, and innovation. However, to maximize their benefits, stakeholders must invest in capacity-building, infrastructure, and supportive regulatory frameworks. Embracing these technologies will ensure that Kenya remains competitive in a rapidly evolving global real estate landscape.



Urban and Rural Planning in Kenya: Bridging the Divide for Sustainable Development



Ian Karaba Kariuki

Abstract

Urban and rural planning in Kenya faces critical challenges amidst rapid urbanization, population growth, and shifting economic structures. While cities such as Nairobi, Kisumu, and Mombasa are expanding rapidly, rural areas continue to experience underinvestment, spatial inequalities, and poor service delivery. This article examines the dynamics of urban and rural planning in Kenya, focusing on policy frameworks, spatial planning practices, governance structures, and socio-economic implications. It argues that bridging the urban-rural divide requires integrated

spatial planning, investment in rural infrastructure, and policies that promote balanced regional development.

1. Introduction

Urban and rural planning are interdependent dimensions of Kenya's socio-economic development. Kenya's urban population is projected to reach 50% by 2050 (World Bank, 2021), driven by rural-urban migration, natural growth, and industrialization. While urban areas are economic hubs, rural areas remain critical for food production, cultural heritage, and ecological sustainability.

The challenge lies in the duality of

planning: rapid and often unregulated urban growth, contrasted with stagnation and neglect in rural regions. This imbalance has contributed to the proliferation of informal settlements, unequal access to services, and environmental degradation.

2. Policy and Legal Framework for Planning

Kenya's planning sector is guided by a comprehensive policy framework, including:

- **The Constitution of Kenya (2010):** Mandates equitable development and devolves planning functions

to counties.

- **The Physical and Land Use Planning Act (2019):** Provides the primary legal framework for spatial planning at national and county levels.
- **Kenya Vision 2030:** Prioritizes urban planning as a driver of industrial and economic transformation.
- **County Integrated Development Plans (CIDPs):** Serve as five-year blueprints for localized development.
- **National Urban Development Policy (2016):** Aims to guide sustainable urban growth and governance.

While these frameworks exist, their implementation has been hampered by limited financial resources, weak institutional coordination, and political interference in planning decisions.

3. Urban Planning Dynamics

Kenya's urban centers grapple with overlapping challenges:

- **Informal Settlements:** Over 60% of Nairobi's residents live in informal settlements (UN-Habitat, 2022). Poor infrastructure, insecure tenure, and inadequate services persist.
- **Urban Sprawl:** Cities expand outward into peri-urban areas, consuming agricultural land and straining infrastructure.
- **Traffic Congestion:** Poor integration of land use and transport systems results in long commute times and economic losses.
- **Environmental Pressures:** Pollution, poor waste management, and encroachment on riparian land exacerbate urban sustainability challenges.

Recent innovations such as **Bus Rapid Transit (BRT) systems, non-motorized transport infrastructure, and integrated masterplans** (e.g., Nairobi Integrated Urban Development Master Plan – NIUPLAN) show progress but face implementation hurdles.

The challenge lies in the duality of planning: rapid urban growth, contrasted with stagnation and neglect in rural regions.

4. Rural Planning Dynamics

Rural areas face unique planning challenges, including:

- **Low Infrastructure Development:** Poor roads, limited electricity access, and inadequate ICT connectivity restrict economic growth.
- **Land Fragmentation:** Subdivision of agricultural land reduces productivity and complicates planning.
- **Rural-Urban Migration:** Young people migrate to urban areas in search of jobs, leaving behind an aging rural population.
- **Service Gaps:** Inadequate access to health, education, and markets deepens spatial inequality.

Innovative rural planning approaches such as **agro-industrial parks, market town development, and rural electrification programs** are helping improve rural economies. However, these remain underfunded compared to urban investments.

5. Case Study: Konza Technopolis

Konza Technopolis, part of Kenya Vision 2030, illustrates the integration of urban and rural planning. Located in Machakos and Makueni counties, Konza seeks to create a technology-driven city that catalyzes rural development through job creation, infrastructure expansion, and regional investment.

While the project demonstrates the potential of anchor urban developments to transform rural economies, it also highlights risks such as displacement, speculative land pricing, and governance complexities.

6. Challenges and Opportunities Challenges:

- Weak coordination between national and county governments.
- Political interference and corruption in planning approvals.
- Lack of accurate spatial data for evidence-based planning.
- Rapid, unregulated urbanization straining public resources.

Opportunities:

- Leveraging **GIS and remote sensing** for modern planning.
- Expanding **regional economic corridors** such as LAPSSSET to integrate rural economies.
- Promoting **compact urban development** to reduce sprawl.
- Strengthening **public participation** in both urban and rural planning processes.

7. Conclusion and Recommendations

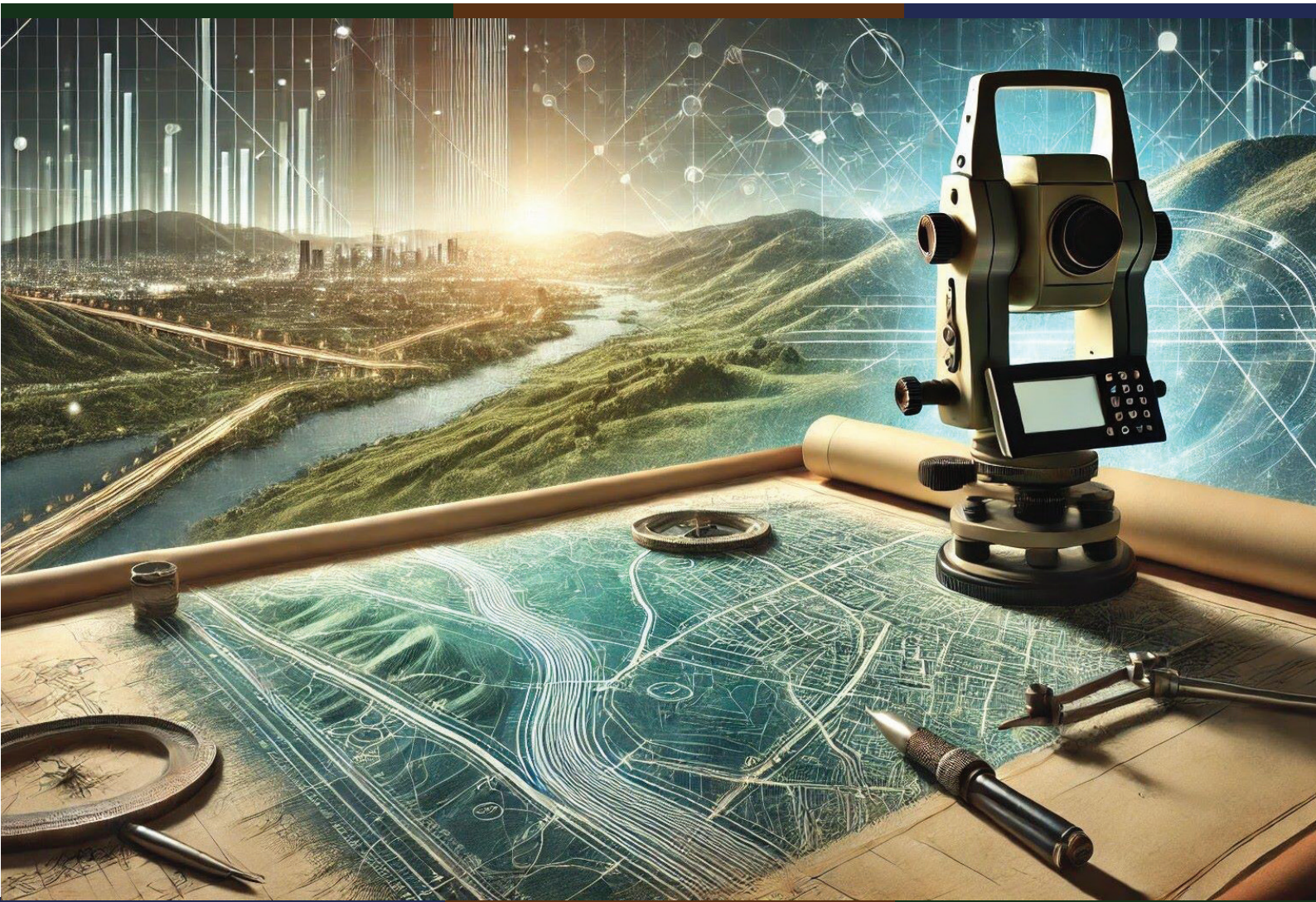
Urban and rural planning in Kenya must move toward an integrated, balanced approach. A siloed focus on urban centers risks deepening rural marginalization, while neglect of urban governance threatens sustainability.

Key Recommendations:

1. Strengthen coordination between national and county governments for integrated planning.
2. Invest in rural infrastructure to balance economic opportunities and reduce migration pressures.
3. Promote data-driven planning using GIS, AI, and smart technologies.
4. Expand compact city models to manage urban sprawl effectively.
5. Enhance participatory planning to reflect the voices of local communities.



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