THE ARCHITECTURAL ASSOCIATION OF KENYA

AAK | PROMOTING EXCELLENCE IN THE BUILT ENVIRONMENT

STATUS OF THE BUILT ENVIRONMENT REPORT

2024

Table of Contents

Contributors

Florence Nyole; George A. Ndege; Jacob Mwangi; Diana Musyoka; Ruchika Gajjar; Michelle Ouma; Mary Ngaruiya; Alex Otieno; Olivanta Mwenda; Meshack Omondi

Editorial Team

Patricia Baariu; Brenda Nyawara; George A. Ndege; Michelle Ouma; Caroline Kagendo; Rodah Boyani; Meshack Omondi; Augustine Shitote

Executive Summary

The AAK Status of the Built Environment Report 2024 provides a comprehensive analysis of the trends, challenges, and opportunities shaping Kenya's construction and urban development landscape. Anchored on the theme of Harnessing Technology and AI in the Construction Industry, this report captures the strides made and gaps that persist in the built environment sector.

The construction sector, historically slow to adopt digital solutions, is beginning to embrace the potential of Big Data and Artificial Intelligence (AI). While adoption remains in its early stages, these technologies promise to revolutionize project management, safety, cost efficiency, and sustainability. Industry surveys reveal that 90% of stakeholders view AI adoption as nascent and, there is optimism for its transformative impact on infrastructure development and economic growth.

Urbanization continues to accelerate in Kenya, with over 31% of the population residing in urban areas, 60% of whom live in informal settlements. However, this growth comes with significant challenges, including inadequate planning frameworks, climate change impacts, and social tensions. Yet, development control remains a critical issue. With only 15 counties having approved County Spatial Plans, there is an urgent need for structured and sustainable urban development. AAK members report challenges such as lengthy permitting processes, unreliable systems, and insufficient feedback mechanisms. This has further emphasized the need for a national-scale roll-out of the One Stop Shop model. This single electronic platform harmonizes the fees and procedures related to the development control functions in all 47 counties.

AAK's 2024 Citizens' Survey, conducted in collaboration with the Kenya Alliance of Resident Associations (KARA), further highlighted pressing concerns from residents about development, infrastructure, and environmental management within their communities.

In 2024, notable infrastructure advancements included increased road and rail projects and efforts to expand rural electrification. Kenya's housing deficit exceeds 2 million units, with only 1,189 affordable housing units completed since 2022. Rising costs of construction materials, influenced by fiscal policies and global market dynamics , further complicate affordability. Policy reforms must address these economic constraints to sustain the country's affordable housing ambitions.

Building safety remains a pressing concern, with counties like Nairobi, Kisii, and Uasin Gishu recording high numbers of dangerous structures. The launch of the National Building Code 2024 marks a milestone, but gaps in inclusivity and recognition of emerging professions must be addressed to foster interdisciplinary collaboration and innovation. The Coalition of the Built Environment (CBE) has made notable progress in unifying professional bodies to address fragmented regulatory frameworks and promote cross-disciplinary partnerships. By prioritizing inclusivity and sustainability, the coalition will set a foundation for more cohesive and effective advocacy in the built environment.

AAK's ongoing commitment to promoting access to alternative dispute resolution mechanisms highlights the critical role of arbitration in addressing construction disputes. Cases handled in 2024 highlight the financial complexities inherent in the industry, underscoring the importance of streamlined contract management and robust dispute resolution frameworks.

As Kenya navigates rapid urbanization, technological transformation, and socio-economic challenges, a unified, innovative, and inclusive approach to the built environment is critical. The insights and recommendations in this report aim to guide stakeholders in fostering sustainable growth, advancing professional excellence, and improving the quality of life for all citizens.

The construction sector is embracing the potential of Big Data and Artificial Intelligence (AI)

01 OVERVIEW OF THE CONSTRUCTION INDUSTRY IN KENYA

The construction sector remains dynamic, marked by significant achievements amidst several challenges. In 2024, the sector saw a surge in activity, with the National Construction Authority (NCA) receiving 5,317 applications between January and October, an 11.5% increase from 2023. Of these, 77.5% were approved, representing a total value of KES 309 billion. Residential developments accounted for most of these applications, reflecting a growing demand for housing due to an increasing population.

A relative stabilization in construction costs compared to 2023 was experienced. Costs ranged from KES 41,600–100,800 in 2023 to KES 48,750–84,000 in 2024. This shift can be partly attributed to the Kenyan shilling's appreciation against the US Dollar, strengthening from KES 153.25 in December 2023 to KES 129.00 by December 2024. Notably, material costs saw mixed trends, with cement prices increasing by 10.7%, from KES 750 to KES 830, while petrol prices dropped significantly from KES 217 to KES 180 during the same period.

Average cost of an acre in Nairobi in 2024

203.7 million

up from KES 190.4 million in 2023

5,317

applications received by NCA between January and October, an 11.5% increase from 2023

77.5%

approved

On the other hand, a steady rise in land prices was recorded, with the average cost of an acre in Nairobi increasing to KES 203.7 million in 2024, up from KES 190.4 million in 2023. Combined with inflation, these factors have collectively contributed to higher construction costs.

A key milestone of the Bottom-Up Economic Transformation Agenda (BETA) is the development of 250,000 affordable housing units annually for low and middle-income households. Since assuming office in September 2022, the Kenya Kwanza administration has completed 1,189 units. As of October 2024, an additional 91,882 units were under construction, with a total project pipeline of 730,062 units.

Development control remains a significant challenge for built environment professionals. Most counties still lack essential planning and legal frameworks such as Local Physical Development Plans (LPDPs), County Spatial Plans (CSPs), and zoning regulations, key tools for guiding sustainable urban development. In a survey conducted by AAK amongst members in

Nairobi, Kisumu, Uasin Gishu, Murang'a, Kiambu, Mombasa, and Kisii counties, respondents shared their experiences with county development approval systems. The findings highlighted delays in construction permitting, often linked to system inefficiencies and external factors, with most attributing the delays to human factors. For instance, the average approval time in Nairobi County, was 14 weeks, with the longest recorded at 27 weeks. Uasin Gishu County ranged from 6 to 24 weeks, while Kiambu County averaged 11 weeks, with some approvals taking up to 20 weeks. A common issue across all surveyed counties was the payment of unofficial facilitation fees to expedite applications, reflecting entrenched and systemic corruption. To address these challenges, AAK continues to advocate for the adoption of the One-Stop Shop (OSS) model, which aims to streamline development control functions across all 47 counties.

On a positive note, the construction sector is embracing green and sustainable practices increasingly. The adoption of Artificial Intelligence (AI) is widely acknowledged for its ability to streamline processes, improve efficiency, and minimize wastage of resources. Green building practices are also gaining traction, with more developments earning green building certifications. Notably, the Nairobi City County governor's office became the first government building in Africa to achieve EDGE certification. Counties such as Nairobi, Homa Bay, and Laikipia are also developing green building guidelines, further reinforcing the shift toward sustainability. Additionally, AAK has partnered with the Global Buildings Performance Network (GBPN) to develop a National Decarbonization Roadmap to guide emissions reduction for buildings.

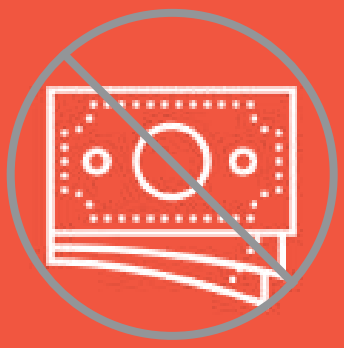
AAK has been instrumental in reviving the Coalition of Built Environment Professions which aims to foster collaboration among professional bodies by advocating for the enactment of the Built Environment Professions Bill. This legislative initiative seeks to modernize and unify the regulation of practices across the built environment.

14-27 weeks average approval time in Nairobi County

6-24 weeks average approval time in Uasin Gishu County

11-20 weeks average approval time in Kiambu County

Payment of unofficial facilitation fees to expedite applications



A common issue across all surveyed counties, reflecting entrenched and systemic corruption.

02 URBANIZATION TRENDS AND CHALLENGES

Today, 55% of the world's population resides in urban areas, a figure projected to increase to 68% by 2050, with nearly 90% of this growth occurring in Asia and Africa. The predictions further highlight a global shift from rural to urban living, driven by opportunities in economic advancement, education, and access to services. Kenya's urbanization has been steadily progressing, with the Kenya National Bureau of Statistics (KNBS) reporting an urban population of 31.2%, with 60% of the general population residing in informal settlements. This shift reflects a significant transformation in the population distribution, altering Kenya's approach to development, infrastructure development, and sustainable growth.

Despite having frameworks such as the Kenya Vision 2030, the National Urban Development Policy, and several Acts of Parliament in place, 2024 was marked with several challenges that underscore the complexities of urbanization. Development control remains a pressing issue, yet construction permits are a major revenue source for county governments. The incomplete hierarchy of plans— from the County Spatial plans to the Local Physical Development plans (LPDPs)— continues to be a major impediment to sustainable growth. As of 2024, only 15 counties have approved County Spatial Plans according to the National Land Commission (NLC) while there is still no neighborhood with a gazetted LPDP. As a result, development approvals are granted arbitrarily, leading to haphazard approvals based on individual plots rather than a planning area.

In addition, efficient development permitting systems remain a mirage, with 39 counties still using manual processes, while only 8 counties have adopted online development permitting systems. Even among these eight, challenges such as system inefficiencies, frequent technical downtimes, and lack of streamlined interdepartmental coordination often lead to unnecessary delays, further exacerbating the high rate of non-compliance among construction projects. These systemic inefficiencies not only stall critical development projects but also undermine the objectives of regulated urban growth, posing obstacles to realizing sustainable and well-managed urban spaces.

31.2%

urban population according to KNBS

Further highlighting the challenges within the built environment, the National Building Inspectorate (NBI) audited 1,333 buildings in the financial year 2023/2024. Of these, 42 were deemed dangerous, requiring immediate testing and, in some cases, demolition. An additional 246 buildings were marked as unsafe, 453 were classified as fair, and 570 were identified as safe. These findings underscore the urgent need for stricter oversight and enforcement to address structural safety concerns and support safer urban development.

1,333

buildings audited by the National Building Inspectorate (NBI)

42	Dangerous
246	Unsafe
453	Fair
570	Safe

In March 2024, Governor Johnson Sakaja declared that height restrictions on buildings would be eliminated and some areas within Nairobi County would be re-zoned. AAK, along with several other professional bodies and resident associations issued a joint statement that strongly opposed the move as a contravention of the County Governments Act of 2012. The development of Local Physical Development Plans (LPDPs) and expansion of critical infrastructure, including sewerage and water reticulation, solid waste management, public transport networks, schools, health amenities, green open spaces, fire and emergency services, and other social and physical infrastructure were emphasized as a priority.

Most Kenyan urban areas continue to grapple with the impacts of climate change, which has intensified the challenges of managing rapid urban growth. In 2024, extreme weather conditions adversely affected various parts of the country, with urban areas bearing the brunt of the impacts. Above-average rainfall during the long rain season from March to May led to widespread flooding and landslides, causing the tragic loss of lives, displacing communities, and disrupting urban infrastructure and livelihoods. At the same time, urban areas experienced above average temperatures with the highest temperature recorded in Nairobi being 31°C in February, 6°C higher than the normal temperatures.

Social challenges also emerged prominently. The year saw a concerning rise in femicide cases which highlight persistent issues in urban safety and call for robust policies that promote safety and security for all urban residents. In addition, anti-tax demonstrations erupted in several urban areas across the country, often disrupting businesses, public transport, and other services. The protests reflected the growing economic frustrations among the urban residents and emphasized the need to address socioeconomic grievances to ensure stability within the urban areas.

As the nation continues shifting toward increased urban density, the strain on infrastructure, housing, and services emphasizes the urgent need for robust planning and implementation, efficient permitting systems, and resilient urban policies. Climate change, economic pressures, and social safety are critical areas demanding attention. Addressing these issues will require concerted efforts from all stakeholders to create inclusive, safe, and resilient cities that can withstand the pressures brought by urbanization. By embracing innovative planning and strengthening regulatory frameworks, Kenya can chart a sustainable path toward resilient, technologically advanced, and environmentally conscious cities.

County Planning: Progress, Challenges, and Implications

As of 2024, 32% of counties (15 counties) have approved County Spatial Plans (CSPs) and are at various stages of implementation. These include Lamu, Makueni, Baringo, Kericho, Bomet, Kilifi, Kwale, Narok, Nakuru, Kajiado, Siaya, Trans Nzoia, Nairobi, Mombasa, and Bungoma. Notably, Nairobi and Mombasa are required to prepare comprehensive integrated city plans due to their status as Kenya's primary urban centers.

An additional 26% (12 counties) have completed drafting their CSPs and are pending County Assembly approval. These counties include Migori, Kirinyaga, Kiambu, Uasin Gishu, Nyamira, Nyandarua, Samburu, Laikipia, Nandi, Murang'a, and Nyeri. Meanwhile, Tharaka Nithi (2%) is at the situational analysis stage and the remaining 40% of counties (19 counties) are still in the early stages of CSP preparation.

Level of CSP Preparation	Number of Counties (%)	Counties
Approved CSPs	15 (32%)	Lamu, Makueni, Baringo, Kericho, Bomet, Kilifi, Kwale, Narok, Nakuru, Kajiado, Siaya, Trans Nzoia, Nairobi, Mombasa, Bungoma
Drafted CSPs (Pending Approval)	12 (26%)	Migori, Kirinyaga, Kiambu, Uasin Gishu, Nyamira, Nyandarua, Samburu, Laikipia, Nandi, Murang'a, Nyeri
Situational Analysis Stage	1 (2%)	Tharaka Nithi
Early Stages of CSP Preparation	19 (40%)	Turkana, Wajir, Marsabit, Embu, Kitui, Kisumu, Homa Bay, Tana River, Taita Taveta, Mandera, Elgeyo Marakwet, Vihiga, Isiolo, Garissa, Kakamega, Kisii, Meru, Machakos, Busia

Although there has been an improvement compared to 2023, when 53% of counties had not initiated CSP preparation, the slow uptake of county planning highlights persistent challenges in meeting the planning mandates set out under the County Governments Act (2012).

32% of counties (15 counties) have approved County Spatial Plans (CSPs)

Urban Planning

Over a decade into devolution, counties are yet to comprehensively formulate and implement urban land use plans, a crucial step in mitigating challenges arising from unplanned development. Available data shows that Kenya has approximately 911 identified urban areas across its 47 counties. However, only 20% (182 centers) have approved urban plans, while 368 urban centers are still preparing the plans. Alarmingly, nearly 50% of urban areas remain unplanned, and 15% operate under obsolete plans.

The absence of up-to-date urban plans has resulted in widespread issues, including urban encroachment, overstretching of existing infrastructure, and environmental degradation. In most counties, infrastructure remains dilapidated, further compounding the challenges of accommodating rapid urban growth. Effective urban land use planning is no longer optional—it is critical to ensuring sustainable resource management and addressing the socio-economic needs of urban populations.

The County Governments Act (2012) mandates counties to allocate at least 30% of their annual budgets to development expenditures (the 70:30 rule). However, several counties especially within the Nairobi Metropolitan Area (Nairobi, Kiambu, Kajiado, Murang's, and Machakos) and city counties (Mombasa, Nakuru, Kisumu), fall short of the mandated 30% allocation to development expenditure, raising concerns about their preparedness to address urbanization pressures and future infrastructure demands. Counties must urgently realign their priorities to focus on long-term planning and development investments to secure sustainable urban futures.

Below is a summary of budgetary allocations and development expenditures for FY 2023/24 for City counties and those within the Nairobi Metropolitan area:

County	Total Expenditure (KES)	Development Expenditure (KES)	% Development Expenditure
Nairobi	35,862,500,000	9,358,800,000	26.1%
Kiambu	15,726,400,000	4,017,900,000	25.5%
Uasin Gishu	10,892,300,000	3,267,400,000	30.0%
Mombasa	14,345,200,000	3,209,800,000	22.4%
Nakuru	12,452,100,000	3,885,300,000	31.2%
Kisumu	11,732,600,000	3,149,600,000	26.8%
Murang'a	8,901,700,000	2,178,400,000	24.5%
Kajiado	9,874,900,000	2,864,500,000	29.0%
Machakos	11,210,800,000	3,103,900,000	27.7%

Source: Extracted from the County Governments Budget Implementation Review Report for the FY 2023/24, prepared by the Office of the Controller of Budget

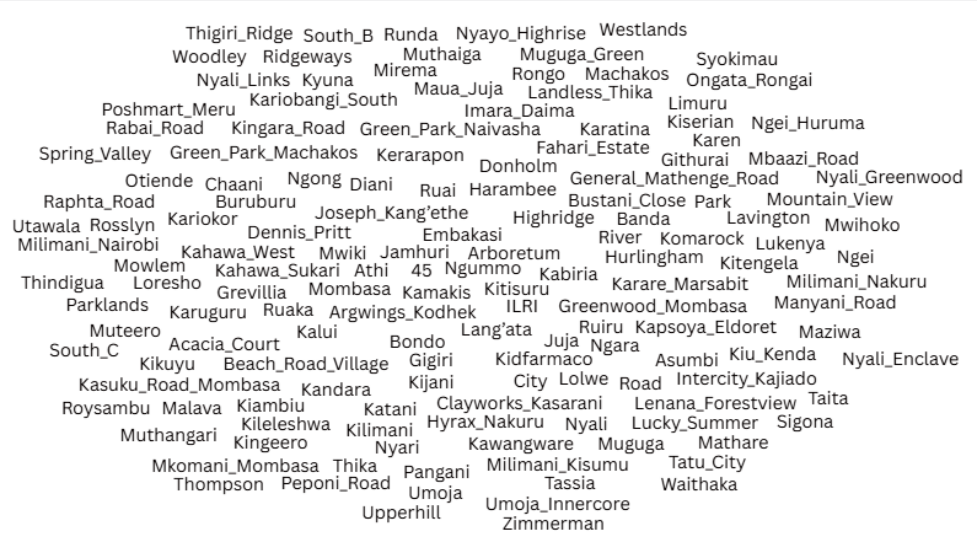
The absence of comprehensive County Spatial Plans, and other levels of Plans significantly hampers counties' ability to manage land use effectively, prepare for urbanization, and address pressing environmental concerns. This gap also affects compliance with other legal frameworks such as the National Building Code, 2024, which relies on zoning for health and safety standards, pollution control, and green building initiatives. Furthermore, the lack of updated plans jeopardizes strategic infrastructure investments and undermines sustainable development efforts.

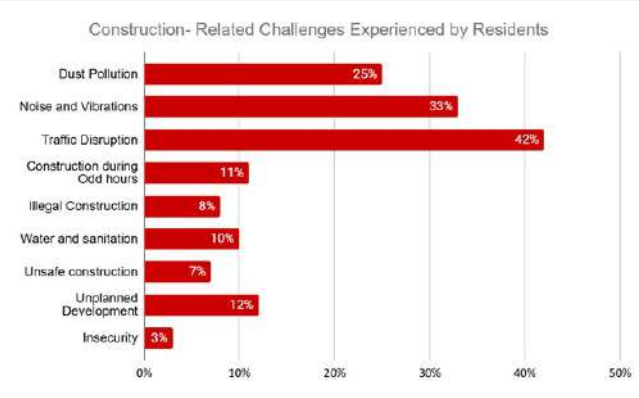
Alarmingly, nearly 50% of urban areas remain unplanned, and 15% operate under obsolete plans.

Citizens' Report

AAK in collaboration with the Kenya Alliance of Resident Associations (KARA), conducted a nationwide survey to capture residents' perspectives on key issues surrounding development, infrastructure, and environmental management within their communities. The survey sought to identify residents' challenges, opportunities, and aspirations and provide insights to inform planning reforms, promote sustainable urban growth, and guide the formulation of more responsive development policies. 957 respondents participated in the survey, coming from Nairobi, Mombasa, Kisumu, Nakuru, Uasin Gishu, Bomet, Laikipia, Nyeri, Trans Nzoia, Kwale, Kiambu, Homa Bay, Taita Taveta, Marsabit, Siaya, Machakos, Meru, Kakamega, and Kajiado Counties.

The survey results revealed significant safety concerns related to construction activities within communities, with an overwhelming 87% of respondents indicating they have encountered safety issues related to construction in their neighborhoods, underscoring the urgent need for stricter enforcement of construction standards and environmental guidelines.





Source: AAK & KARA Citizens' Survey 2024

Specifically, residents raised significant concerns about the impact of construction activities on their quality of life. Traffic congestion was the most frequently reported grievance, affecting 42% of respondents. Heavy construction trucks, road closures, and poor traffic management were blamed for increased travel times, stress, and accidents.

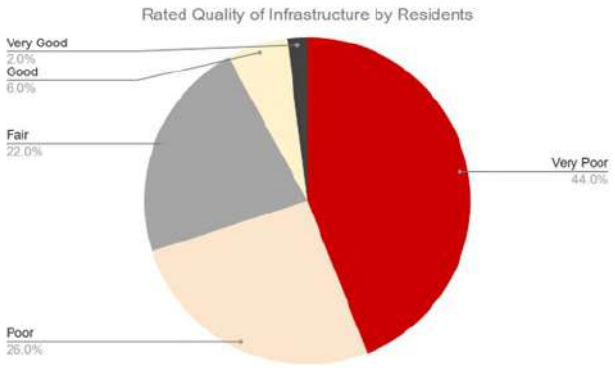
Structural safety issues were also prevalent, with reports of cracks in buildings in Parklands, South C, and Zimmerman, collapsed perimeter walls, and compromised foundations caused by neighboring excavations in Highridge, Kilimani, Parklands, Runda, Kileleshwa, Westlands, Lenana, and Rosslyn. In addition, falling debris and a lack of safety measures such as secure hoarding and signage, were cited in neighborhoods like Kasarani, Westlands, Zimmerman, Parklands, Ngong', Lang'ata, and Karen. Residents reported injuries, property damage, and personal safety risks due to these issues.

Additionally, building collapses were reported in Utawala, ILRI, and Ruaka. Some residents highlighted buildings that developed cracks either as a result of construction vibration in South C and Parklands or substandard construction in Zimmerman and Karatina. Some of the roads that were also flagged as poorly constructed in terms of design and finishes include UN Avenue and Limuru Road.

Abandoned construction sites were also highlighted in Juja, Kamakis, Imara Daima, Magadi Road, Muthangari, Karen, Kikuyu, and an unfinished culvert along Waiyaki Way which has led to localized flooding, poor drainage, and poses security risks.

Noise pollution also emerged as a major issue, with 33% of respondents highlighting excessive noise from construction sites, traffic, social gatherings, and industries. Additionally, 11% reported disturbances caused by construction activities during odd hours, holidays, and weekends. Dust pollution was another significant concern, cited by 25% of residents, who noted health risks and environmental degradation resulting from dust generated by construction activities and unpaved roads.

Poor planning and uncontrolled development were identified as the root causes of many challenges. Respondents criticized the proliferation of haphazard high-rise developments without supporting infrastructure, leading to obstructed natural light, breaches of zoning guidelines, and invasion of privacy. Alarmingly, 85% of residents indicated that there weren't enough green spaces, parks, or recreational areas in their neighborhoods, further highlighting the negative impacts of unregulated development. Environmental impacts were another significant concern, with illegal construction on wetlands, playgrounds, public land, and green spaces and dumping of debris into riparian reserves and green spaces reported in South C, Karen, Kangemi, KALRO, Chaani, Parklands and a quarry behind Oshwal Academy in Mombasa. Respondents in Westlands, Parklands, Highridge, Karen, Kitisuru, and Spring Valley also expressed their concerns on the haphazard cutting of trees in their neighborhoods.



Source: AAK & KARA Citizens' Survey 2024

Infrastructure damage and strain were highlighted by 10% of respondents, who reported damage to roads, walkways, utility cables, sewage systems, and water pipes due to poorly planned construction. Some of the highlighted areas included Moi Estate, Imara Daima, Rosslyn, Kilimani, Loresho, Kitisuru, Spring Valley, Muthaiga, Karen, Parklands, Westlands, Lang'ata, Kileleshwa, and Highridge. Blocked drainage systems were linked to flooding during rainy seasons, where in Kapsoya two children tragically lost their lives due to floods along the roads this year. The lack of proper facilities at construction sites was highlighted to add on to the waste management issues leading to open defecation. Additionally, insecurity, theft, and vandalism were reported in connection with late-night construction activities and increased population densities.

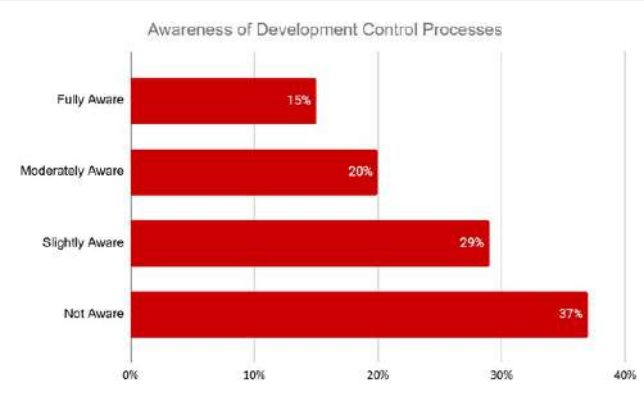
Residents were asked to rate the quality of infrastructure in their neighborhoods focusing on elements such as roads, sidewalks, and lighting. The responses revealed a predominantly low level of satisfaction, where 70% of respondents view their local infrastructure as poor or substandard.

Poor planning and uncontrolled development were identified as the root causes of many challenges.

Kilimani Area (Source: Booking.com)

Public Awareness of Development Control Processes

Varying levels of awareness were established among residents regarding the development control permitting processes in their counties. Notably, the largest group, 37% of respondents, admitted they were unaware of the permitting processes, while 29% indicated slight awareness, reflecting a general lack of in-depth understanding.



Source: AAK & KARA Citizens' Survey 2024

This highlights a significant gap in public knowledge about development control, which may contribute to challenges such as unregulated construction, non-compliance with zoning regulations, and limited community participation in urban planning. This underscores the need for counties to enhance public education and communication on development control processes to foster transparency, accountability, and informed citizen engagement.

There was a significant lack of community involvement and communication regarding new construction projects. A majority of respondents (57%) reported that they had never been consulted or informed about construction activities in their neighborhoods, while 23% stated that they were rarely consulted. Only 17% of respondents mentioned being informed or consulted sometimes, and 3% indicated frequent consultation or communication. The lack of consultation risks alienating residents, leading to conflicts, mistrust, and resistance to projects. This highlights the importance of strengthening public participation frameworks to ensure communities are adequately informed and involved in decisions that affect their living environments.

Challenges Experienced in Addressing Development-Related Grievances

A notable 73% of respondents reported dissatisfaction with the responsiveness of regulatory bodies, particularly county governments and environmental authorities. As one resident from School Lane put it, *"We've written countless letters, but the silence is deafening. When 40 trees were felled in our neighborhood, we didn't just lose shade; we lost our trust in the system."*

Public participation, mandated to ensure inclusivity, often feels like a checkbox exercise. About 68% of residents shared that meetings were poorly publicized, with inadequate project details and time to review project proposals. A resident from Nyoka Road recounted, "*We showed up to protest the high-rise development, but the signatures supporting it were from people who don't even live here. How is that fair?"* Despite these objections, construction proceeded, straining local water and electricity systems.

Corruption emerged as a significant issue, with 59% of respondents attributing zoning violations to bribery. In Kitisuru, residents opposed the transformation of residential plots into commercial establishments. Despite unanimous community objections during public consultations, permits were still issued.

"It feels like the developers always win," said one frustrated resident. This sentiment was echoed in Karen, where despite community protests, unauthorized businesses, including restaurants, were established in residential zones.

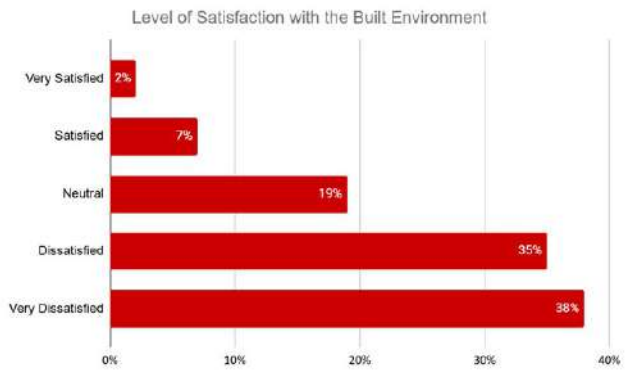
Safety and environmental degradation are other critical pain points. Over 41% of respondents reported feeling unsafe due to lax enforcement of building codes. In Peponi Road, for instance, residents voiced fears about high-rise constructions on unstable slopes. One resident shared, *"We're sitting on a disaster waiting to happen. If the hill gives way, who will be held accountable?"*

The lack of clear communication channels compounds these challenges. Nearly half of the respondents (49%) said they were unsure whom to approach with complaints or that their grievances were dismissed outright. Amid these frustrations, a broader sentiment of helplessness prevails, with 64% of residents feeling that laws and regulations favor developers over communities. "You can have all the evidence, all the protests, but if a developer has the right connections, your voice doesn't matter." remarked a resident from South C.

What Respondents Would Like to See Improved

Residents expressed a strong need for reforms in urban development, particularly focusing on adherence to zoning and building laws, alongside controlled development and density, which accounted for 32%. The importance of strict adherence to zoning and building regulations was highlighted, with concerns centered on high-rise constructions in low-density residential areas, which many feel undermines community planning. 16% of respondents called for an end to "beacon-to-beacon" constructions and advocated for mandatory sustainability measures, with 13% of residents demanding rigorous oversight, penalties for non-compliance, and demolition of illegal structures.

In addition, infrastructure development and upgrades were highlighted by 20% of residents, who noted the strain on roads, water supply, sewage systems, and drainage caused by rapid urban densification. Many lamented the outdated state of existing infrastructure, with one respondent stating, *"The infrastructure we have is what we had 50 years ago, yet we now have 50 times more houses, cars, and people."*



Source: AAK & KARA Citizens' Survey 2024

15% of respondents called for meaningful public participation in planning and development processes as a key concern and demanded transparency and more involvement of resident associations. Projects found not to have followed due public participation processes should be halted completely.

Construction management practices, including noise, dust, safety, and working hours, were flagged by 4% of respondents. Many urged for responsible construction practices.

Community Satisfaction with the Status of the Built Environment in Kenya

A significant 73% of respondents expressed negative sentiments, highlighting that most residents feel that the current state of their built environment is suboptimal. In contrast, only 9% of residents reported being content with their community's built environment, while 19% of respondents remained neutral. The relatively small percentage of satisfaction indicates considerable gaps in addressing the needs and desires of the community.

64%

of residents feel that laws and regulations favor developers over communities.

Kenya Gains the Fifth City

In August 2024, Eldoret Town was conferred city status, having satisfied the criteria set out by the Urban Areas and Cities Act (2011). Eldoret has witnessed rapid growth in population and economic potential, especially due to its strategic importance as a trade and logistics hub within the North Rift Economic Bloc (NOREB). Among the anticipated benefits of this elevation are unlocking significant investment opportunities, heightening its administrative capabilities, and promoting a more dynamic economic environment.

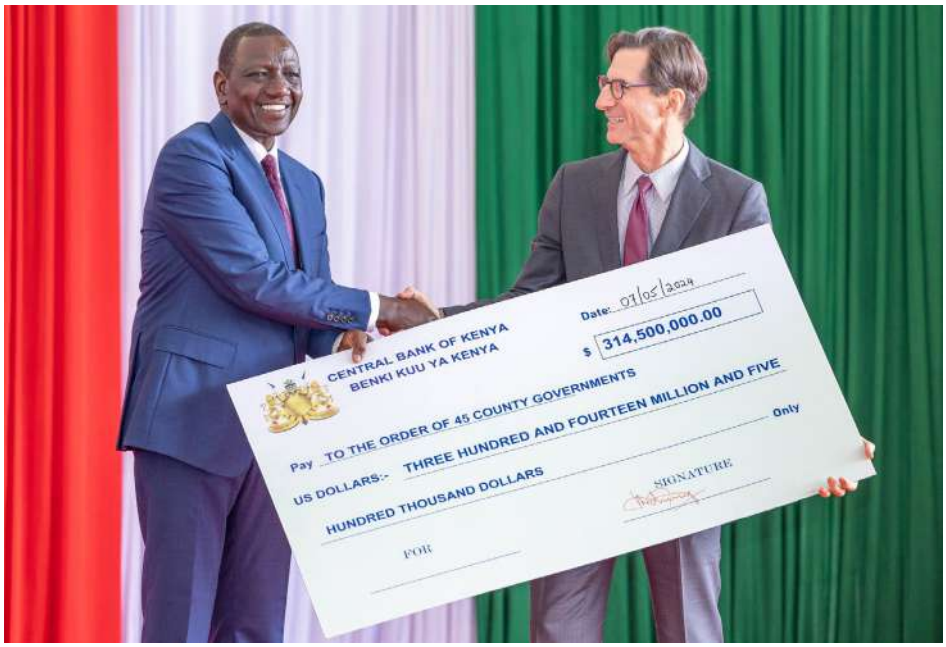
This elevation brings numerous opportunities and responsibilities, requiring a strong foundation built on proactive planning and robust regulatory frameworks. Well-defined planning zones, adherence to safety and environmental standards, and comprehensive development policies will be crucial in fostering balanced growth.

Uasin Gishu County must prioritize digitizing its permitting systems and commit to rigorous construction monitoring systems given the anticipated increase in construction activities. This will boost service efficiency and attract more investors and residents.

The county must strengthen its workforce by hiring more qualified professionals in architecture, urban planning, engineering, quantity surveying, construction project management, landscape architecture, and interior design to handle the technical demands of a growing city. Eldoret must learn from the challenges and achievements of its predecessors to address the complexities of modern city management while promoting a high quality of life for its residents.

Eldoret City (Source: Kenyan Wall Street)

Kenya Urban Support Program II (KUSP)



7th May 2024

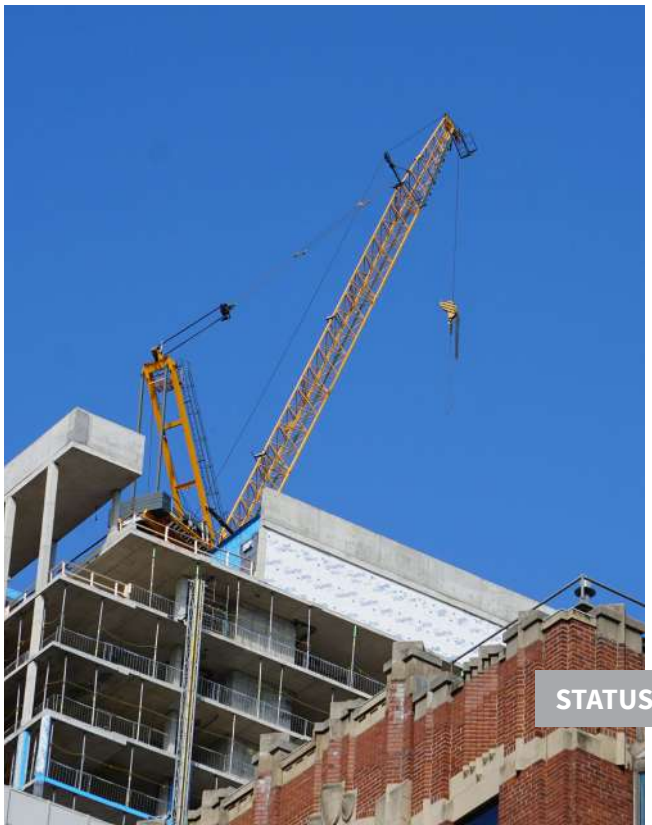
launch of the second Kenya Urban Support Program (KUSP) by the Government of Kenya and The World Bank

Source: The Star Newspaper

The Government of Kenya and The World Bank launched the second Kenya Urban Support Program on 7th May 2024. This second phase of the KUSP seeks to support county governments through performance grants to implement climate-resilient and inclusive urban planning and service delivery. This is in recognition of the lack of coordination in urban development and management that has denied Kenyans the opportunity to enjoy the benefits of urbanization.

The World Bank is working with the Global Center on Adaptation through an investment value of US$350 million to target 45 counties, 6 cities, and 62 municipalities over the period 2023-2028. During the launch, the Cabinet Secretary for Public Works, Housing, and Urban Development, Hon. Alice Wahome, also announced the inclusion of 100+ municipalities, including Dadaab, Kakuma, Garissa, Nairobi, and Mombasa, which had been excluded in KUSP 1. She also gave assurance that the Urban Areas and Cities Act (UACA) regulations which have been pending finalization, will enhance the successful implementation of the KUSP2 strategies.

Report of the Taskforce for Urban Reengineering



Urban development in Kenya faces significant challenges, including financial constraints, inadequate infrastructure, and political interference in planning processes. These obstacles have led to underfunded urban infrastructure and disrupted long-term urban planning efforts. Despite continuous growth, there's still significant disparity. More affluent neighborhoods enjoy superior services, while informal settlements struggle with even the most basic necessities. In July 2023, the Cabinet Secretary for Lands, Public Works, Housing and Urban Development established the Taskforce on Re-Engineering and Transformation of Urban Development in Kenya to develop strategies for building responsive urban institutions that promote sustainable, inclusive, and resilient urban growth by

assessing the current state of urbanization, proposing policy reforms integrating smart technologies, and developing financing models, particularly, the National Urban Development Fund to ensure sustainable financing for urban development projects across the country.

The task force highlighted key findings, including the politicization of urban planning, which diverts resources to projects with short-term political gains rather than sustainable investments. Politicians were also found to significantly disregard the role of professionals by making uninformed roadside declarations on critical subjects such as zoning and development policies.

Regulatory frameworks were found to be fragmented, with conflicting provisions in critical legislation such as the County Governments Act and the Physical and Land Use Planning Act. Urban growth often outpaces infrastructure development, exacerbating challenges in informal settlements, where land ownership issues and exploitation by cartels hinder improvements. Additionally, the lack of participatory decision-making and comprehensive urban data were highlighted as significant barriers to effective planning and governance.

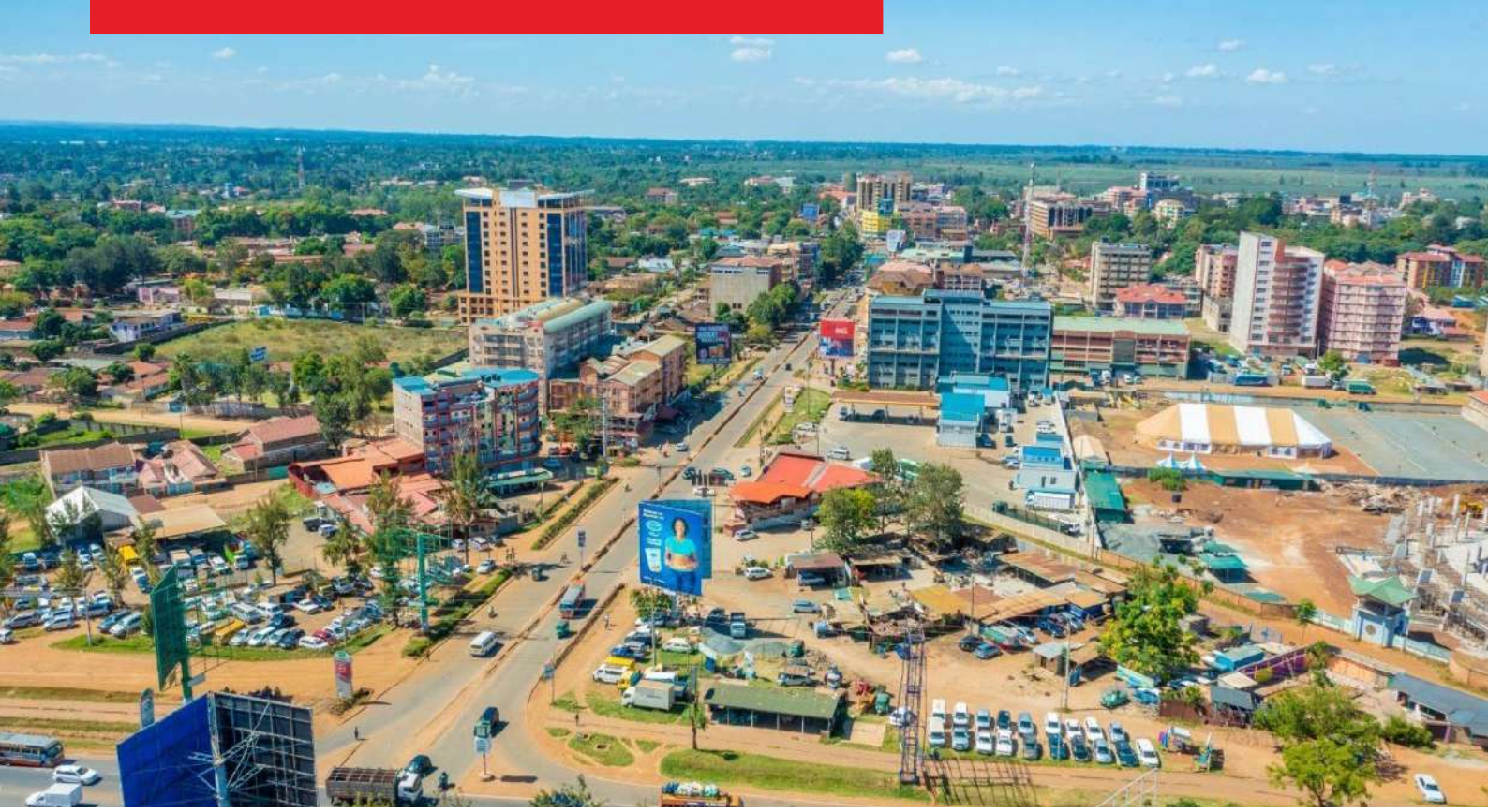
To address these challenges, the taskforce recommended harmonizing urban policies to create a unified legislative framework and fostering participatory decision-making to involve communities in planning processes. It emphasized the need for prioritizing infrastructure investments, particularly in transport and waste management systems, and improving conditions in informal settlements, noting that counties spend 7 times more on recurring expenditure compared to development expenses. Finally, the taskforce recommended capacity building at county planning offices and the development of a centralized digital system for development controls to enhance service delivery.

The taskforce recommended capacity building at county planning offices and the development of a centralized digital system for development controls to enhance service delivery.

Thika Industrial Smart City

The County Government of Kiambu has embarked on an ambitious initiative to elevate Thika Municipality to an industrial smart city. The county plans to allocate Sh1 billion annually towards this transformation, which will be developed on the 690 acres ceded by Del Monte fruit processing company. Key infrastructure projects include Sh5.7 billion for water reticulation in collaboration with the national government, Sh500 million for walkways and non-motorized transport, and the installation of 2,500 solar streetlights. Additionally, the Thika-Kolpin section of the Garissa road will be developed into a dual carriageway by the Kenya National Highways Authority to ease congestion. Further investments in markets, the modernization of Thika Stadium, and the relocation of Thika GK Prison are among other critical projects designed to enhance the city's economic potential and provide more opportunities for residents and investors.

The elevation of Thika presents a range of benefits, including enhanced infrastructure, increased investments, and greater industrial activity. These developments are expected to boost the city's revenue, create job opportunities, and improve public services, raising the standard of living for residents. The integration of smart technologies, central to the vision for an industrial smart city, could also lead to more efficient urban management.



Thika Town (Source: https://www.linkedin.com/kevinmacua)

However, Thika's transformation into a city brings significant challenges, particularly in urban planning and governance. As part of the Nairobi Metropolitan Region, the city status creates the potential for administrative complexity. This "city within a city" scenario could lead to bureaucratic inefficiencies, competition for resources, and service delivery challenges between Thika and Nairobi. A more holistic approach to planning is needed—one that views Thika not in isolation, but as part of a coordinated metropolitan system with a specialized focus on industrial development. In addition, rapid urbanization, if not carefully planned and managed, may bring challenges such as rising property values, social displacement, uncontrolled development, traffic congestion, and environmental degradation. Thika's development must be underpinned by proper planning frameworks and inclusive community engagement to mitigate these risks.

In recent years, Kiambu County has faced significant challenges with uncontrolled development, including a high incidence of building collapses. Addressing these safety and construction concerns is critical before proceeding with the smart city transformation. Development control remains a concern, hindered by fragmented policy implementation, corruption, and insufficient technical capacity. To avoid repeating these issues in Thika, the county must prioritize completing the necessary planning frameworks, including local physical development plans, a county spatial plan, and other legal documents required by national regulations.

In addition to strengthening planning frameworks, the county must ensure that it is financially and technically equipped to manage the growing city. This includes investing in local professionals, such as urban planners, architects, engineers, quantity surveyors, landscape architects, construction project managers, and interior designers to implement development projects effectively. A key component of Thika's transformation into a smart city is the reinstatement of the Kiambu County automated development permitting system eDAMS, which will help manage the high construction volume and ensure orderly growth.

Establishing clear urban-rural boundaries within Kiambu County is also essential to prevent urban sprawl and guide Thika's development. Defined boundaries will help ensure organized and sustainable land use. Additionally, the county must be prepared to transfer all relevant powers, including revenue collection, to the city board at the point of conferment. This transition is essential for effective city governance and will require the development of robust legal, regulatory, and financial frameworks to support Thika's new status.

In retrospect, collaboration and strong linkages from the county to the local level are essential. This includes engaging various stakeholders, including government agencies, private sector partners, and local communities, all through the process to ensure a cohesive and inclusive approach.

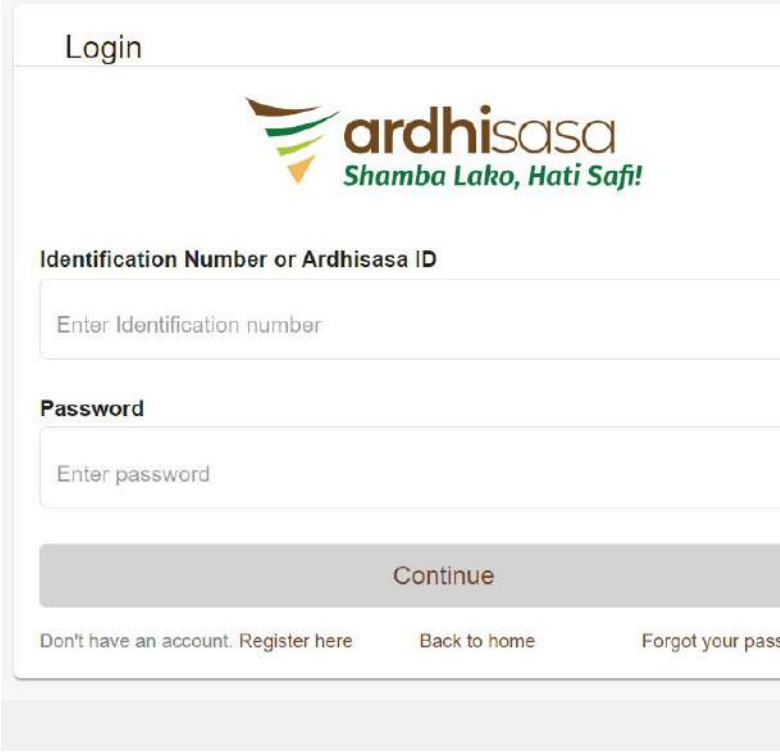
Record keeping for Lands and Ardhi Sasa

In 2013, the then Cabinet Secretary for Lands, Hon. Charity Ngilu, issued a directive to digitize land records, giving effect to sections 9 and 10 of the Land Registration Act of 2012. Section 9 mandates the Registrar of Lands to maintain the register and related documents in a secure, accessible, and reliable format, while section 10 emphasizes public access to the register through electronic means. To fulfil this, the Ministry of Lands, Public Works, Housing and Urban Development embarked on developing the National Land Information Management System (NLIMS) to promote the sharing of geospatial data between government levels, public and private sector players, and other relevant stakeholders.

Established by NLIMS, the Ardhi Sasa platform was officially launched in April 2021 by the former president H.E. Uhuru Kenyatta. It is a key component of Kenya's digital transformation in land management and administration, a one-stop shop designed to enhance the security of land records, reduce costs associated with land transactions, and improve access to information. Developed collaboratively by the Ministry of Lands, Public Works, Housing and Urban Development, the National Land Commission (NLC), and other government partners, Ardhi Sasa allows citizens, stakeholders, and other users to access land information real-time and submit applications for various government and NLC services on a centralized platform. It seeks to address persistent challenges in land administration such as fraud, inefficiencies, and corruption, while ensuring better access to government services and improved service delivery.

The platform offers a range of services, including land registration, land administration, physical planning, surveying, and mapping, valuation, adjudication, and other services provided by the NLC. All applications are processed directly through the platform, with responses delivered digitally, eliminating the reliance on paper records. Some of its key features include;

1. Digitization of records.
2. Efficiency and accessibility.
3. Integration with other Government systems such as Kenya Revenue Authority and Business Registration Services.
4. Transparency and fraud prevention.
5. Support for development goals including the Vision 2030 and the current administration's Bottom-Up Economic Transformation Agenda.



It also plays a key role in advancing the success of the Affordable Housing Programme (AHP) and the National Titling Programme, which has issued 5.1 million titles since 20133.

Progress and Implementation

The platform was first launched in Nairobi County and is gradually being expanded to incorporate other counties. As of March 2024, digitization was almost complete in Murang'a County, with plans underway to replicate the process in Machakos County. Additionally, Isiolo County has also commenced its digitization efforts.

Ardhi Sasa has enhanced professionalism in land transactions by ensuring that only registered professionals can carry them out. Before a parcel is activated on the platform, the registered owner must provide both personal and property details for verification. All applications and submissions are handled exclusively by professionals in adherence to existing laws. Furthermore, all transactions are stored electronically, with the system automatically updating records.

The system is designed to ensure property owners are notified and must provide consent before any transactions involving their properties are conducted. It incorporates multiple layers of security, including passwords and security questions, to safeguard account access. Additionally, a signature feature can be appended for authentication, enhancing the system's reliability.

Challenges and Impact

The Ardhi Sasa platform was introduced to tackle systemic inefficiencies in Kenya's land management and administration. However, it has faced criticism from stakeholders regarding delays in service delivery, with some users reporting transactions pending unresolved on the platform for over six months without clear timelines. In response, the Law Society of Kenya held a consultative crisis meeting with the Ministry on June 2nd and 3rd, 2022, to address these concerns5. Recommendations were subsequently compiled and submitted to the Cabinet Secretary, outlining proposed solutions to bridge these gaps.

Other challenges encountered include internet downtime, limited user awareness on navigating the system, insufficient power backup during outages, data losses related to digitization, and system security concerns. Moreover, the platform poses accessibility challenges for Persons with Disabilities, particularly those who are visually impaired.
Unfortunately, to date, many of these inefficiencies still persist, with a key issue being the continued reliance on physical verification despite the platform's digitization. Additionally, the central lands registry in Upper Hill was permanently closed in 2021, with files redistributed to individual county registries7. Another significant challenge is the incomplete upload of numerous titles to the system, rendering some records inaccessible for searches or validation.

Ardhi Sasa holds significant potential to revolutionize land management and administration in Kenya, while drawing inspiration from successful systems such as that of the United States. It offers cost-effective access to secure land records while addressing historical and systemic land injustices. However, as the system is still in its early stages, its effectiveness in overcoming the inefficiencies of the manual system may take time to fully materialize. Nevertheless, Ardhi Sasa has the capability to address long-standing systemic issues in land administration, such as those linked to the infamous Kihiu Mwiri land-buying company in Murang'a County - a case marred by violence and assassinations, ultimately leading to its dissolution by former President Uhuru Kenyatta.

Development Applications

In the period January to October 2024, the National Construction Authority (NCA) received 5,317 applications for project registration, approving 4,124 projects valued at KES 309,531,960,965, recording an 11.5% increase from 4,770 in 2023. Residential developments were the majority, accounting for 69% (2,853 projects) of all approved applications with a combined value of KES 181 billion. This highlights the sustained demand for housing, driven by urbanization, population growth, and government policies such as the Affordable Housing Programme.

Category	Number	Value
Residential	2,853	181,049,830,870
Mixed-use	291	35,429,386,752
Commercial	620	57,656,928,988
Other Works	360	35,395,814,355
Total	**4,124**	**309,531,960,965**

Source: National Construction Authority (NCA)

The authority returned 1,193 applications (22% of submissions) to applicants for updating missing details, pointing to the need for improved compliance and clarity in project documentation among stakeholders.

Shift in Project Types and Values

Residential projects remained dominant in 2024, with their proportion growing from 54% of total approvals in 2023 to 69% in 2024. This was accompanied by a substantial rise in their total value, from KES 97.5 billion in 2023 to KES 181 billion in 2024—a nearly 85% increase.

Conversely, mixed-use developments saw a sharp decline, with their number dropping from 30% of approved projects in 2023 to just 7% in 2024. Their monetary value also fell significantly from KES 64.4 billion in 2023 to KES 35.4 billion in 2024, indicating reduced investment in multi-functional urban developments.

Commercial projects grew in number, accounting for 15% of approvals in 2023 and 19% in 2024. Their value also rose markedly, from KES 37.6 billion in 2023 to KES 57.7 billion in 2024, highlighting increased interest in commercial buildings.

Infrastructure projects classified under "Other Works" experienced remarkable growth in value, from KES 15.4 billion in 2023 to KES 35.4 billion in 2024, suggesting a renewed focus on supporting infrastructure like roads and social amenities. Despite this remarkable increase from last year, the underinvestment in infrastructure (only 11% in 2024 and 7% in 2023) underscores the misalignment between urban growth and the development of essential support systems such as roads, utilities, and social amenities.

This imbalance suggests urbanization is primarily driven by housing and commercial developments, with limited investment in the infrastructure necessary to support these growing urban areas. Without adequate infrastructure, urban centers risk congestion, poor service delivery, and declining livability, underscoring the need for balanced development to ensure sustainable urban growth.

Residential projects grew from 54% of total approvals in 2023 to 69% in 2024.

4124

Approved projects valued at KES 309,531,960,965

Development Control Data from County Governments and User Experience Survey

As part of the AAK's continued advocacy to automate and improve the development control systems in Kenya, AAK conducted a survey among its members to assess their experiences in obtaining development control permits in the counties.

35 members participated in the survey, where 51% had submitted approval applications in Nairobi County, 23% in Kiambu County, 9% in Kisumu County, and 6% in Uasin Gishu County. Additionally, 3% each came from Kisii, Machakos, Mombasa, and Murang'a.

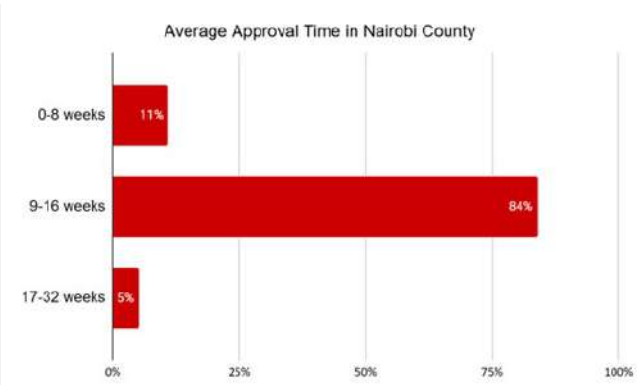
Nairobi County

Between January and October 2024, Nairobi City County received 1,761 applications for development approval, marking a 13% decrease compared to the 1,985 applications recorded during the same period in 2023. Of these, 94% were approved, while 6% were either deferred or rejected. The total value of developments during this period reached KES 273 billion, representing a substantial 55% increase compared to the KES 176 billion recorded in the previous year. However, revenue generated from approvals totaled KES 1.67 billion, reflecting a decline of KES 214 million from 2023. Additionally, the Nairobi City County government issued 95 occupation certificates during this time, collectively valued at just over KES 17 million.

Notably, 50% of members noted that they had to give unofficial facilitation to get their approvals while 50% did not.

MONTH	NO. OF APPLICATIONS	ESTIMATED COSTS (KES)	SUBMISSION FEE (KES)
JANUARY	134	93,520,949,151.00	112,854,062.00
FEBRUARY	100	12,373,737,870.00	99,384,021.00
MARCH	299	25,279,087,072.00	232,996,350.00
JUNE	417	50,851,251,192.00	317,826,484.00
JULY	129	17,300,775,230.00	126,422,116.00
AUGUST	158	17,099,413,356.00	246,373,345.00
SEPTEMBER	250	26,062,454,009.00	311,704,410.00
OCTOBER	274	30,544,316,591.00	219,873,702.00
	1761	**273,031,984,471.00**	**1,667,434,490.00**

AAK Members' Experience with the Nairobi Planning and Development Management System (NPDMS)



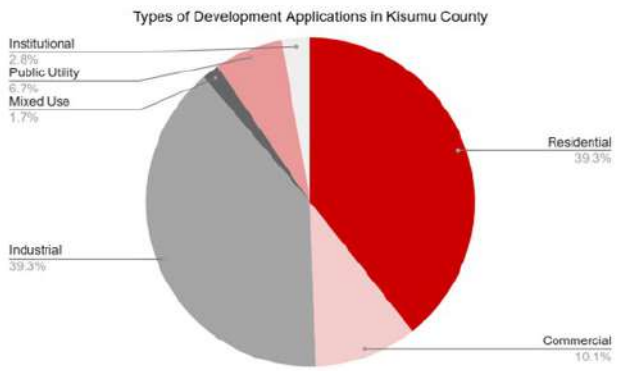
AAK members highlighted several challenges in obtaining development permits in the counties, emphasizing the need for a standardized system, similar to the Kenya Revenue Authority (KRA), to enhance revenue collection, efficiency, and transparency. Key concerns included lengthy approval processes, unreliable online systems, and a lack of feedback mechanisms. For instance, persistent errors like the "plinth area" message complicate navigation, while invoicing and payment systems are inconsistent and prone to delays.

Corruption was a recurring issue, with claims that the process is intentionally slowed to solicit bribes. Additionally, members reported that reviews often lack professional rigor, with inexperienced reviewers providing petty or irrelevant comments. Members called for reduced human intervention, automation of billing, predictable fees, and better communication of issues, such as delays caused by uncommunicated document requirements. Overall, members urged counties to improve integrity, efficiency, and accountability to streamline the permitting process.

Kisumu County

The Kisumu County government received 192 development applications between January and October 2024, generating submission fees totaling KES 9.2 million. However, this is equivalent to just 0.5% of the revenue collected by the Nairobi City County government during the same period. Of these applications, 67% were approved, 31% deferred, and 2% rejected. Furthermore, majority of applications (39%) were for residential and industrial purposes, with the remainder covering commercial, institutional, mixed-use, and public utility developments.

While Nairobi County maintains its dominance over other counties, Kisumu has an opportunity to boost its appeal to potential investors. By fostering a supportive and conducive environment, Kisumu can further stimulate its economic growth by attracting greater investments thereby contributing significantly to the overall development of the western region.



AAK Members' Experience with the Kisumu Development Control Permitting

Members emphasized the absence of a functional online system, noting that the Planning and Development Management System (PDMS) was discontinued three years ago, significantly hampering efficiency and modern workflows. There were calls to reignite the PDMS to streamline processes and improve accessibility. In addition, concerns were raised about resistance to new professionals within the county office, suggesting potential bias. While the knowledge and experience of the staff were rated as moderate, the level of respect and assistance offered was viewed positively, indicating a need to balance technical capacity with continued professionalism and inclusivity.

Uasin Gishu County

From January to October 2024, the Uasin Gishu County government received 649 development applications, reflecting a 16.9% decrease from the 781 applications recorded in the previous year. During this period, 127 building occupation permits were issued, amounting to approximately KES 4.6 billion, a 117% increase compared to the previous year. This surge could likely be attributed to Eldoret's recent elevation to city status, which has attracted increased investment opportunities and government funding for public projects and development initiatives.Conversely, the county government must recognize the risks of haphazard and uncontrolled development should it fail to keep up with the city's imminent growth. For sustainable urban development, it is crucial for the county's legislators and administrators to develop and implement comprehensive urban planning strategies, including zoning guidelines, development control regulations, and infrastructure development plans, to manage the rising demand associated with the city's growing population. Furthermore, preserving green spaces should be a priority to enhance the residents' overall quality of life and for aesthetics.

AAK Members' Experience with the Uasin Gishu Development Control Permitting

In Uasin Gishu County, most members reported submitting applications for residential developments. Approval timelines varied significantly, ranging from 6 to 24 weeks, with many expressing frustration over the prolonged process. The reliance on a manual application system was cited as a major challenge, exacerbating inefficiencies and providing opportunities for corruption, which members identified as a key contributor to unnecessary delays.

Murang'a County

Murang'a County received a total of 437 planning applications between January and October 2024. Of these, 73% were approved, while 27% applications were either deferred or rejected. During the same period, only five occupational certificates were issued. This low number could likely be attributed to delays in applicants incorporating comments on their submissions, with some failing to make the required payments at the time of application.

AAK Members' Experience with the Murang'a e-Permitting System

In Murang'a County, members predominantly submitted applications for commercial and mixed-use developments. The e-permitting system faced significant criticism for its poor user interface, which complicates navigation and usability. Other major challenges included prolonged delays in resolving technical and platform-related issues, a lack of progress notifications for submitted applications, and very slow processing times. Furthermore, the platform's reliance on additional manual steps, such as downloading, printing, and physically filling out

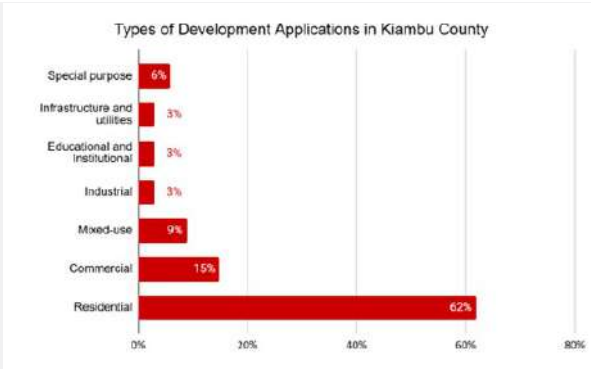
application forms, undermines the efficiency expected of a digital system.

Kiambu County

Between January and October 2024, Kiambu County received 1,353 development applications, with 67% approved and 33% either deferred or rejected. During this period, the county government issued 55 occupation certificates to successful applicants. It is also worth noting that Kiambu's proximity to Nairobi has significantly accelerated its urbanization, driving demand for residential and commercial developments, including Tatu City (which was incorporated as Kenya's first Special Economic Zone) and the Tilisi mixed-use developments situated along the Nairobi-Nakuru highway.

AAK Members' Experience with the Kiambu Development Control Permitting

In Kiambu County, the majority of applications, accounting for 62%, were for residential developments, as reflected in other counties. The average approval timeline was 11 weeks, with some applications taking as long as 20 weeks. Notably, the value of projects with pending applications ranged from KES 10 million to KES 100 million, with half of the members reporting that they had to provide unofficial facilitation to expedite their approvals.



AAK members lamented the regression from an e-permitting system to a manual process in 2022, which is cumbersome, time-consuming, and fragmented across multiple physical offices. Corruption was also a major concern, with approvals often contingent on unofficial facilitation or personal connections. The lack of clear communication channels and inadequate support from the planning office exacerbate frustrations, alongside requirements such as obtaining new rates clearance certificates for the same year and individual plot owners being asked to provide storm drainage plans. Furthermore, approval fees include charges for unresolved land rates on mother titles, penalizing homeowners who already own subdivided plots. Recommendations include reinstating a digital permitting platform, approving Local Physical and Land Use Development Plans, simplifying the process for clients and professionals, and ensuring transparency to restore trust and functionality.

Machakos County

Machakos County government received 490 applications for development approval between January and October 2024. The total development fees generated during this period was approximately KES 32 million. This reflects only 2% of the total revenue generated by the Nairobi City County Government within the same period. In addition, 90% of the building plan applications received were for residential units, with the remainder accounting for institutional, commercial, industrial, and public utilities.

Kajiado County

Kajiado County received a total of 970 applications for development approval between January and October 2024. Of these, 68% were building plan submissions whereas the remaining 32% accounted for planning applications. In addition, the county government issued 61 occupancy certificates within this period, valued at KES 493 million.

AAK Members' Experience with Mombasa and Kisii Counties Permitting Systems

In Kisii County, the knowledge and experience of officials were described as low, with poor levels of respect and assistance. In Mombasa, the cost of unofficial facilitation fees was noted to be excessively high. Across both counties, poor communication from county offices further compounds the challenges, creating frustration for professionals navigating the approval processes.

MONTH	NO. OF APPLICATIONS	TOTAL SUBMISSION FEE (KES)
JANUARY	87	5,261,329.00
FEBRUARY	72	6,477,832.00
MARCH	52	3,030,297.00
APRIL	132	9,340,042.00
AUGUST	54	2,270,090.00
SEPTEMBER	49	2,954,018.00
OCTOBER	44	2,522,895.00
TOTAL	**490**	**31,856,503.00**

Machakos County

42/ 1333

buildings inspected across various counties were deemed dangerous, recommending immediate evacuation where necessary.

Building Safety and the Urgency for Consistent Audits and Enforcement

Nearly a decade after its establishment, the National Building Inspectorate (NBI) has audited a total of 20,649 buildings across various counties. Of these, 962 structures were classified as dangerous, necessitating immediate testing and potential evacuation or demolition. Additionally, 11,662 buildings were deemed unsafe, and requiring extensive rehabilitation efforts. Despite this, only 210 buildings underwent testing for structural integrity. This represents only a fraction of the total flagged, and underscores the need for increased technical and financial capacity of the inspectorate to better address public safety risks.

While private buildings constituted the highest number of buildings flagged for non-compliance, informal structures were also flagged; particularly those encroaching on riparian, railway, road, pipeline, and electricity reserves. 10,097 such illegal structures have been demolished, emphasizing the scale of unregulated construction. In Nairobi County alone, 688 buildings were identified as dangerous, highlighting urban centers as hotbeds for structural safety non-compliance incidences due to rapid, and often poorly regulated, development.

Geographic Disparities in Safety Compliance

Nairobi City County recorded the highest number of dangerous structures (688), reflecting the challenges of regulating construction in high-density urban areas. Counties like Kisii (703 unsafe structures) and Uasin Gishu (368 unsafe structures) also raised significant concerns, while others like Lamu and Isiolo showed fewer safety issues, possibly due to lower construction activity. This disparity suggests the need for targeted interventions in counties with high urbanization rates and a history of safety non-compliance.

Construction Site Inspection and Enforcement

The number of site inspections conducted more than doubled in 2024, rising from 10,655 in 2023 to 28,560. However, the suspension of works notices issued also increased significantly, from 7,042 (66.1% of inspected sites) in 2023 to 17,040 (59.6%) in 2024.

While the proportion of non-compliance declined, the higher number of suspensions indicates persistent challenges in adherence to construction standards, highlighting the need for increased awareness, capacity building, and stricter enforcement mechanisms within the sector.

Structural Failures and Building Collapses

Four incidents of structural failure and building collapses were recorded. These include the collapses in Uthiru, Kahawa West, Ruiru, and Kiamaiko. While the figure may appear modest, the National Building Inspectorate (NBI) identified 42 of the 1,333 buildings inspected across various counties as dangerous, recommending immediate evacuation where necessary.

Demolition of Unsafe Structures

The demolition of unsafe buildings is a critical step in upholding public safety. To date, 119 permanent structures have been demolished, with 10 more earmarked for removal following further testing.

However, the high number of dangerous and unsafe structures necessitates an accelerated and systematic approach to demolition, particularly for buildings posing immediate risks.

Uthiru Collapse

Strategic Partnerships in Enhancing Building Audits

The formation of the Multi-Sectoral Agencies Consultative Committee (MSACC) under the NBI in 2023 marked a commendable step toward improving transparency and coordination in auditing and monitoring construction works. This collaboration has addressed longstanding challenges of oversight gaps and overlapping mandates among regulatory bodies within the Natural and Built Environment industry. However, effectively addressing unsafe buildings requires not just efficient processes but also strategic partnerships with industry leaders such as professional bodies who bring specialized expertise and innovative frameworks. AAK has developed tools such as the Healthy Homes Guidelines and Checklist, providing a comprehensive approach that extends beyond structural safety to include essential health considerations like indoor air quality, thermal comfort, accessibility, and sustainability. Integrating these elements into the NBI's auditing processes would elevate the quality of inspections, aligning them with global best practices and addressing the broader well-being of building occupants.

Such partnerships not only enhance the scope of building audits but also foster a more holistic approach to public safety and health, positioning Kenya as a leader in sustainable and healthy urban development.

One-Stop Shop Model: The Future of Development Control Permitting in Kenya

Development control is a critical government function that promotes sustainable land use, generates revenue, and contributes to Sustainable Development Goal 11 on Sustainable Cities and Communities. However, Kenya's development permitting process has continuously been riddled with challenges including bureaucratic delays, systemic inefficiencies, and susceptibility to malfeasance. With urban areas rapidly growing, a robust and streamlined permitting system is essential to facilitate well-planned neighborhoods with efficient infrastructure and bolster investor confidence.

AAK has been at the forefront of advocating for the transformation of Kenya's development control system. We advocate for the national-scale roll-out of the One Stop Shop (OSS) model, a vision shaped by our work over the years. The OSS is a single electronic platform that harmonizes the fees and procedures related to the development control functions in all 47 counties. Each county government would have access to the system and process the construction permits independently.

OSS Model

One Stop Shop (OSS) model is a single electronic platform that harmonizes the fees and procedures related to the development control functions in all 47 counties.


AAK
PROMOTING EXCELLENCE IN THE BUILT ENVIRONMENT
AAK'S ONE STOP SHOP MODEL (OSS)
FOR DEVELOPMENT CONTROL APPROVAL
APPLICATION OF DEVELOPMENT PERMISSION
CERTIFICATE OF COMPLIANCE
REVIEW OF CONSTRUCTION, PPA
DEVELOPMENT PERMISION
CONSTRUCTION PERMITTANCE COUNTY GOVERNMENT
OTHERS: KFS, KWS, NLC etc.
KURA/ KENHA/ KERRA
NCA
NEMA
• ONE SUBMISSION
• ONE PAYMENT
UPON COUNTY APPROVAL AND REGISTRATION CONSTRUCTION CAN COMMENCE AS KPLC APPLICATION IS PURSUED
INSPECTION OF CONSTRUCTION
CERTIFICATE OF OCCUPATION
NBI
NATIONAL BUILDING INSPECTORATE (NBI)
NB: THE ONE STOP SHOP (OSS) WILL BE DOMICILED AT HUDUMA CENTRE

This system further centralizes development permitting processes by integrating all the state agencies such as the National Environment Management Authority (NEMA), the National Construction Authority (NCA), and the National Land Commission (NLC), further reducing bureaucratic fragmentation.

The OSS model also offers a user-friendly database of relevant information such as an easy-to-follow instruction manual for regulators, practitioners, and the public. It can also feature localized information on building materials, which could improve cost engineering and quality control. The model enables full-cycle tracking and control of the building from inception to plan approval, site inspections, and occupation. Building on the successes of other national one-stop-shop initiatives such as Huduma Centers and Integrated Financial Management Information Systems (IFMIS), eCitizen, and electronic Tax Invoice Management System (eTIMS), the OSS is positioned to provide a transparent and predictable approval process.

Effective development control must align with broader land use policy and development standards, typically outlined in Local Physical Development Plans (LPDPs). Integrating GIS-based LPDPs with the web-based OSS application would further streamline planning interactions, enabling better data-driven decision-making.

The time taken to process development applications is critical in the context of development control. County governments have been continuously blamed for unnecessary delays in issuing approvals occasioned by several reasons, including shortage of staff, lack of capacity, delays in circulation, and instances of corruption. As such, improving the efficiency of development applications is vital to enhancing the ease of construction and supporting sustainable urban growth.

To achieve this, counties must focus on adequate staffing and enhancing technical capacity for system management, with regular audits to ensure continuous improvement. Counties should also establish and support technical committees, incorporating professional associations, regulatory boards, and resident associations, ensuring the development control process benefits from diverse expertise and upholds high standards.

Empowering Citizens Through AAK Je, Una Mjengo? and Mulika Mjengo Campaigns

In 2024, the association conducted Je, Una Mjengo? Campaigns in Mihang'o, Utawala, Ruai, Kamulu and in Ngong'. Through these campaigns, we reached 1500+ people through roadshows and public awareness clinics and 2000+ through various virtual engagements on social and mainstream media platforms (X spaces, Radio and Television). We also engaged at least 13 officers in various National and county government offices.

Additionally, we engaged 25 civil societies, residents associations and Non-Governmental Organisations which among others include the Kenya Alliance of Residents Associations (KARA), the Kenya Green Building Society (KGBS), the Kenya Institute of Planners (KIP), the Institution of Surveyors of Kenya and Kenya National Human Rights Commission. These efforts have helped to educate citizens on the importance of engaging trained professionals throughout construction projects, the importance of being actively engaged in decision making processes and how to identify and report unsafe or unhealthy structures.

In addition, the Mulika Mjengo™ platform received 27 anonymous reports in 2024, between January and October. Of these reports, 77.78% were from Nairobi County followed closely by Kiambu County at 14.81%.

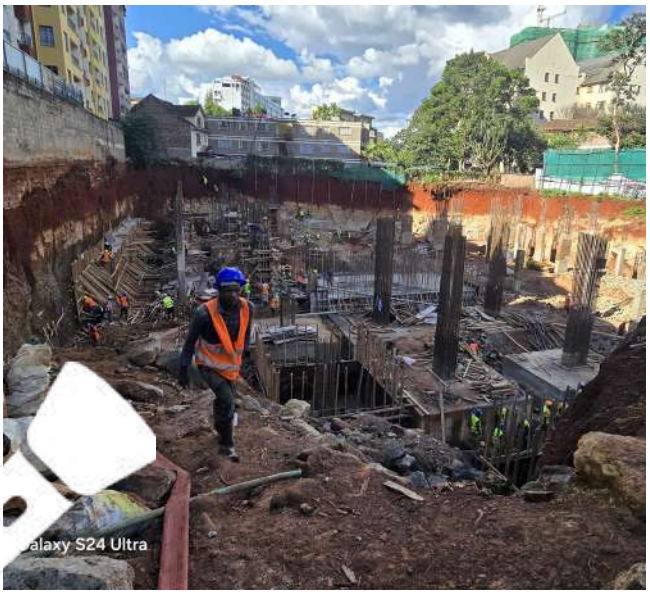
County	No. of reports of unsafe or unhealthy Buildings
Nairobi	21 (77.78%)
Machakos	1 (3.70%)
Kiambu	4 (14.81%)
Uasin Gishu	1 (3.70%)
Total number of counties (4)	**Total no. of reports (27)**

The Mulika Mjengo™ platform reached 1500+ people and received 27 anonymous reports in 2024, between January and October.

Reports from the Mulika Mjengo platform highlight key issues with unsafe or unhealthy buildings. Major violations include:

1. Non-compliance with the Building Code
2. Unauthorized construction, and zoning regulation breaches, such as exceeding permitted heights or lack of public participation.
3. Safety concerns featured prominently, including missing barricades, lack of PPEs, and inadequate safety measures at construction sites.
4. Environmental issues like improper drainage, raw sewage discharge, and pollution were also common.
5. Community concerns included invasion of privacy by high-rise buildings, uncontrolled construction hours, and security risks..

Despite increased engagement with enforcement agencies, accountability for these violations remains minimal, with consequences to non-compliant developers rare.



Affordable Housing Act and AHP Progress

Kenya faces a substantial housing deficit of over 2 million units, with an annual demand for 250,000 homes. Article 43(1)(b) of the Constitution of Kenya, 2010, recognizes housing as a fundamental economic and social right. The Affordable Housing Program (AHP) aims to uphold this right by focusing on low and middle-income earners struggling to access decent housing due to rising land prices, high construction costs, and limited financing options.

Since taking office in September 2022, the current administration has completed 1,189 affordable housing units. As of October 2024, 91,882 units were still under development. Additionally, the State Department of Housing and Urban Development (SDHUD) plans to construct 40,299 social housing units along the Nairobi River. This initiative aims to promote climate mitigation and adaptation in informal settlements while contributing to the Nairobi River regeneration efforts. The project will be undertaken in collaboration with the Nairobi Rivers Commission and key stakeholders from both government and the private sector. The active project pipeline as of November 2024 is outlined below:

Completed Projects since September 2022	1,189 units
Legacy Projects from 2018-2022 AHP Cycle	5,510 units
Units Launched from September 2022 - July 2024	59,693 units
AHP Planned Projects	556,964 units
Total Project Pipeline	**730,062 units**

Engagement of Consultants and the Affordable Housing Programme Forum

The progress of the AHP is credited to the contributions of technical experts and consultants who have supported the project's design, planning, and financing strategies. A total of 300 professionals have been engaged through 33 consortia to oversee design, project management, and the sale of housing units. AAK in partnership with the Institution of Engineers of Kenya (IEK) and the Institute of Quantity Surveyors of Kenya (IQSK) established the Affordable Housing Programme (AHP) Forum. This platform enables stakeholders to collaborate with the government, providing professional services in design and construction supervision for the AHP. The forum aims to enhance the quality of housing delivery, optimize time and cost efficiency, and align with global best practices. It also addresses Kenya's unique housing needs while stimulating the local economy by leveraging the knowledge and skills of Kenyan professionals. Similarly, the AHP can draw best practices from successful global models such as Singapore's Housing and Development Board (HDB), which is widely recognized as one of the best public housing initiatives globally. The HDB provides housing for over 80% of Singapore's population, and incorporates sustainable practices such as the installation of solar panels, rainwater harvesting systems, and passive design strategies into its housing developments. Likewise, South Africa's Reconstruction and Development Programme (RDP) introduced in 1994 under President Mandela's administration, has delivered over 3 million government-subsidized homes to low-income families, vulnerable groups, and historically disadvantaged communities.

SDHUD, in collaboration with the Kenya Association of Manufacturers, is developing a portal to assist developers in sourcing construction materials at fixed rates. This initiative aims to eliminate inefficiencies in the supply chain that often lead to inflated costs. The program also aims to support Micro, Small, and Medium Enterprises (MSMEs) and jua kali artisans, allocating KES 4.4 billion nationwide for the production of construction materials and landscaping services. Additionally, 213 artisans have been trained under the Recognition of Prior Learning (RPL) program to contribute to various projects, with plans for a nationwide rollout to train over 1,000.

To promote equality and inclusion, AHP has partnered with Build Her and Women in Real Estate (WIRE). These partnerships aim to create opportunities for women-led developers and professionals, develop supportive policies, and ensure facilities that encourage greater participation of women in the program.

Institutional Framework for Housing Delivery

The success of AHP relies on a strong institutional framework. Implemented in March 2024, the Affordable Housing Act establishes a legal basis for developing and accessing affordable and institutional housing. The Act has been pivotal in formalizing the AHP and ensuring consistent implementation, financing, and monitoring of housing projects. It also mandates the creation of County Rural and Urban Affordable Housing Committees, responsible for crafting strategies to achieve affordable housing at the county level.

Key institutions driving this initiative include the SDHUD, the National Housing Corporation (NHC), and the county governments, all working collaboratively to deliver on the program's objectives.

Increasing Housing Affordability and Sustainability

Enhancing the affordability of homes under the Affordable Housing Program (AHP) requires a multifaceted approach. Key strategies include lowering construction costs by utilizing locally-sourced low-carbon emitting materials such as bamboo, Compressed Earth Blocks, and Insulated Concrete Foam (ICF), streamlining supply chains and approval processes, and providing low-interest mortgage options. Additionally, the program's success depends on maintaining a balanced relationship between property prices and income levels to ensure accessibility for target populations.

Sessional Paper No. 3 of 2016 on the National Housing Policy aims to address the worsening housing conditions across the country and reduce the housing deficit, particularly for low-income households. The policy targets challenges such as high population growth, rapid urbanization, widespread poverty, rising housing costs, and lengthy approval processes, which have contributed to a demand for housing far exceeding supply. One of the major challenges to affordable housing in Kenya is the escalating cost of land. Over the past decade, urban land prices have surged due to population growth, rapid urbanization, and speculative investments. For example, the cost of prime land in Nairobi's Upper Hill area has risen by over KES 50 million between 2014 and 2024.

This greatly impacts the affordability of housing projects, making it challenging to meet targets. To mitigate this, the government needs to allocate more public land for housing developments and implement regulations to curb speculative practices that artificially drive up land prices.

The growing adoption of Artificial Intelligence (AI) is crucial in advancing the Affordable Housing Program (AHP). Speaking at an international construction research conference in Mombasa in September 2024, the Cabinet Secretary for the Ministry of Lands, Public Works, Housing, and Urban Development highlighted AI's potential in developing cost-efficient designs and streamlining processes. Its integration is expected to support the development of the 730,062 AHP units planned for launch during the current administration's term and contribute to the program's broader goal of creating over 1 million employment opportunities throughout its lifecycle.

Green Building Guidelines for AHP

The Ministry of Lands, Public Works, Housing, and Urban Development, in partnership with the International Finance Corporation (IFC) of the World Bank Group, hosted a stakeholders' workshop at the Radisson Blu Hotel on August 27th, 2024. The event brought together government officials, built environment stakeholders, and development partners to draft an action plan for integrating green building standards into the Affordable Housing Programme (AHP). It also focused on promoting public awareness and capacity building. The Cabinet Secretary, Hon. Alice Wahome, called on stakeholders to align their efforts with the Sustainable Development Goals and the New Urban Agenda.

Cost of Construction and Materials 2024

The construction industry in Kenya has experienced a marginal increase in material costs over the past year owing to various factors such as fiscal policies, political instability, and fluctuation of the dollar exchange rate among others. These factors have directly impacted the cost of key construction inputs such as fuel, cement, and steel.

Cost of Various Construction Inputs

The exchange rate of the U.S. dollar to the Kenyan shilling has experienced notable fluctuations. In December 2022, 1 USD was equivalent to Ksh 123.50. By December 2023, this had increased significantly to Ksh 153.25, before slightly decreasing to Ksh 129.00 by December 2024.

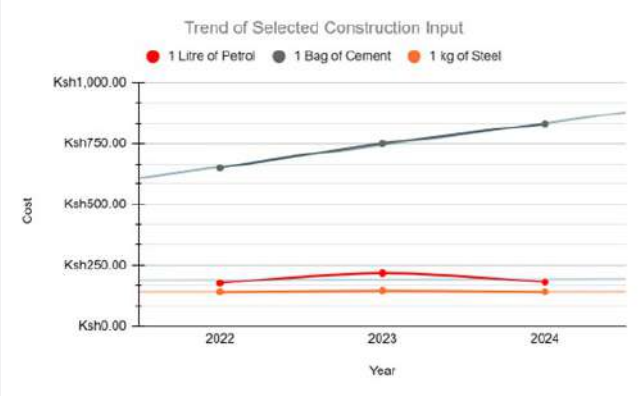
Similarly, the price of petrol has also seen a marked change. In December 2022, the cost of one litre of petrol in Nairobi was Ksh 177. This price rose to Ksh 217 per litre by December 2023, before dropping to Ksh 180.66 per litre by December 2024 according to the Energy & Petroleum Regulatory Authority (EPPRA) press release issuing the maximum retail petroleum prices in Kenya from 15th November to 14th December 2024. The fluctuation in petrol prices directly impacts transportation costs and operational costs of various construction plants and equipment which in turn affect overall construction expenses.

The cost of cement has also been on the rise. A bag of cement that cost Ksh 650 in December 2022 increased to Ksh 750 by December 2023. By December 2024, the price of a bag of cement had further risen to Ksh 830. These price increases reflect the broader inflationary trends within the country, influenced by both local and global economic conditions.

These shifts in input costs illustrate how a combination of factors, from exchange rates to fuel prices and inflation, has contributed to the gradual increase in construction material costs in Kenya over the past year. This can be illustrated on the line graph shown below

Construction Costs per Square Metre

A study conducted by Integrum Construction in computing the 2024 construction costs in Kenya determined that the average cost of construction for residential buildings was as follows:
The average cost of constructing a standard bungalow in Nairobi was Ksh 48,750 per square metre, a Middle class maisonette was Ksh 53,800 per square metre, Luxurious Maisonette Ksh 84,000 per square metre, Standard Low-Rise Apartment Block Ksh 60,435, and a Luxurious Apartment Block Ksh 77,910. The result of this study on Residential Houses in Nairobi can be illustrated as shown in the graph below.



Trend of selected construction input

Cost of construction of residential houses in Nairobi

The Implication of the Proposed Tax Amendment Bill 2024 on Cost of Construction Materials

After analyzing the full scope, the proposed Tax Laws Amendment Bill, 2024 will have the following impacts on the cost of construction materials, both imported and produced locally:

Effect on Specific Construction Material

a) Cement

Tax Changes

Coal Tax -Coal, a key energy input in the manufacture of cement, is now charged an excise duty of 5% or Ksh. 27,000 per metric ton.

VAT Zero- Rating Removal- The raw materials used in producing cement, like limestone and additives, might also lose their zero rating under VAT.

Implications

Price Increase: Prices of cement will rise as the cost of production will increase. Since coal is one of the major contributors to the energy cost of clinker production, the tax increase will not have any minor influence on it.

Delays in Construction: Increased cement prices would elongate the time developers take to rework budgets around projects.

b) Steel Reinforcing Bars, Pipes and Structural Steel

Tax Changes

Import Levies- The Railway Development Levies on steel imports are also higher at 2.5%, as well as the Import Declaration Fees of up to 2.5%.

Excise Duties-In other words, steel finishing products like coated sheets and certain pipes pay a higher tariff than raw steel.

Implications

Increased Costs for Projects: Infrastructure and multi-storey buildings with large volumes of steel used therein will cost more.

Preference for Local Steel: This will provide the required competitive edge to local manufacturers, though capacity constraints may prevent an immediate benefit.

c) Glass - for windows, glass facades, and mirrors

Tax Changes for Float Glass and Polished Glass include the following:

- Excise duty of 35% or Ksh 200 per kg.
- Import Levies Higher customs and railway levies.

Implications

Luxury Project Costs: Projects with a lot of glass, like high-end apartments and office buildings, will see tremendous cost increases.

Shift to Local Alternatives: Limited local production may encourage developers to change materials or redesign building façades.

d) Tiles and Finishes

Tax Changes for tiles and Finishes are as follows:

- Ceramic Tiles (6907 Tariff): Excise duty at 35% or Ksh 300 per Kg.
- Sanitary Fixtures (Tariff 6910): Duty of 35% is payable.

Implications

Luxury and Aesthetic Costs: Finishing for both residential and commercial projects will rise sharply to meet high-quality requirements.

Local alternatives: The promotion of tile production at the local level will indeed reduce dependence on imports. However, this may be at a cost in terms of reduced choice and quality.

e) Aggregates and Sand

Tax Changes - No direct mention of increased taxes, but increased levies on transportation, like fuel excise taxes, are bound to increase costs indirectly.

Implications

Price Increase: Aggregate and sand are heavy and, hence, sensitive to fuel costs. Any increase in transportation levies will have a ripple effect on increased material costs.

f) Materials for Affordable Housing

Tax Changes on materials for Affordable Housing are as follows:

- Housing-specific exemptions - No clear provisions on reducing the tax on materials identified for low-cost housing.

- Affordable Housing Levy Deduction - Both employees and employers can deduct contributions from their taxable income.

Implications

Cost Challenges: Affordable housing will still be subject to the same tax pressures as private projects, which can inflate unit costs unless subsidies are implemented.

Inconsistent Tax Benefits: Even though the Affordable Housing Levy is deductible, it does not directly offset the increased cost of materials.

Low-Income Housing Projects

The government's Affordable Housing Program (AHP) aims to construct low-cost units, but these tax changes could have mixed impacts:

a) Challenges

Material Costs: Increases in taxes on cement, steel, and finishes make it more difficult to achieve targets of unit cost in affordable housing.

Developers' Margins: Higher costs for the developers will reduce interest in PPP unless offset by tax rebates or subsidies.

Energy Costs: Excise duty on coal and other related levies on energy are increasing the cost of operation in cement and brick manufacturing.

b) Opportunities

Local Industry Growth: Incentivizing local production through import taxes could create jobs, with a reduction in the reliance on imports in the long term.

Levy Deduction: The deductible contributions to the Affordable Housing Levy could further incentivize employers and employees to comply, thus partly offsetting tax pressures.

c) General Implications for Developers and Contractors

Higher Unit Costs: Housing units will be more expensive in the process, which could put pressure on the affordability goals.

Price Pass: Through: Developers may pass increased costs onto buyers, which would increase the problem of housing affordability.

Industry Consolidation: Smaller developers might struggle to compete, hence giving room for larger firms to take over the market.

2024 Land and Property Market

According to the Hass Consult Report, land prices in Nairobi and its metropolitan area surged, with the average price per acre reaching KES 203.7 million, crossing the KES 200 million mark for the first time in Q4 2023. Upper Hill remained the most expensive location, averaging KES 506 million per acre, followed by Westlands at KES 479.6 million. Suburbs like Langata and Parklands also saw significant price increases due to their proximity to commercial hubs.

Satellite towns such as Ruaka, Mlolongo, and Limuru recorded annual growth rates of 18% to 18.5%, driven by improved infrastructure and industrial developments. Ruaka stood out with land prices exceeding KES 110 million per acre, rivaling some of Nairobi's prime suburbs. Towns like Ongata Rongai, Limuru, and Kiserian led quarterly gains with increases of 16%, 8.4%, and 9.4%, respectively, reflecting heightened demand for affordable land. The steady price rise, even amidst high interest rates and political uncertainties, underscores land's resilience as an asset class. Improved infrastructure, including roads like the Nairobi Expressway, continues to enhance connectivity and drive demand across the metropolitan region.

In 2024, Kenya's land and property markets experienced significant trends, influenced by broader economic factors such as high interest rates, inflation, and civil unrest from GenZ nationwide demonstrations. Despite these challenges, the overall property market showed resilience, with the Hass Composite Sales Index recording a 2.7% increase in Q1, although slightly lower than the previous quarter's 4.1% growth. Suburbs like Ridgeways and Loresho led the increases, with Ridgeways seeing a 2.9% rise, while satellite towns such as Juja, Ngong, and Limuru also performed well, with growth rates of 3.4%, 2.7%, and 2.2%, respectively. In contrast, areas like Muthaiga and Westlands saw slower growth or declines, reflecting a preference for lower-density neighborhoods over high-rise developments.

In the rental market, trends were more subdued, with an average increase of 0.4% in Q1, down from 2.5% in Q4 2023. Despite modest gains, Westlands outperformed with a 5.8% rental increase, making it the leader among Nairobi's suburbs. Muthaiga and Ridgeways experienced slight dips in rents, indicating economic challenges and high interest rates impacting tenant budgets. Apartments continued to dominate the property landscape, now representing 62.8% of the market, compared to semi-detached houses (29.4%) and detached houses (7.8%). Kitengela, for instance, saw a 7.0% increase in apartment rentals in Q1 2024, highlighting the demand for affordable housing in satellite towns.

Source: Hass Consult Land & Property Indices, 2024

Projects Running Under PPPs

Public-Private Partnerships (PPPs) have emerged as critical for spurring development in Kenya. These collaborations enable the government and private entities to pool resources, expertise, and risk-sharing to implement large-scale projects that improve public services, drive economic growth, and foster sustainable development. Across sectors such as infrastructure, healthcare, education, and environmental conservation, PPPs are transforming Kenya's development trajectory.

The New Urban Agenda recognizes that well-managed and planned urbanization is integral in driving sustainable development. In addition, Kenya's Vision 2030 development blueprint highlights infrastructure development as a pillar for economic growth. PPPs have been pivotal in delivering critical projects that would have otherwise faced funding and capacity challenges.

One notable example is the Nairobi Expressway, which has significantly mitigated Nairobi's persistent traffic congestion. Spanning 27 kilometers, this highway links Westlands to Mlolongo and was developed through a PPP with the China Road and Bridge Corporation. The project was financed, constructed, and operated by the private partner under a toll-based model, allowing the national government to allocate resources on other pressing priorities.

Another significant milestone is the Standard Gauge Railway (SGR), whose construction was completed in 2017. Though largely financed through external loans, the project integrates private sector participation in its operations and maintenance, boosting efficiency and generating employment opportunities. The railway has transformed freight and passenger transport by linking Mombasa to Nairobi, with future plans to extend the network to the borders of Uganda and Ethiopia.

Most of Kenya's recent renewable energy projects have been largely driven by PPPs. For instance, the Lake Turkana Wind Power Project is the largest wind farm in Africa contributing approximately 17% to the national installed capacity, developed by a consortium of four private investors and supported by the government, and supplies just over 310 MW to the national grid.

Kenya's recent renewable energy projects have largely been developed through PPPs. For instance, the Lake Turkana Wind Power Project, Africa's largest wind farm, contributes about 17% to Kenya's national installed capacity. Developed by a consortium of four private investors with government support, the project adds over 310 MW to the national grid, bolstering sustainability in the energy sector.

In water and sanitation, PPPs have improved access to clean water through projects such as the Nairobi Bulk Water Supply Project which aims to reduce the daily water shortage in Nairobi City by 140 million litres per day. Other notable PPPs include; (see table on next page)

Challenges and Opportunities

While PPPs have achieved notable successes in Kenya, they are not without challenges. Issues such as bureaucratic delays, political interference, inadequate maintenance practices, and disagreements over risk-sharing often hinder their effectiveness. Transparency and public accountability remain significant concerns, as seen in controversies like the recently terminated Adani Group's lease of Jomo Kenyatta International Airport and energy agreements involving Kenya Electricity Transmission Company Limited (KETRACO). These incidents have sparked public outcry, with citizens demanding greater transparency and stronger oversight in PPP arrangements.

Despite these challenges, PPPs hold tremendous potential in Kenya. Legal frameworks, such as the Public-Private Partnerships Act of 2021, were enacted to streamline processes and attract greater private sector investments. Additionally, the government is leveraging PPPs for key infrastructure projects, including affordable housing, to advance its Bottom-Up Economic Transformation Agenda (BETA).

Source: Citizen TV Kenya

PUBLIC PRIVATE PARTNERSHIP PROJECTS IN KENYA

THEME	PROJECT	CONTRACTING AUTHORITY	PARTNERSHIP	CONTRACT TERM/STATUS	ESTIMATED VALUE (KES)
RENEWABLE ENERGY	35MW Sosian Menengai Geothermal Power Plant project	Geothermal Development Company (GDC)	Sosian Geothermal Power Plants Ltd	25 years (operating)	KES 11.7 billion
	35MW Orpower 22 Geothermal Power Plant project	Geothermal Development Company (GDC)	Orpower 22	25 years (fulfilment of conditions precedent ongoing)	KES 11.7 billion
	35MW Quantum Menengai Geothermal Power Plant project	Geothermal Development Company (GDC)	Globeleq Geothermal (Kenya) Limited	25 years (construction ongoing)	KES 15.2 billion
TRANSPORT	Nairobi Expressway	Kenya National Highways Authority (KENHA)	Moja Expressway Company Limited	30 years (operating)	KES 86.8 million
	Nairobi-Mombasa Expressway (Usahihi Express)	Kenya National Highways Authority (KENHA)	Evergstrong Capital Limited	30 years (feasibility to be finalized by November 2024)	KES 468 billion
	Second Nyali Bridge	Kenya Urban Roads Authority (KURA)	Korea Overseas Infrastructure and Urban Development Corporation (KIND)	30 years (request made for PFF account information)	N/A
	Road Annuity Lot 3 (Wajir-Habaswein-Samatar [68kms] & Rhamu-Mandera [75kms])	Kenya National Highways Authority (KENHA)	Hass-Consortium-GVR Infra Limited	10 years (fulfilment of conditions precedent ongoing)	KES 18.9 billion
	Road Annuity Lot 18 (Construction and rehabilitation of 35.3kms of roads in Kakamega, Vihiga, Busia and Bungoma counties)	Kenya Urban Roads Authority (KURA)	MOTA-ENGIL KENYA	10 years (operating)	KES 6.4 billion
	Road Annuity Lot 15 (Construction and Rehabilitation of 44.7 kms to augment select urban roads in Nyeri, Kirinyaga, Murang'a, Embu, Tharaka Nithi and Laikipia.	Kenya Urban Roads Authority (KURA)	MOTA-ENGIL KENYA	10 years (operating)	KES 8.09 billion
	Road Annuity Lot 33 (Construction and Maintenance of 90.55 kms from Ngong to Isinya, and from Kajiado to Imaroro	Kenya Rural Roads Authority (KERRA)	INTEX RAF 1 LIMITED	10 years (operating)	KES 12.7 billion
URBAN DEVELOPMENT	Proposes modernization, expansion, operation and maintenance of 100,000 street lighting assets	Nairobi County	To be procured through an open tendering process	10 years (feasibility study review ongoing)	TBD

Source: Directorate of PPPs website

Green Financing

Green financing is increasingly recognized as a powerful tool to tackling environmental challenges while driving global economic growth. According to the World Economic Forum, green finance encompasses structured financial activities designed to achieve better environmental outcomes and promote sustainable development. It includes funding for renewable energy, green buildings, climate-smart agriculture, and other climate-related initiatives. Climate financing, a key component of this, supports efforts to mitigate and adapt to climate change by enabling large-scale investments aimed at reducing both embodied and operational carbon emissions. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate (UNFCCC).

During the concluded COP29 conference in Baku, Azerbaijan, discussions were centered on mobilizing resources for climate financing in developing countries to aid their decarbonization efforts. For example, Sweden pledged $730 million to the fund. However, African delegates represented by Kenya's special envoy for Climate Change and Chairperson of the African Group of Negotiators, Mr. Ali Mohamed, raised concerns about the reluctance of developed nations to contribute to this kitty. The two-week negotiations reached an agreement formally known as the the New Collective Quantified Goal on Climate Finance (NCQG), where, notably, there will be a tripling of finance to developing countries, from the previous goal of USD 100 billion annually, to USD 300 billion annually by 2035.

Following the 2015 Paris Agreement, Kenya updated its Nationally Determined Contributions (NDCs), pledging to reduce greenhouse gas emissions by 32% by 2030. The estimated cost of implementing these mitigation and adaptation measures was estimated to be $62 million. Achieving this target will require substantial green financing, drawing on international, regional, and local funding sources.

The Green Climate Fund (GCF) is the world's largest source of climate financing which plays a vital role in enabling developing nations to achieve low-emission, climate-resilient development as outlined in their Nationally Determined Contributions under the 2015 Paris Agreement. In Kenya, the GCF has supported initiatives such as distributing improved cookstoves to households, as over 80% of the population still relies on biomass for heating and cooking. This aligns with Kenya's national climate goal to reduce energy sector emissions by 6 million tons of CO2 by 2030.

The Global Environment Facility (GEF) serves as a financing mechanism for six international conventions, including the United Nations Framework Convention on Climate Change (UNFCCC). It supports projects in biodiversity, land restoration, food security, and sustainable urban development. In Kenya, the GEF has funded initiatives such as the Lake Naivasha Basin Ecosystem Management Project, which focuses on ecosystem protection, water resource management, climate change mitigation and adaptation, and restoring ecological balance. This project has enhanced food production, created jobs for over 500 youth and 1,000 families, and increased tree cover on previously degraded forest land.

$62 million.

The estimated cost of implementing these mitigation and adaptation measures to reduce greenhouse gas emissions by 32% by 2030

The Climate Investment Funds (CIF) drive investments in clean technology and climate resilience, with over $12 billion allocated to projects worldwide. In Kenya, CIF resources have supported initiatives such as the Menengai Geothermal Project, launched in 2009 in partnership with organizations including the African Development Bank. This project has significantly enhanced renewable energy production, with a potential output of 1,600 MW.

The Global Energy Efficiency & Renewable Energy Fund (GEEREF) aims to scale renewable energy projects in developing countries by leveraging private sector capital. It has committed $21 million to the Frontier II fund, which has supported over 32 projects in Africa's renewable energy sector, contributing to the development, construction, and operation of more than 1,100 MW of capacity.

The National Environment Trust Fund, a state corporation under the Ministry of Environment, Climate Change, and Forestry, was established by the Environmental Management and Coordination Act (EMCA) 1999 to mobilize resources for environmental management in Kenya. It has played a key role in restoring and sustainably managing the Cherangany forest ecosystems for climate resilience and livelihoods, supporting ecosystem management in the Lake Naivasha Basin, and implementing the Green Enterprise Financing Mechanism (GEFiM) to promote private sector investment in green businesses and biodiversity conservation.

The Kenya Green Finance Taxonomy (KGFT) provides guidance to the banking sector and other stakeholders for informed green investment decisions.

The Kenya Green Bond Programme, initiated by bankers is integral in promoting innovation within the financial sector. Additionally, organizations such as FSD Kenya facilitate green financing through instruments such as green bonds, mortgages, insurance, eco-tourism funding, and financing for green infrastructure and buildings.

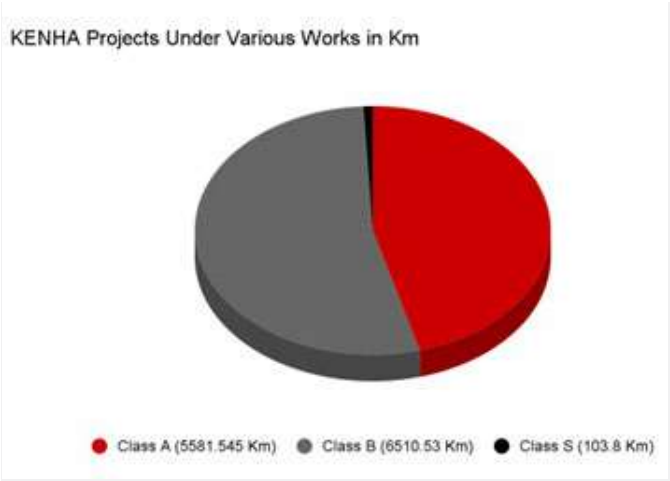
Local banks are also actively participating in green financing. For instance, KCB offered KES 21 billion in green loans in 2023, representing 16% of its total loan portfolio, while Equity Bank, through the Equity Group Foundation, funds renewable energy, energy efficiency, green infrastructure, and e-mobility initiatives. The bank also supports clean energy transitions in institutions, aiding in addressing the reliance of over 90% of learning institutions on firewood, which consumes over 10 million trees annually. Private entities such as Safaricom have expanded access to solar energy in rural areas through M-Kopa and integrated green financing into their supply chain sustainability efforts.

Kenya's green financing ecosystem highlights the strength of partnerships at global, regional, and local levels. By utilizing mechanisms such as the Green Climate Fund, Kenya Green Bond Programme, and private sector contributions, the country is advancing a sustainable path toward economic and environmental resilience. Through ongoing innovation and investment, Kenya is poised to solidify its position as a leader in green financing within Africa.

Kenya National Highways Authority (KENHA)

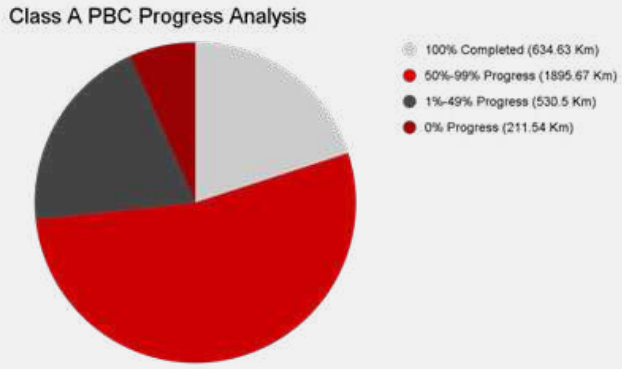
Between January and October 2024, the Kenya National Highways Authority (KENHA) executed significant road construction and maintenance projects, reflecting a substantial investment in the nation's infrastructure. A total of 19 road construction projects each for Class A and Class B roads were undertaken. Class A roads spanned 1266.72 km at an average cost of Ksh 298,228,179.23 per km, with over half of these projects achieving more than 50% completion by the end of the reporting period. Class B roads covered 1257.75 km, with an average cost of Ksh 111,565,822.25 per km, and 42% of these projects reached the halfway mark. Noteworthy completions include the Nairobi-Thika Road, the Voi-Mwatate Road, and the Turbi-Moyale Road, and the Dongo-Kundu bridge.

Dongo-Kundu By-pass.
Source: Financial Fortune Media



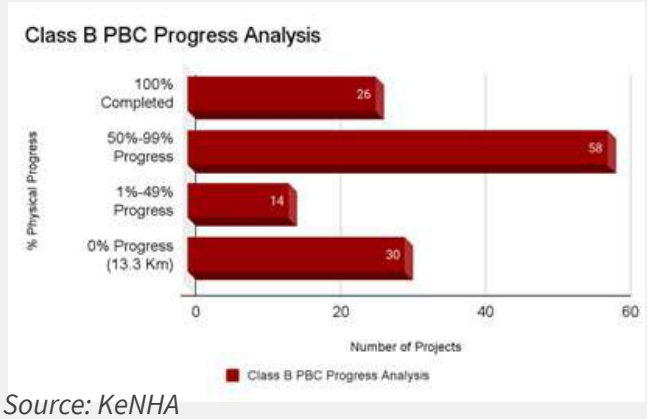
Source: KeNHA

Performance Based on Contracts



Source: KeNHA

Class A Performance-Based Contracts (PBC) involved 75 projects, covering 3,272.34 km. Completed projects totalled 634.63 km, while 2,637.71 km are still in progress.

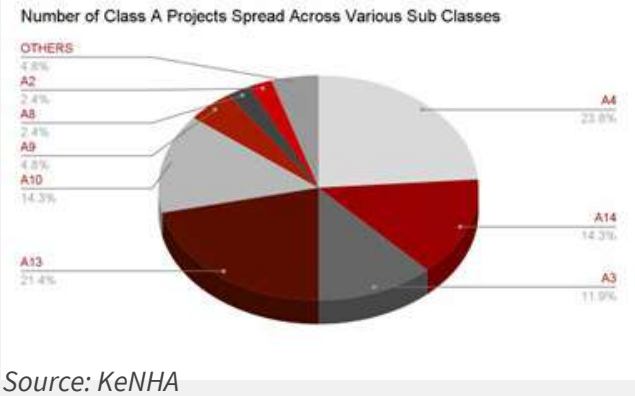


Source: KeNHA

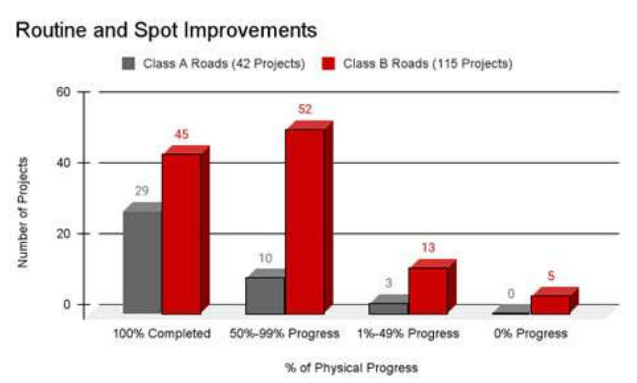
Class B Performance-Based Contracts (PBC) involved 128 projects, covering 3,340.87 km. 925.35 Km were completed within the reporting period while 2,415.52 km are in progress.

Class S Roads	Road Length (Km)	Output (Km)	Physical Progress (%)
Nairobi-Thika (Nairobi-Ruiru) (A2) Road	32	32	82%
Nairobi-Thika (Ruiru-Thika) (A2)	22	22	83%
Nairobi-Thika-Street Lighting (A2) Road	49.8	49.8	80%
Total	**103.8**	**103.8**	

Routine and Spot Improvements



Source: KeNHA



42 Class A projects were undertaken with a total output of 769.345 km. Of these, 29 projects (667.67 km) were fully completed, 10 projects (76.525 Km) progressed reaching >50% completion, and 3 projects (25.15 km) between 1%-49% completion.

For Class B roads, 115 projects amounting to 1879.32 km were executed, with 45 projects (1103.59 km) fully completed , 52 projects (682.24 km) reached >50% completion, 13 projects attained <50% completion (93.49 km), and 5 projects are yet to start.

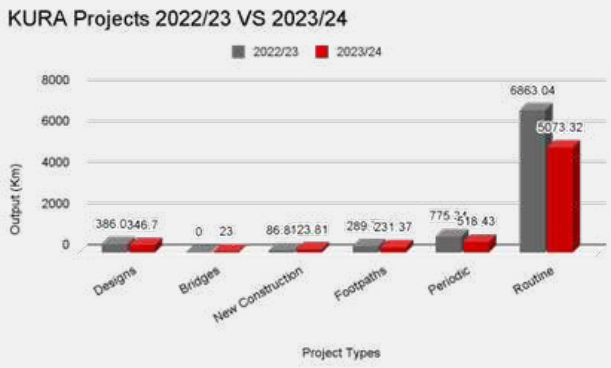
Periodic Maintenance (January-October 2024)

KENHA allocated KES 1,367,752,010.04 for routine upkeep across various regions, maintaining 5,960.53 kilometres of roads. Nyanza led with the highest expenditure at KES 313,938,346.77, followed by Nairobi at KES 282,650,810.79. Significant investments were also directed towards the Upper Eastern region (KES 228,391,653.17) and the North Eastern region (KES 135,163,310.24).

Kenya Urban Roads Authority (KURA)

KURA constructed 23 bridges, a 100% increase compared to zero in 2022/23. New road construction also rose by 42.6%, from 86.85 lane kilometres to 123.81 lane kilometres. However, design work (which includes feasibility studies, engineering designs, and project planning) slightly decreased by 10.2%, from 386.03 km to 346.7 km. Routine maintenance (such as pothole repairs, drainage clearing, and road markings) dropped sharply by 26.1%, from 6,863.04 lane kilometres in 2022/23 to 5,073.32 lane kilometres, while periodic maintenance (including resurfacing and rehabilitation of worn-out road sections) decreased by 33.1%, from 775.34 km to 518.43 km. Footpath construction also saw a 20.2% decline, from 289.78 km to 231.37 km.

These trends highlight a shift in KURA's priorities in 2023/24, with increased focus on bridge construction



and new road development to enhance connectivity and infrastructure robustness. However, the sharp declines in maintenance activities indicate the need to balance new development with the upkeep of existing infrastructure to ensure safety and sustainability.

In 2024, the Kenya Urban Roads Authority (KURA) completed several significant road projects that enhanced urban mobility and accessibility across the country. Major projects include:

1. Thika Bypass (Kiambu/Murang'a): Spanning 17 km, this project was completed, significantly easing congestion in Thika and surrounding areas.

2. Nyahururu Bypass (Laikipia): This 8 km road was finalized, providing a vital connection for residents and businesses in Laikipia County

3. Kangundo Road - Greater Eastern Bypass Link (Nairobi): A 10 km dual carriageway that enhances connectivity within Nairobi, completed to improve traffic flow

4. Githurai-Kimbo Road (Kiambu): Phase III of this project, covering 6 km, was completed, improving transportation in the densely populated Githurai area

5. Eastlands Roads Rehabilitation (Nairobi): Phase II, covering 10.2 km, was completed, revitalizing one of Nairobi's busiest areas.

Additionally, in Murang'a County, six road projects totaling 15.8 km were completed, including the upgrading of Huhi-Rescue Centre Road and the Mucunguca-Kiangage Road. These projects have improved access to social amenities and economic opportunities for local residents

Kenya Railways Corporation (KRC)

Between January and October 2024, Kenya Railways Corporation (KRC) undertook various projects aimed at modernizing Kenya's rail infrastructure, expanding commuter services, and addressing the social impact of railway developments.

The modernization of the Nairobi Commuter Rail Network, a flagship project during this period, involved the rehabilitation of tracks and the construction of 18 new mini railway stations, aimed at improving urban mobility and decongesting Nairobi. Another critical undertaking was the rehabilitation of the Metre Gauge Railway (MGR) line between Longonot and Malaba, which reached 30% completion. This project is expected to enhance connectivity to western Kenya once completed.

As part of its Corporate Social Responsibility (CSR), KRC undertook the construction of public institutions affected by railway projects. These include Mtito Andei Health Centre and Kigecha Police Post, as well as staff quarters for Voi Prisons and administration facilities for the Kenya Forestry Services in Kibwezi. Other projects included classrooms and an administration block for Ndohivyo Special School for Mentally Challenged in Voi and a Chief's Camp in Ongata Rongai.

Lastly, KRC initiated the preliminary design for the Nairobi Central Station, a cornerstone of the Nairobi Railway City Project, envisioned as a modern and iconic transport hub.

Rural Electrification Corporation Projects

In 2024, the Rural Electrification and Renewable Energy Corporation (REREC) made significant progress in fulfilling its mandate to connect 1,000,000 customers to electricity. By June 2024, REREC had connected 49,509 new customers through its Rural Electrification Programme, with an additional 17,850 targeted for the 2024/25 fiscal year. The Corporation focused on electrifying public facilities, renewable energy projects, and infrastructure development while addressing challenges such as funding gaps and logistical constraints.

Under the Electrification of Public Facilities program funded by the Government of Kenya (GoK), REREC has electrified 67,364 public facilities since its inception in 2012, achieving a 58.27% implementation rate. As of 2024, the Corporation has spent KES. 4,275,000,000 on this program, which aims to electrify 88,570 facilities by 2030. A parallel program funded by Arab Bank for Economic Development in Africa (BADEA) and OPEC Fund for International Development (OFID) targeted the electrification of 445 public facilities, with 179 facilities commissioned by June 2024. The donor-funded initiative achieved a 40.2% completion rate, with total spending of KES. 417,430,000.

The Galana Kulalu Food Security Project, initiated in January 2023, focuses on providing reliable electricity to support irrigation and agro-processing facilities by 2025. As of June 2024, the project was 22% complete, with KES. 15,258,000 spent. Meanwhile, REREC installed 3,100 transformers in constituencies to improve connectivity, spending KES. 3,170,000,000 in the process and achieved 68% progress.

REREC (Source: Renewable Energy News)

In the renewable energy sector, REREC maintained 2,224 of the 4,883 solar PV systems installed in primary schools under the Digital Literacy Programme. This represented 64.5% progress, with expenditures totaling KES. 100,000,000. The installation of solar mini-grids under the Kenya Electrification Modernization Project (KEMP) initiative saw one mini-grid commissioned in Wasini Mkwiro, Kwale County, at a cost of KES. 702,000,000, achieving 82% progress. Under the Kenya Off-Grid Solar Access Programme (KOSAP) program, which aims to install 31 mini-grids and solarize 316 boreholes, progress was 4% by mid-2024, with KES. 110,000,000 spent.

Efforts to expand renewable energy infrastructure included the development of the Bumula Energy Centre, where KES. 720,000 was spent on land acquisition and initial works. The upgrade of the Mtwapa Model Energy Centre, intended to create a National Renewable Energy Hub, progressed by 2%, with expenditures totaling KES. 998,000,000. Additionally, REREC invested KES. 264,300,000 in the modernization of 14 existing energy centers, focusing on tree nursery expansions and workshop refurbishments.

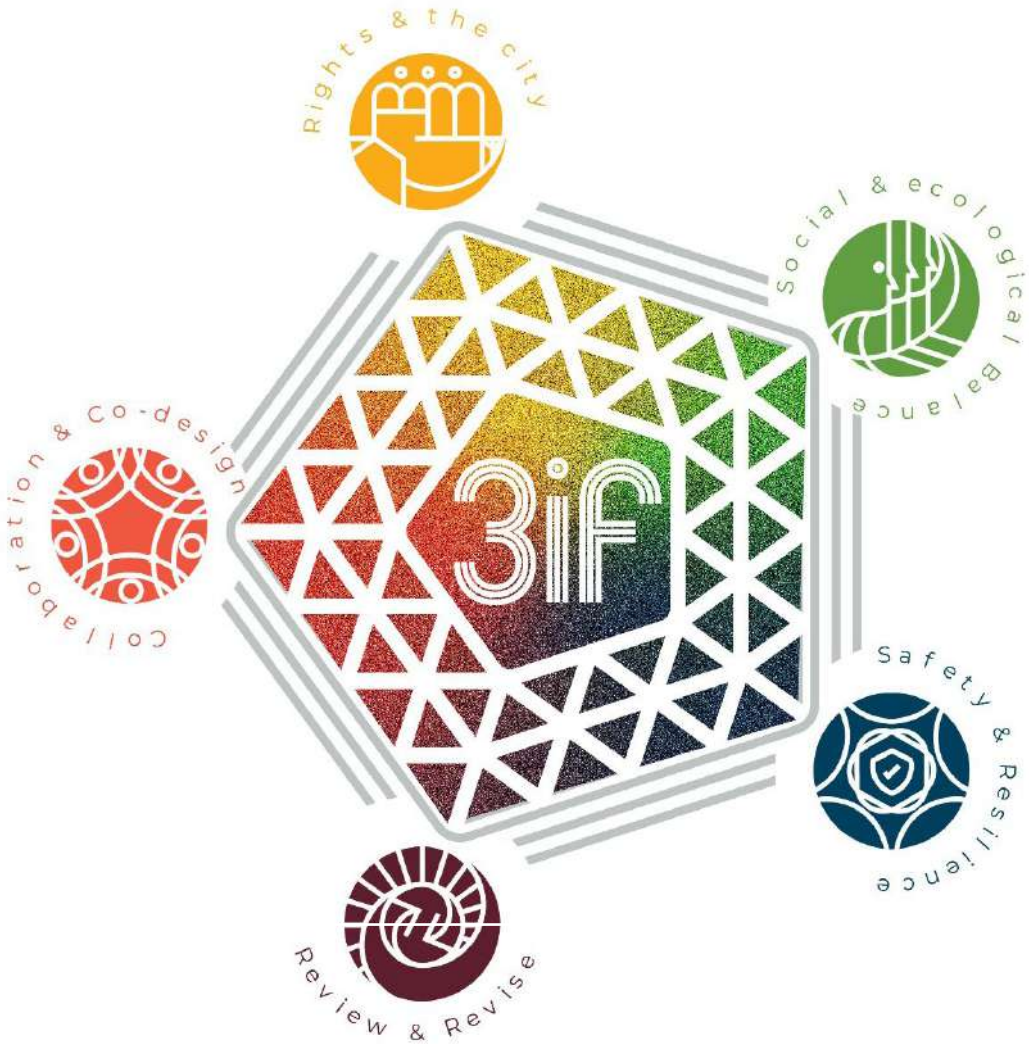
REREC also supported environmental conservation efforts, planting 500,000 tree seedlings under the National Tree Growing and Restoration Campaign at a cost of KES. 14,400,000.

Despite notable progress, the corporation faced challenges, including rising project costs, logistical difficulties in accessing sites, and delays in land acquisition. The Corporation emphasized the need for innovative funding mechanisms, especially, with the introduction of new infrastructure for e-mobility vehicle charging systems, multi-sectoral collaboration, and early planning to address these obstacles and enhance project delivery.

The Integrated and Inclusive Infrastructure Framework (3IF)

The Integrated and Inclusive Infrastructure Framework (3iF), recently launched at the World Urban Forum (WUF 12) in Cairo, addresses inefficiencies in urban development by integrating rights-based, collaborative, and sustainable approaches. Data from the 3iF survey reveals that 60.5% of respondents are aware of the framework, yet its principles—such as inclusive participation, ecological balance, and iterative design—are underutilized, with uptake varying between 37.2% and 58.1%. Projects like the Korogocho Slum Upgrading Program and the Kenya Informal Settlements Improvement Project (KISIP) in Kayole highlight the impact of applying 3iF principles where the Korogocho initiatives prioritized community collaboration to improve housing, sanitation, and public spaces, while KISIP focused on enhancing infrastructure such as roads and drainage, fostering safer and more equitable neighbourhoods.

Kenya's recent challenges, including unplanned developments and unsafe infrastructure, emphasize the urgency of adopting 3iF. By leveraging its principles, stakeholders can create infrastructure that enhances accessibility, efficiency, and resilience while addressing social and environmental needs. These examples, combined with international best practices, demonstrate the framework's potential to transform neighbourhoods sustainably. Expanding awareness, improving public participation, and fostering consistent stakeholder engagement are critical to embedding 3iF for impactful and equitable urban development.



Principles Overview

- Rights & the City
- Social & Ecological Balance
- Collaboration & Co-design
- Safety & Resilience.
- Review & Revise.

Transportation Innovations: How BasiGo is Driving the Future of Sustainable Public Transport

Public transport is one of the most effective, affordable, and scalable solutions for addressing climate mitigation and adaptation. Expanding access to reliable public transit reduces traffic congestion and the associated carbon emissions, positioning it as a key driver of equitable and sustainable development. With the transport sector responsible for one-fifth of global CO2 emissions, the demand for efficient, sustainable mobility systems is growing. Companies are leading the charge in transforming public transportation, including Kenyan-based e-mobility startup BasiGo, which is revolutionizing the sector by providing affordable, low-carbon alternatives to conventional diesel-powered buses.

BasiGo has committed to addressing this environmental challenge by offering low-carbon public transport solutions while harnessing Africa's abundant renewable energy resources. Kenya and Rwanda, with their increasing adoption of green innovations and supportive policies, have become ideal environments for advancing BasiGo's transformative mission.

Electric buses typically have high upfront costs, creating a major obstacle for many public transport operators. To address this, BasiGo launched a Pay-As-You-Drive leasing model, allowing operators to adopt electric buses without the heavy financial burden of a large initial investment. This innovative solution increases accessibility to clean transportation technologies, making the shift to e-mobility more economically viable.

BasiGo's strategic expansion has been fueled by significant funding and recognition. After launching operations in Kenya, the company expanded into the Rwandan market in December 2023. In August 2024, it secured a $10 million loan from the United States International Development Finance Corporation (DFC), accelerating its efforts to replace diesel-powered buses. This came after having received a $225,000 recoverable grant from the Rwanda Green Fund earlier in the year. These financial achievements highlight the company's dedication to revolutionizing mobility in East Africa. BasiGo's achievements have garnered international recognition. In September 2024, the company was recognized as the Best Green Startup at the Global Startup Awards in Istanbul, Turkey. This prestigious accolade underscores BasiGo's leadership in driving innovation in sustainable transport.

Impact in Numbers

BasiGo's impact is evident. With 49 buses currently in operation, the company has avoided 1,293 tons of CO_2 emissions and saved 572,393 liters of diesel. These milestones highlight the environmental advantages of electric mobility while establishing a model for other regions to emulate.

This success can be attributed to Africa's immense renewable energy potential. For instance, Kenya generates over 90% of its electricity from renewable sources such as geothermal, wind, solar and hydro. By harnessing this clean energy, BasiGo's electric buses offer a viable solution for reducing greenhouse gas emissions and promoting climate change mitigation.

BasiGo exemplifies the potential of innovation to drive transformative change. Its efforts not only reduce environmental impact but also offer a scalable blueprint for other African startups addressing climate change challenges and sustainable development. By integrating affordability, sustainability, and forward-thinking solutions, BasiGo is revolutionizing transportation while paving the way for a cleaner, greener future across Africa.

Futuristic Bus Shelters Design Competition

In 2024, the Architectural Association of Kenya (AAK), in collaboration with the Kenya Urban Roads Authority (KURA) and The GoDown Arts Centre, launched a design competition to reimagine bus shelters in Kenya. This initiative aimed to address critical urban needs while enhancing commuter experiences through innovation and sustainability.

The competition embraced the Integrated Inclusive Infrastructure Framework (3IF) to guide participants in creating accessible, sustainable, and user-centered designs. Additionally, the HerStreetsHerCity Toolkit informed the process, ensuring gender-responsive and community-driven solutions, connecting inclusivity, environmental stewardship, and urban beautification.

The competition encouraged designs that addressed Kenya's unique climatic conditions, incorporated weather resilience, vandal-proofing, universal access, placemaking, solid waste management, and greenery. These futuristic shelters are envisioned to redefine public transport spaces, creating functional, inclusive, and aesthetically engaging environments.

The winning design, showcased below, highlight the potential for architecture and urban planning to transform urban mobility while setting new benchmarks for Kenya's infrastructure development.

The designs were evaluated based on five key criteria:

1. **Urban Space Adaptability:** Proposals had to demonstrate flexibility, scalability, and aesthetic integration into diverse urban environments.
2. **Place-Making:** Designs were judged on their ability to create vibrant, welcoming public spaces that reflected local culture and provided additional amenities.
3. **Integration with Street Infrastructure:** Seamless connectivity with other infrastructure, multifunctionality, and ease of maintenance were critical.
4. **Inclusivity:** Accessibility, universal design principles, and safety for all users, including children and persons with disabilities, were prioritized.
5. **Collaborative Design:** Teams were required to showcase interdisciplinary approaches, blending creativity, sustainability, and technical innovation.

Game Shakers- 1st Place Prize Winner

AAK | PROMOTING EXCELLENCE IN THE BUILT ENVIRONMENT

AAK INITIATIVES

Safari Green Building Index

A National Green Building Rating System suitable for all kinds of buildings in different climatic zones in Kenya and the rest of East Africa.

Grow A Classroom Project

An initiative aimed at improving the learning environment in public schools throughout the country by planting trees for construction of classrooms and creating fruit orchards.

The Integrated and Inclusive Infrastructure Framework (3iF)

A comprehensive blueprint that provides guidelines, policies and strategies to guide the development of integrated and inclusive infrastructure in excluded informal settlements in Kenya.

MULIKA MJENGO

Report unsafe construction sites

Healthy Homes: Guidelines and Checklist

An initiative aimed at promoting healthy housing conditions for low and middle-income households in Kenya and beyond.

JE, UNA MJENGO JUM

A public awareness campaign aimed at sensitizing the public on safe building practices and the importance of using professionals in construction.

Scan here to access the Initiatives

The National Building Code 2024

The year 2024 marks a significant chapter for Kenya's Built Environment with the launch of the National Building Code 2024—the first comprehensive update adopted in 56 years. This long-awaited development replaces the 1968 Building Code, which had its roots in by-laws established under the Local Government Act (1968). These by-laws were rendered obsolete when the Local Government Act was repealed in 2012 by the County Governments Act, leaving the construction sector without a unified and modern regulatory framework.

The absence of a coherent and up-to-date Building Code contributed significantly to substandard construction practices nationwide, posing safety, efficiency, and sustainability risks. Furthermore, the outdated Code failed to address critical national and global priorities, including climate change adaptation, resilience, and the adoption of innovative construction materials and technologies. Owing to the launch of the building code, a Commonwealth Association of Architects (CAA) Knowledge Sharing Partnership survey conducted in June 2024 placed Kenya ahead of several Commonwealth nations lacking a Building Code.

While AAK acknowledges this important milestone in the industry, it also identifies key gaps that need to be addressed before the conclusion of the incubation period in February 2025. Notably, the Code overlooks the vital contributions of emerging professions within the built environment, such as construction project management, landscape architecture, and interior design. These disciplines are integral to the construction process, offering specialized expertise that enhances project efficiency, sustainability, and innovation. Their exclusion from the Code diminishes their contributions and risks stifling progress in an industry that thrives on interdisciplinary collaboration and inclusivity.

The launch of the National Building Code 2024 marks the first comprehensive update adopted in 56 years

56

While the Code acknowledges sustainable building design strategies in Clause 161, it leaves conforming to these strategies to the discretion of the building owner. The Code should explicitly recognize the significant impact of buildings on the climate and incorporate local green building standards to guide sustainability efforts. In addition, the noticeable lack of specificity regarding measurable outcomes and impacts where energy requirements are concerned will challenge implementation. Clear and detailed guidelines on energy efficiency and renewable energy use are essential to ensure that buildings are compliant and enforcement is possible. As a signatory to the Declaration de Chaillot and a committed member of the Coalition for High Ambition Multilevel Partnerships (CHAMP) for Climate Action, Kenya's National Building Code must embody high standards and progressive measures to align with these global commitments.

Most buildings in the country have not been properly approved, and the recent recurrent incidences of building collapse and the high number of buildings marked dangerous and unsafe by the National Building Inspectorate (NBI) [12,624 from 2018 to 2024] suggest that many unsafe buildings exist. Addressing this problem requires clarity in stating a period within which these buildings must comply with the Code and outlining the mechanisms for supporting compliance activities and enforcing such measures. This must be designed to encourage compliance and minimize corruption-related actions.

According to the CAA survey, many building control authorities are under-resourced and lack sufficiently skilled resources, with only 13% of the countries being adequately resourced and 13% of them suitably experienced. Therefore, the launch of the code is only one part of the whole ecosystem- the main task lies with adequate technical and financial resourcing and implementation.

The rapidly evolving landscape of construction technology and sustainability practices demands continuous updates to the National Building Code. To this end, AAK proposes that the National Construction Authority should be mandated to form a Code Council (similar to the International Code Council) whose task is to issue updated editions of the Code on a fixed regularity to ensure that it keeps pace with the industry. Additionally, the CAA survey revealed that most of the Commonwealth countries highlighted the lack of enforcement of national building codes and construction health and safety as major issues of concern, where 70% cited that enforcement was ineffective, 10% cited that it was moderately effective, while only 20% confirmed that enforcement was effective.

The need for more alignment between the government tiers and a unified approval process was also emphasized as a prerequisite to policy coordination and implementation. Therefore, international best practices should be benchmarked to restructure the Code and ensure it is user-friendly and comprehensive, enhancing compliance and enforcement. The AAK is keen to be part of such a Council to ensure the Code remains relevant and aligns with current and future circumstances.

The rapidly evolving landscape of construction technology and sustainability practices demands continuous updates to the National Building Code.

Coalition of Built Environment: Progress, Focus Areas, and Legislative Proposals

The Coalition of the Built Environment (CBE) has made significant strides in promoting collaboration among professional bodies to enhance regulation and development within Kenya's built environment. With active participation from institutions such as the Architectural Association of Kenya (AAK), Institute of Quantity Surveyors of Kenya (IQSK), Institution of Engineers of Kenya (IEK), the Kenya Green Building Society (KGBS), Association of Consulting Engineers of Kenya (ACEK), the Association of Construction Managers of Kenya (ACMK), and the Institution of Surveyors of Kenya (ISK), the coalition emphasizes inclusivity, sustainability, and professional excellence.

Key achievements include advancing discussions on self-regulation, addressing fragmented approaches to training and licensing, and fostering unity among built environment professions. The coalition also prioritizes recognizing emerging and unregulated professions like landscape architecture, construction project management, and interior design while championing cross-border opportunities and annual conferences to build professional networks.

Currently, the coalition is focused on engaging more civil societies/professional bodies and regulators within the built environment, to broaden its impact. Central to its mission is the advocacy for comprehensive legislation through the Built Environment Professions Bill, an initiative aimed at unifying and modernizing the regulation of built environment practices.

The proposed legislation seeks to:

- Establish a unified framework to regulate all built environment professions, enhancing accountability and professionalism.

- Incorporate underrepresented professions into the regulatory fold.

- Streamline academic accreditation, public representation on boards, and the enforcement of - disciplinary actions.

- Address challenges like illegal practices and the licensing of para-professionals.

This umbrella bill is designed to safeguard public interest, ensure sustainable development, and create a cohesive regulatory structure aligned with the Constitution. Through its policy paper, the CBE underscores the urgency of coordinated legislation to enhance trust, safety, and quality in Kenya's built environment while fostering professional growth and investment confidence.

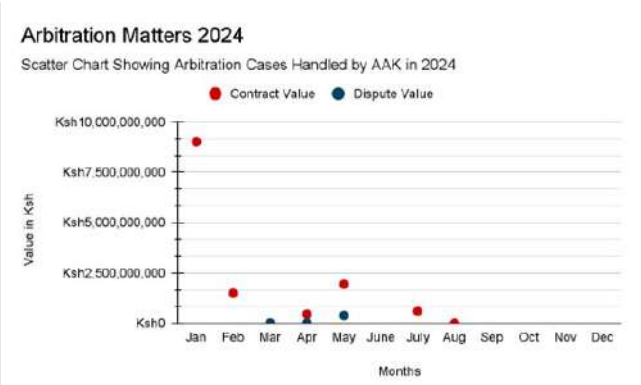
Professor Omenya presenting the findings of the CBE Policy paper during the revival of the coalition

The revival of the CBE in October, 2024

Alternative Dispute Resolution in the Construction Industry

There are several Alternative Dispute Resolution (ADR) methods which can be adopted in the construction industry, the major ones are as follows:
Mediation: A non-binding voluntary process, and appropriate disputes where confidentiality is needed.
Adjudication: Favours technical disputes, usually wanted by clients in expedient methods where ongoing projects have been under continuous execution.
Arbitration: An effective method, which is binding and formal, especially in high-value disputes.

ADR is adopted in the construction Industry in order to enable efficiency, cost-effectiveness, and preservation of professional relationships.



The AAK panel of arbitrators has been increasing over the years, with three new members joining in 2024. As of November 2024, the panel comprises 35 arbitrators.

Overview of Arbitration Matters 2024

Arbitration has played a critical role in the resolution of disputes within the construction industry in Kenya, reflecting growth and the accompanying complexities. The following is a summary of disputes handled by the Architectural Association of Kenya in 2024:

-Range of Dates: 16th January 2024 to 25th August 2024
- Contract Values: Ranged from Ksh. 3,300,000.00 to Ksh. 1,484,787,582.00.
- Dispute Values: Noted where available, highest dispute recorded is Ksh. 387,114,700.00.
- Total sum of contract value 5.62Billion
- T**otal sum of reported dispute value** 435.53M

The key cases that have arisen involve disputes on contract value and different levels of financial dispute, thus showing that arbitration in the sector involves finance. The chart below shows insights from Arbitration cases Handled by AAK in 2024

Insights from Arbitration Data

Frequency: Disputes were equally distributed across the months,which indicates a consistent challenge in project execution and management.
Value Relationships: Larger contract values did not always result in dispute values, suggesting complexity rather than size drives contention.
Gaps: Several Entries lack recorded dispute values, highlighting the need for comprehensive documentation.

Challenges in ADR Adoption in Kenyan Construction Industry

Time and Cost: Alternative Dispute Resolution is Meant to be an advantage, there are some Arbitration cases which take too much time and money where parties eventually decide to set the case aside and resolve it amicably
Awareness: Most of the construction stakeholders have very limited understanding of the ADR processes.
Capacity: Inadequate training necessary for professionals in the built environment to effectively fulfill the roles of mediators or adjudicators.
Documentation: Poor record keeping defeats the purpose of transparency and learning from precedents.

2024 Built and Natural Environment Incidents

1. A tragic fire at Hillside Endarasha Academy in Nyeri:

Claimed 21 students' lives in September 2024, prompting a nationwide safety inspection. A recent report by Usawa Agenda showed nearly half of boarding schools lacked fire safety compliance with only 40.5% of the schools adhering to the recommended 1.2 Metres bed spacing.
Following a presidential directive on fire safety inspection, the education CS Mr. Julius Migos Ogamba confirmed that 348 boarding schools were non-compliant and recommended that they be converted into day schools. Earlier in September, the AAK also developed an advisory on fire safety preparedness in schools in Kenya, in which we advocated for the adherence to the guidelines outlined in the 2008 Safety Standards Manual for Schools. Furthermore, we have also submitted a request to be included in the multi-sectoral commitee for fire inspection in schools.

2. Building Collapses:

Kahawa West Building Collapse (Oct 2024): an eight-story building in Kahawa West, Nairobi, collapsed, trapping several people under the rubble. The cause was attributed to poor construction and lack of approval from city authorities.

Uthiru Building Collapse (May 2024): a five-story building in Uthiru, Nairobi, collapsed while residents were retrieving their belongings. The cause was linked to structural weaknesses.

Three-Story Building Collapse in Nairobi (May 2024): a three-story building undergoing demolition. The cause was attributed to the building's instability during the demolition process.

3. The Unplanned Development Protests:

AAK joined Rresidents of Nairobi neighbourhoods and civil society groups in staginged demonstrations opposing relaxed restrictions on building heights, following roadside declarations by the Nairobi City County Governor and the president. They highlighted risks of congestion, infrastructure strain, and compromised safety due to unregulated vertical development, exacerbating the current situation whereby Nairobi floods frequently following a flash flood.

4. Flooded Roads:

Heavy rains in April caused severe flooding on key roads, including sections of the Thika Superhighway and the Nairobi Expressway, disrupting traffic and exposing design flaws. Other affected roads whose sections were impassable or were washed away include the Mai Mahiu-Naivasha Road, Mai Mahiu-Narok Highway, Mombasa-Malindi Highway, Hola-Tana River Road, Kisumu-Nairobi Highway.

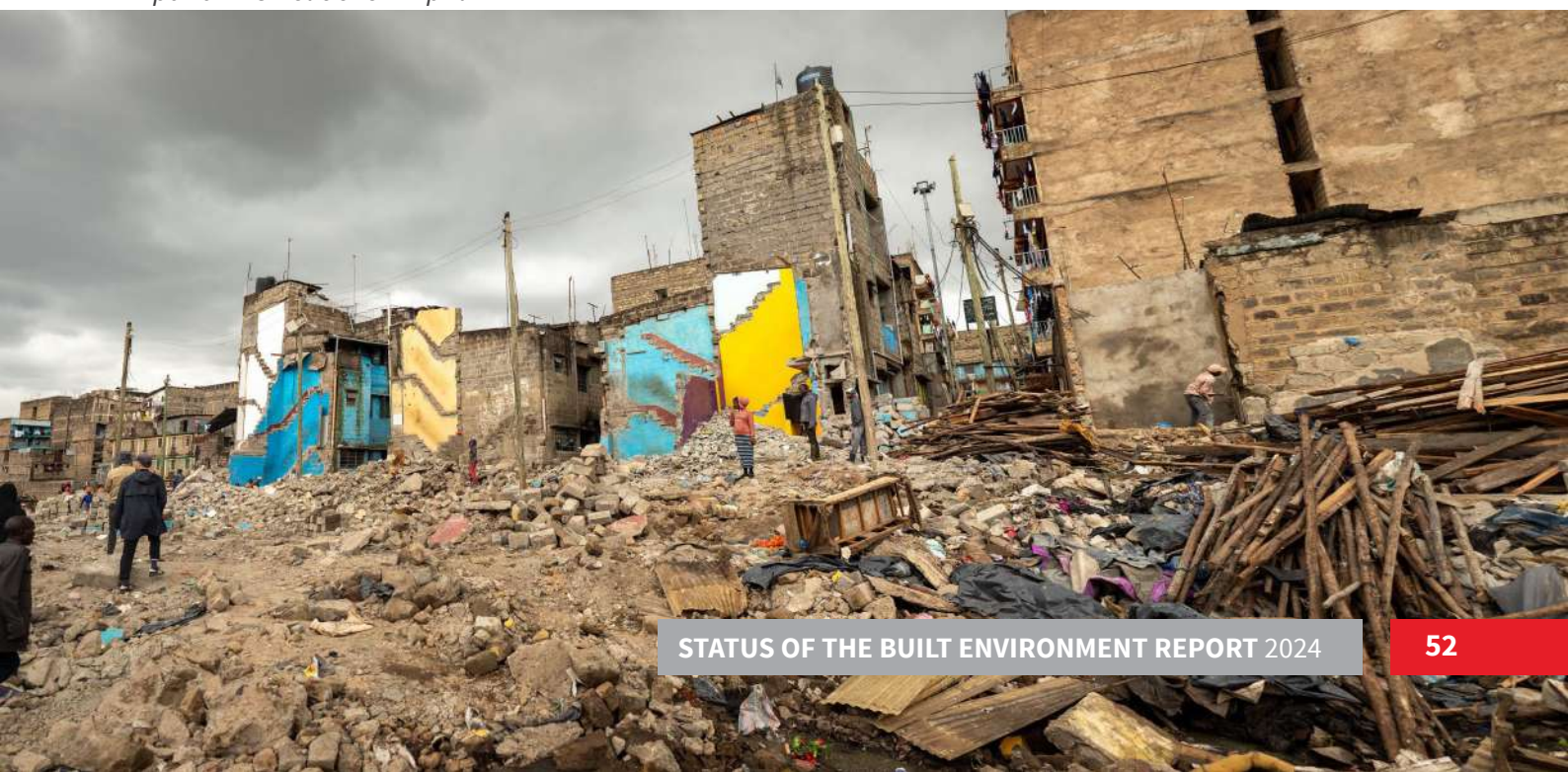
5. Riparian Demolitions (April 2024):

Over 4,000 buildings in Nairobi were flagged for demolition due to encroachment on riparian land. Many houses in informal settlements were demolished, but upscale estates along riverbanks (within 30M on each side) remained untouched. To ensure fairness before mass demolitions, experts propose proper public participation, clear communication, and fair compensation.

6. TVET at 100:

Despite marking 100 years since the establishment of Technical and Vocational Education and Training (TVET), no regulatory framework has been introduced to standardize licensure for technician professionals. Industry experts stressed the need for certification standards to enhance skill quality and sector competitiveness

Riparian Demolitions in April



08 LEVERAGING BIG DATA AND ARTIFICIAL INTELLIGENCE TO TRANSFORM THE CONSTRUCTION SECTOR

By Ruchika Gajjar
Keynote Contributor

The construction industry is faced with many challenges that have hindered its growth and led to extremely low productivity levels. As a matter of fact, the construction industry is one of the least digitized industries in the world and most stakeholders acknowledge the age-long culture of resistance to change . The lack of digitization and overly manual nature of the industry makes the management of projects more complex and unnecessarily tedious.

The construction sector in Kenya is one of the most vital drivers of the country's economic growth, contributing significantly to GDP and employment. However, challenges such as inefficiencies, cost overruns, project delays, skilled labor shortages, and safety concerns continue to hamper the industry's potential. By integrating Big Data and Artificial Intelligence (AI), Kenya's construction sector has the opportunity to address these challenges and revolutionize its operations. These technologies can improve decision-making, increase efficiency, and enhance the overall quality of the project.

Here are several key ways Big Data and AI can transform construction industry:

- We can Improve **Project Planning and Design Data-Driven Decision Making** by collecting and analyzing large datasets from past projects, weather conditions, material costs, and labor performance, it will allow Kenyan construction firms to make better, evidence-based decisions. This can improve project planning, minimize costs, and shorten timelines. For example, analyzing data from past construction projects across different regions can help forecast which areas may face delays due to weather, labor shortages, or transportation issues etc.

- AI-integrated **Building Information Modeling (BIM)** can be used to create detailed 3D models that simulate how a building will function. AI can identify potential issues early in the design phase, helping mitigate future risks and improve the accuracy of construction

- Design Optimization through AI technologies, such as generative design, can help architects and engineers to optimize building designs for cost-efficiency, sustainability, and local conditions. Generative design tools powered by AI can explore a variety of design alternatives based on inputs like material availability, climate conditions, and budget constraints.

- AI algorithms can use historical project data to predict potential project delays, cost overruns, or safety incidents for **Predictive Analytics for Project Management.** For example, if past projects were delayed due to supply chain disruptions or poor weather conditions, AI can help project managers anticipate similar issues and adjust schedules and budgets accordingly.
.

-We can get **Real-Time Monitoring** by equipping construction sites with Internet of Things (IoT)

sensors and cameras, AI can process real-time data on equipment performance, worker productivity, material consumption, and environmental conditions. This ensures efficient use of resources and helps project managers make immediate adjustments when necessary.

- AI can help construction firms in Kenya deploy the right number of workers with the necessary skills at the right time. By analyzing historical data, AI can suggest optimal staffing levels, improving labor efficiency and reducing idle time which will help us in **Optimizing Workforce Deployment**.

- We can enhance the **safety at the construction sites by AI-Powered Safety Monitoring.** Safety remains a significant concern in the Kenyan construction sector, with numerous reports of accidents on construction sites. For instance, AI systems can automatically detect if workers are wearing personal protective equipment (PPE) such as helmets and safety vests. This can reduce accidents and improve overall site safety.

- By analyzing historical accident data, AI can create **predictive safety models** for construction sites. For instance, AI can predict when a particular site is more likely to experience an accident based on worker experience, weather conditions, and site conditions.

- Big Data analytics can help construction firms in Kenya predict the quantity and type of materials needed based on project timelines, historical usage, and supply chain data. This reduces the risk of

material shortages, minimizes waste, and improves procurement planning. **Supply Chain and Logistics Optimization** can Predict the Material Demand.

- Blockchain and Big Data can work together to enhance the **supply chain transparency,** allowing Kenyan firms to track the origin, journey, and quality of construction materials from suppliers to project sites. This helps ensure that the materials meet quality standards and reduces the chances of fraud or substandard materials being used in construction projects.

AI can create predictive safety models for construction sites.

- Big Data and AI can help construction firms **Optimize Costs and Reduce Wastage**, allocate resources (such as labor, materials, and equipment) more effectively. By analyzing real-time data, AI can suggest adjustments to schedules or workforces, ensuring that resources are used efficiently and costs are minimized.

- By using AI to track material usage, **waste can be minimized** through more accurate predictions of the required amounts.

- In line with Kenya's growing urbanization, **waste management** on construction sites can be improved using Big Data. AI can track waste production, recommend methods to recycle or reuse materials.

- With Kenya's growing focus on **sustainability** and green building practices, AI can help optimize designs that **reduce environmental impact.** AI can assist in selecting energy-efficient materials, optimizing insulation, and designing buildings with reduced carbon footprints.
- In addition, AI can **predict the energy consumption of buildings** based on design and operational data, helping architects and developers make informed choices about sustainability.

- Once buildings are completed, Big Data and AI can help manage **Energy Efficiency Monitoring.** By using smart meters and sensors, AI can monitor energy usage in real-time, identify inefficiencies, and recommend adjustments, ensuring that buildings remain energy-efficient in the long run.

- AI-powered technologies can extend beyond construction into **post-construction phases, operations and maintenance** allowing for the management of buildings through intelligent systems. For instance, AI can help manage lighting, heating, and cooling systems in smart buildings, ensuring optimal energy efficiency.

Conclusion

Kenya's construction industry stands on the cusp of a technological transformation, with Big Data and Artificial Intelligence offering significant opportunities to overcome persistent challenges. From enhanced planning and design optimization to improving safety, resource management, and reducing costs, these technologies can revolutionize construction practices in Kenya. As the industry continues to embrace digital tools and innovation, Kenya can build more sustainable, efficient, and cost-effective infrastructure that will drive economic growth and improve the quality of life for its citizens.

Writer's Bio

Ruchika is an Architect, holds a masters degree on BIM Management and is the Director of Hi-CAD Africa Ltd located in Nairobi, Kenya.

The Role of Artificial Intelligence (AI) in Promoting Sustainable Urbanization

The climate agenda gained significant momentum in 2024, with major events such as the Climate Week NYC, the UN Biodiversity Conference in late October, and the just concluded highly anticipated COP29 which was focused on securing financing for decarbonization efforts in developing countries. Countries are making new commitments with developed nations such as Sweden pledging $730 million to Climate Finance4. Similarly, forums such as the World Urban Forum (WUF) highlighted the need for local actions and initiatives aimed at curbing global challenges such as climate change, and the biennial Commonwealth Heads of Government Meeting (CHOGM) 2024 which sought to harness the strengths of Commonwealth nations in building resilience.

To advance these efforts, cities are looking towards smart building systems that combine the Internet of Things (IoT) and Artificial Intelligence (AI) to promote sustainable practices. As innovations in AI continue to advance, they are increasingly recognized for their potential to address environmental challenges and support sustainable practices in the built and natural environment. With AI-driven analytics and sensors offered by technologies such as Building Information Modelling (BIM), factors such as water and energy consumption, and the use of materials can be monitored through Life Cycle Assessments (LCA), and waste generation significantly reduced, thus enhancing circularity in construction and contributing to a more sustainable future.

The National Government acknowledges the role of AI in addressing Kenya's current housing deficit. During an international construction research conference and exhibition held in Mombasa in September 2024, Hon. Alice Wahome, the Cabinet Secretary for Lands, Public Works, Housing, and Urban Development, highlighted AI's transformative potential in achieving this goal. She emphasized its significance in the government's ambitious plan to deliver 200,000 housing units by February 2025.

200,000 housing units by February 2025

The National Government acknowledges the role of AI in addressing Kenya's current housing deficit.

Consequently, there has been an increased uptake of AI in construction in the country, particularly in the developmental stages. Architects are leveraging AI-driven 3D printing technologies to design for resource and material efficiency, hence reducing costs and saving time in construction processes. Additionally, smart technologies are being incorporated into buildings, such as automated lighting, heating, ventilation, and air conditioning (HVAC) systems.

These AI-powered systems optimize energy consumption, improve sustainability, and minimize waste generation by performing repetitive tasks with precision. A case example is the 'Edge' building in Amsterdam, which is widely considered the greenest building in the world, with a green rating of 98%. It achieves this through a sophisticated AI integrated system with over 28,000 sensors monitoring lighting, heating, and ventilation, significantly reducing energy usage. These efficiencies lower emissions, making its operation more sustainable than buildings that use conventional methods. In addition, such systems can monitor and adjust energy usage in real-time based on demand, ensuring buildings only use the energy required at a particular time. This adaptability reduces their overall carbon footprint and aligns them with global sustainability goals, especially since buildings account for 40% of global energy usage.

Automation and robotics can significantly reduce waste through automated waste segregation systems. For example, Songdo, a city in South Korea, utilizes a truck-free waste management system. Waste is transported to a centralized collection facility that uses AI-powered systems for recycling, energy recovery, and proper disposal. This has eliminated the need for traditional waste collection trucks, significantly reducing emissions associated with their transportation and saving on operational costs.

Autonomous vehicles, including drones and self-driving cars, have the potential to reduce carbon emissions associated with transportation. Drones are increasingly used for last-mile delivery services, which reduces the need for traditional delivery trucks. Autonomous electric vehicles in urban areas can also reduce fuel consumption and traffic congestion, helping lower air pollution and enhancing the air quality indexes of cities. A notable example is Waymo's autonomous vehicle fleet which optimizes route transportation and energy-efficient driving to reduce carbon emissions. It utilizes AI-powered algorithms to analyze traffic patterns, weather conditions, and route options in real time, optimizing the fleet's energy usage and minimizing unnecessary energy usage. Through machine learning, it also refines its autonomous driving software to maximize route efficiency, directly impacting vehicle carbon footprints by lowering emissions associated with idling, traffic congestion, and inefficient route choices.

AI systems contribute to a range of benefits, from energy efficiency and waste reduction to enhanced environmental monitoring and efficacy in transportation systems. This significantly reduces operational emissions. As these technologies continue to evolve, their potential to reduce the carbon footprint associated with anthropogenic activities grows, making them valuable tools in the fight against climate change and its associated effects. Embracing robotics and automation can help cities and urban areas create a more sustainable built and natural environment in line with the Sustainable Development Goals and principles of urban development envisioned by the New Urban Agenda.

Integration of Smart Building Technologies in Green Buildings

Smart buildings are structures that promote comfort, operational efficiency and sustainability through advanced technology and data analytics while green buildings incorporate energy efficiency, sustainable materials and resource conservation to lessen the negative environmental impacts. This article highlights the key technologies, case studies, challenges and solutions for integrating smart building technologies into green buildings.

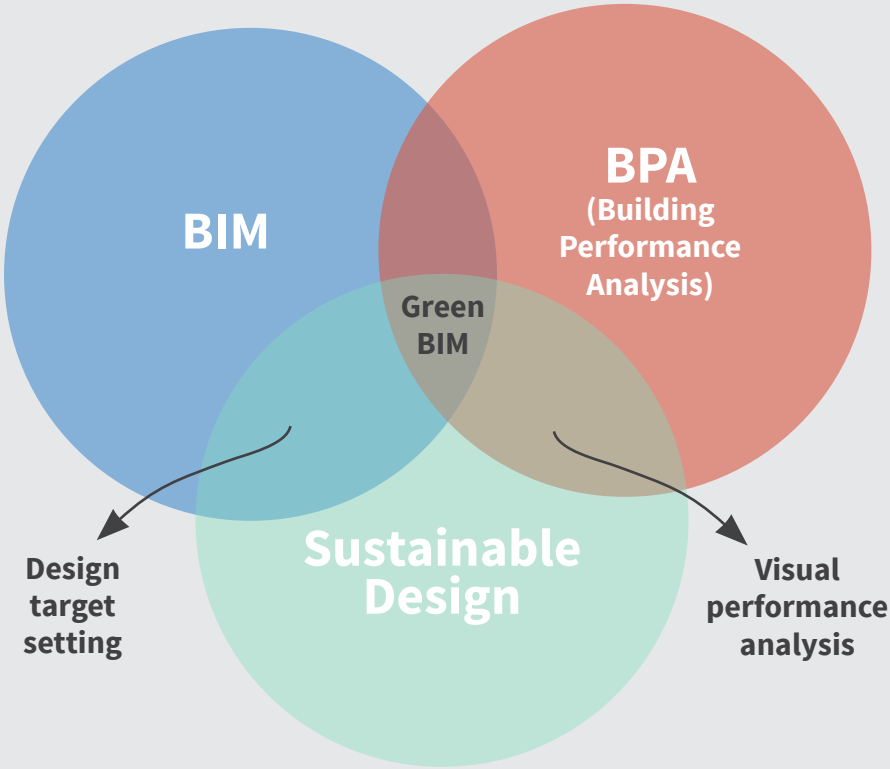
One of the technologies is Building Information Modelling (BIM), a detailed digital illustration of a building that includes geometric and semantic information on the types of building elements and material characteristics (Paolini et al., 2019). It enhances green building practices as illustrated by the Green BIM Triangle which consists of project phases, green attributes, and BIM attributes. Through the facilitation of energy efficiency analysis and resource optimization, BIM supports all phases of a building's lifecycle. Green attributes concentrate on sustainability elements like energy performance and material efficiency while BIM attributes prioritize data management and visualization capabilities. This integrated strategy ensures that buildings are planned, built and maintained sustainably, ultimately promoting healthier indoor environments.

Secondly, the Internet of Things (IoT) is an interconnected network that allows seamless communication between devices, sensors, and systems (Smart Building Technology as the Future of Sustainability, 2023). Through real-time data transmission and automation, IoT connects several building systems, including Heating, Ventilation, and Air Conditioning (HVAC), lighting, and security. This transforms the management and operations of smart green buildings hence occupant comfort improves, energy consumption decreases, and operational efficiency is enhanced.

Source: Unlocking Efficiency

The smart building technologies above have been implemented in several successful green smart building projects. Taipei 101 and Confluence Park serve as exemplary case studies of such projects.

Decision cycle model based on BIM



Source: Liu & Wang 2022

Case Study
Britam Tower

Located in Upper Hill, Nairobi Britam Tower is one of East Africa's tallest buildings and exemplifies modern architectural design with a focus on sustainability. The building employs an intelligent Building Management System (BMS) that monitors energy usage for HVAC, lighting, and other systems. This automation leads to significant energy savings up to 39% compared to typical office buildings and water savings of up to 50%.

Britam Tower's integration of smart technologies not only enhances operational efficiency but also contributes to a reduced carbon footprint. The success of this building showcases how commercial spaces can leverage technology for sustainability, influencing other developments in urban centers across Kenya.

Challenges and Solutions of Implementing Smart Green Building Technologies

High Costs of Sustainable Building - This can be solved by proper budget planning from project inception and life cycle cost analysis.

Limited awareness - Having educational campaigns and sharing successful case studies can help solve this challenge.

Construction Complexity- This challenge can be solved by ensuring early communication, training, and education.

Bureaucratic Hurdles- It is important to collaborate with local authorities to streamline the approval processes and advocate for regulatory changes that expedite approvals for sustainable practices.

Insufficient sustainable expertise- It is important to develop training programs to enhance their knowledge and collaborate with experts in sustainable construction technologies for guidance and support.

In conclusion, embracing smart building technologies is essential in shaping a greener future, where the synergy between smart technology and sustainable practices leads to resilient communities and a healthier planet.

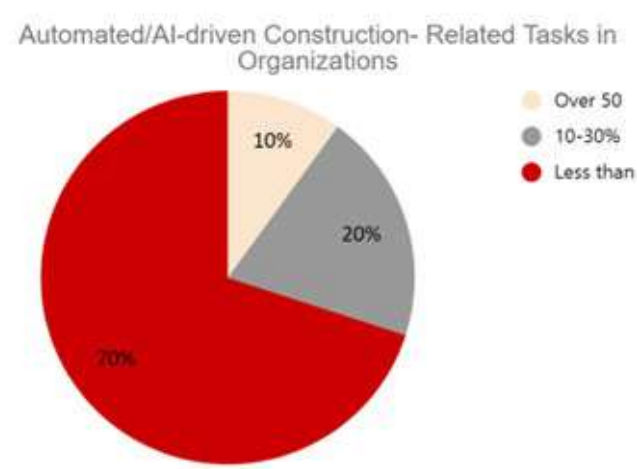
Image Credits: Britam Holding PLC, Petersize10 Photography

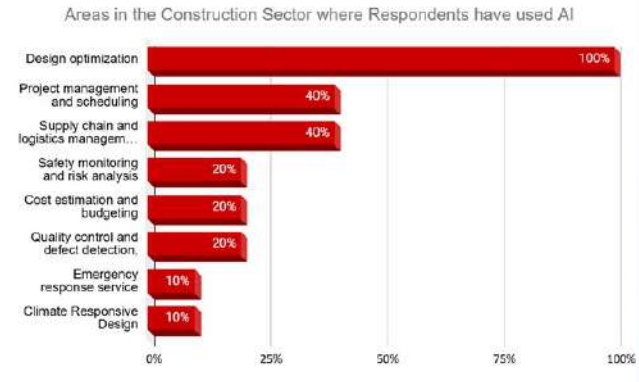
Building Management System (BMS)

This automation leads to significant energy savings up to 39% compared to typical office buildings and water savings of up to 50%.

Report on the Use of AI in the Construction Sector in Kenya

AAK conducted a survey of industry professionals to understand the adoption, challenges, and opportunities surrounding the uptake of Artificial Intelligence (AI) in the Kenyan Construction Sector. 20% of the respondents had more than five years of experience in using AI during construction, with 30% within two to five years, and 50% in less than 2 years. 90% of the respondents indicated that AI adoption in the Kenyan construction sector was still in its early stages, with 10% categorizing it as extensive integration.





Challenges to AI Adoption in the Construction Sector in Kenya

- **Skepticism:** There is a prevalent belief that AI could replace human roles, particularly among architects.
- **Lack of Awareness:** Many professionals are not fully aware of AI tools available for construction.
- **Integration Issues:** Existing workflows and standards pose barriers to adopting new technologies.
- **Training Gaps:** There is a significant need for training and upskilling in AI applications specific to the construction industry.

Opportunities For AI In Improving the Construction Sector's Efficiency and Sustainability

- **Efficiency and Sustainability:** Respondents highlighted potential for AI to enhance material use efficiency, reduce waste, and improve safety practices.
- **Government Support:** Suggestions included government incentives for businesses adopting AI, including tax breaks and grants.
- **Emerging Technologies:** Focus areas included predictive maintenance, robotics, and AI-driven Building Information Modeling (BIM).

Strategies Recommended for Accelerating AI Adoption in The Construction Sector in Kenya

- **Educational Initiatives:** Increasing awareness through academic institutions and professional forums is crucial.
- **Public-Private Partnerships:** Collaborations between government and private sectors can facilitate knowledge sharing and resource allocation.
- **Cohort-Based Learning:** Rapid scaling of learning initiatives can help foster discussions around AI's transformative potential in construction.

Future Trends

Emerging technologies such as generative design, machine learning, and the Internet of Things (IoT) were recommended as priorities for future investment.

Conclusion

The survey indicated a cautious yet optimistic outlook towards AI adoption in the Kenyan construction sector. While challenges such as skepticism and lack of awareness persist, there are significant opportunities for enhancing efficiency and sustainability through targeted strategies. The development of a supportive ecosystem involving education, government incentives, and industry collaboration will be essential for accelerating the adoption of AI technologies in the construction sector.

ABOUT MAAKTABA

https://maaktaba.info/

Maaktaba.info is a specialized repository designed to support architects and allied professionals in showcasing their work, networking with peers, and advancing their careers. Owned and managed by the Architectural Association of Kenya, our platform is built on the principles of excellence, integrity, and community.

At Maaktaba.info, our mission is to create a dynamic, collaborative, and inspiring community for architects and professionals in the built environment. We aim to provide a platform where creativity, innovation, and professional growth thrive.

“ Artificial intelligence in the construction industry is here.

It has emerged as a technology that is poised to transform our industry.

Sources

https://aak.or.ke/download/feasibility-of-centralization-of-development-control-systems-in-kenya/
https://aak.or.ke/download/status-of-the-built-environment-report-january-december-2023/?ref=dishapages
https://neuroject.com/smart-building-construction-projects/
https://doi.org/10.1016/j.addma.2019.100894
https://maddevs.io/blog/what-are-smart-buildings-and-how-do-they-work/
https://www.hassconsult.com/hassindex
https://www.3if.info/
https://cob.go.ke/reports/consolidated-county-budget-implementation-review-reports/#
https://www.climateweeknyc.org/
https://www.cbd.int/conferences/2024
https://unfccc.int/cop29
https://www.cnbcafrica.com/media/6364701702112/azerbaijans-cop29-presidency-hails-countrys-for-making-new-commitments/
https://www.se.com/ww/en/work/campaign/life-is-on/case-study/the-edge.jsp#:~:text=The%20Edge%20is%20the%20most,%2DNL%20rating%20of%2098.36%25.&text=A%20net%20zero%20energy%20building,102%25%20of%20its%20own%20energy.
https://www.se.com/ww/en/work/campaign/life-is-on/case-study/the-edge.jsp#:~:text=The%20Edge%20is%20the%20most,%2DNL%20rating%20of%2098.36%25.&text=A%20net%20zero%20energy%20building,102%25%20of%20its%20own%20energy.
https://www.matroid.com/ai-enabled-environmental-monitoring-for-conservation/#:~:text=By%20scrutinizing%20signs%20of%20pollution,taken%20to%20reduce%20environmental%20degradation.
https://waymo.com/sustainability/
https://www.researchgate.net/figure/Buildings-consume-40-of-the-worlds-energy-and-50-of-raw-materials-producing-30-of_fig1_357554683#:~:text=Download%20Scientific%20Diagram-,Buildings%20consume%2040%25%20of%20the%20world's%20energy%20and%2050%25%20of,of%20carbon%-20dioxide%20in%20return.&text=From%20the%20Stone%20Age%20until,all%20the%20energy%20he%20obtains.
https://www.ktmn.co.ke/ai-poised-to-revolutionize-kenyas-construction-industry-says-cabinet-secretary-alice-wahome/
https://www.iaarc.org/publications/fulltext/097_ISARC%202023_Paper_181.pdf
https://unfccc.int/news/cop29-un-climate-conference-agrees-to-triple-finance-to-developing-countries-protecting-lives-and
https://www.standardmedia.co.ke/kenya/article/2000092628/lands-ministry-to-digitise-records-says-charity-ngilu
https://eregulations.invest.go.ke/media/Land_Registration_Act___No_3_of_2012_.pdf
https://lands.go.ke/case-studies/national-land-titling/#:~:text=The%20Ministry%20processed%20a%20total,sustainable%20management%20of%20Land%20resources
https://lands.go.ke/lands-department-starts-digitization-of-land-records-in-isiolo/
https://www.haofinder.com/blog/ardhi-sasa-ministry-of-lands-land-search-online-and-digitisation-of-kenyas-land-registry
https://www.attorneysafrica.com/2023/04/19/crumbling-of-the-system-the-story-of-ardhisasa/#_ftn1
https://nation.africa/kenya/counties/muranga/kihiu-mwiri-owners-waiting-for-title-deeds-nine-years-later--4829498#story
https://habitat3.org/the-new-urban-agenda/
https://nairobiexpressway.ke/
https://ltwp.co.ke/overview/
https://www.mibp.org/projects-1/nairobi-bulk
http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2021/ThePublicPrivatePartnershipsAct_No.14of2021.pdf

Sources

https://panorama.solutions/en/solution/empowering-communities-protect-and-manage-lake-naivasha-catchment-kenyas-aberdare-forest-0
https://www.cif.org/
https://pppkenya.go.ke/
https://www.weforum.org/stories/2020/11/what-is-green-finance/
https://www.cnbcafrica.com/media/6364701702112/azerbaijans-cop29-presidency-hails-countrys-for-making-new-commitments/
https://www.greenclimate.fund/story/supporting-women-s-local-businesses-and-climate-friendly-cookstoves-kenya
https://www.thegef.org/who-we-are/organization
https://www.cif.org/projects/menengai-geothermal-development-project
https://www.gdc.co.ke/menengai/
https://geeref.com/about/what-geeref-is.html
https://geeref.com/portfolio.html
https://www.netfund.go.ke/#:~:text=The%20National%20Environment%20Trust%20Fund%20(NETFUND)%20is%20state%20corporation%20under,environmental%20management%20in%20the%20country.
https://ndcpartnership.org/country/ken#:~:text=Kenya%20submitted%20the%20revised%20NDC,(Amendment)%20Act%2C%202023.
https://bowmanslaw.com/insights/the-kenya-green-finance-taxonomy/
https://www.greenbondskenya.co.ke/
https://www.fsdkenya.org/wp-content/uploads/2024/02/Opportunities-and-Practice-of-Green-Finance-in-Kenya.pdf
https://kcbgroup.com/download?url=https://staging.kcbgroup.com/storage/2023-sustainability-report-launch-press-release.pdf
https://equitygroupfoundation.com/green-initiatives/
http://www.parliament.go.ke/sites/default/files/2023-03/The_Constitution_of_Kenya_2010.pdf
https://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2024/TheAffordableHousingAct__2024.pdf
https://commercialpropertykenya.com/price-of-an-acre-of-land-in-nairobis-upper-hill-hits-ksh-551-8-million/?srsltid=AfmBOooC5XHJCOaWIMvcGNEZcCGTk5gPCuHzTVEXwMUPakyI5YSkatx6
https://www.ktmn.co.ke/ai-poised-to-revolutionize-kenyas-construction-industry-says-cabinet-secretary-alice-wahome/
https://blogs.worldbank.org/en/sustainablecities/what-about-singapore-lessons-best-public-housing-program-world#:~:text=Harvard%20economist%20Ed%20Glaeser%20once,Follow%20@WBG_Cities%20on%20Twitter
https://www.unep.org/resources/report/building-materials-and-climate-constructing-new-future
https://www.unep.org/resources/publication/2022-global-status-report-buildings-and-construction#:~:text=The%202022%20Buildings%2DGSR%20finds,governments%2C%20households%2C%20and%20businesses.
https://unfccc.int/process-and-meetings/the-paris-agreement#:~:text=The%20Paris%20Agreement%20is%20a,France%2C%20on%2012%20December%202015.
https://unfccc.int/sites/default/files/NDC/2022-06/Kenya%27s%20First%20%20NDC%20%28updated%20version%29.pdf
https://globalabc.org/sites/default/files/inline-files/Africa_Buildings%20Roadmap_FINAL_1.pdf

***All images unless stated otherwise are sourced from pexels.com**

AAK | PROMOTING EXCELLENCE IN THE BUILT ENVIRONMENT

Head Office

Architectural Association of Kenya,
Blue Violets Plaza, Kamburu Drive,
off Ngong Road.
P.O. Box 44258 Nairobi, 00100
Telephone: +254-020-2420806, 2420582
Mobile: +254 721 691 337
Email: aak@aak.or.ke • Website: www.aak.or.ke

ArchKE @arch_ke @arch_ke @aak_kenya

Architectural Association of Kenya (AAK)