ISSN: 2524-1354 (Online), ISSN: 2519-7851 (Print)
Africa Habitat Review Journal
Volume 21 Issue 3 (September - October 2026)
http://uonjournals.uonbi.ac.ke/ojs/index.php/ahr

Institutional Fragmentation in Governing Shared Infrastructure of High-Rise Gated Communities:
Evidence from Two Nairobi Wards

***Naheeda Mohamed Rafiq Admani, Margeret Kedogo and Robert Wambugu Rukwaro**
https://orcid.org/0000-0001-6983-0625

Received on 12th August, 2026; Received in revised form 30th September, 2026; Accepted on 23rd October, 2026.

Abstract
In Nairobi's high-rise gated communities, responsibility for shared infrastructure passes from public authorities to developers and private estate bodies, yet the institutions governing this transfer are little studied. This exploratory case study of eight communities in Kileleshwa and Parklands wards examines how public regulation and private estate governance shape these systems. It draws on interviews with a physical planner, three architects, two contractors and an environmental regulator; questionnaires from five of eight developers and five of eight estate managers; and documentary review. Planning, building, construction and environmental laws are extensive but unevenly implemented: mandates for drainage, water and sewerage are dispersed, the regulator estimated environmental compliance at about 60 per cent, and few completed estates were reportedly audited. All five developers cited inadequate policy guidance. Estate managers reported board-based decisions, limited resident participation and inconsistent use of sectional property law. Given the small samples and two-ward coverage, these findings are indicative.

Keywords: Estate governance, gated communities, institutional fragmentation, management corporations, Nairobi, post-occupancy monitoring, sectional property, shared residential infrastructure

INTRODUCTION

Gated communities have emerged for varied reasons, including concern with security (Blakely & Snyder, 1997) and, in some contexts, governance failures and declining confidence in public services (Polishchuk & Sharygina, 2016). Where developers supply the roads, drainage, water and other services that local authorities would otherwise provide, local governments may welcome the arrangement because it relieves pressure on public budgets (Le Goix, 2007). Once construction ends, responsibility for operating and renewing these systems passes to residents' bodies, which may struggle with rising costs, ageing assets and inadequate reserves (McKenzie, 2016). In Nairobi, the relevant conditions are devolved but overlapping planning mandates and the growth of high-density apartment developments with privately managed shared systems. One risk is that deterioration of privately managed communal infrastructure could eventually push county governments to intervene in services they never provided (Muiga, 2015); this is framed here as a risk rather than an observed trend.

Privatised residential infrastructure therefore involves not a withdrawal of the state but a redistribution of responsibility among developers, private estate bodies and public agencies. In Kenya, the 2010 Constitution and the County Governments Act (2012) devolved development control and many infrastructure functions to counties, while national agencies retained responsibility for construction regulation and environmental management (Muriungi & Shah, 2022). The National Urban Development Policy provides a policy framework for coordinated urban development and management (Republic of Kenya, 2016a). The National Housing Policy (Sessional Paper No. 3 of 2016) itself describes the institutional arrangement for housing planning, development and management as fragmented, inconsistent and marked by overlapping roles and lines of accountability (Republic of Kenya,

**Corresponding author:*
Naheeda Mohamed Rafiq Admani *Department of Construction and Real Estate Management, Kenyatta University*
Email: admani.naheeda@ku.ac.ke

AFRICA HABITAT REVIEW 21(3) 2026

2016b). The multiplicity of approvals and agencies involved in development control generates delays, conflicts and additional cost (Kimani & Musungu, 2010).

Kenyan scholarship on gated communities has concentrated on property markets, security and segregation, and has treated governance only in broad terms; Nairobi research such as Muiga (2015), for example, examined the sustainability implications of gated communities for urban development rather than the institutional arrangements that govern their shared infrastructure. Far less attention has been paid to how public regulation and private estate governance together shape the planning, construction and upkeep of the shared infrastructure on which these developments depend.

This article examines the institutional frameworks and practices that govern shared infrastructure in high-rise gated communities in two Nairobi wards. Shared infrastructure here means the communal systems within an estate boundary that serve all residents and are managed collectively: water storage and pumping, internal wastewater and stormwater drainage, solid waste collection points, internal roads and parking, and their maintenance. These systems connect at the estate boundary to public networks, namely municipal water supply, county sewers and drainage channels, and public roads, which remain the responsibility of public utilities and the county.

The article has three objectives:

i. To examine how regulators and built-environment professionals experience the regulatory framework governing these systems;
ii. To identify the institutional constraints that developers face in providing them; and
iii. To examine how estates govern and maintain shared infrastructure after completion.

It contributes evidence from an African city that brings together the perspectives of regulators, professionals, developers and estate managers, and interprets it through club and commons theories of shared infrastructure.

THEORY

This section reviews private residential governance, planning and regulatory arrangements, and the theoretical perspectives used to interpret shared infrastructure management. It concludes with an integrated framework connecting the three propositions to the two governance levels examined in the study.

Gated Communities as Private Governance Regimes

Gated communities are security-oriented developments with designated perimeters and controlled entrances (Blakely & Snyder, 1997). Access is restricted and governed through legal agreements and collective management systems (Atkinson & Blandy, 2005), and such developments typically combine internal services and amenities with relative autonomy (Caldeira, 2000). Many operate through homeowners' associations or common-interest arrangements that manage roads, parking, water systems and recreational facilities (Ben-Joseph, 2004). McKenzie (1994, 2016) cautions that inadequate maintenance funding, poor construction, weak governance and ageing infrastructure can lead such communities towards decay. Privatised governance may also relieve local government of service provision while raising concerns about segregation and the privatisation of urban space (Grant & Mittelsteadt, 2004; Landman, 2002a).

Planning and Regulation of Gated Developments

Planning authorities shape gated developments through review of infrastructure adequacy, road design, emergency access, water supply and density, although anticipated tax revenues may influence approvals even where standards are not fully met (Myers, 2011). Many countries lack policies addressing gated communities specifically; in Qatar and South Africa, weak policy guidance and fragmented planning have produced inconsistent outcomes (Landman & du Plessis, 2007; Mahgoub & Khalfani, 2012). In the United Kingdom, infrastructure provision for housing involves local authorities, national agencies, utilities and developers, and is hampered by fragmented governance, weak coordination and limited funding (Maidment-Blundell, 2020). In Indonesia, weak implementation of planning standards and inconsistent enforcement left residential infrastructure poorly integrated with urban systems (Vitriana, 2018). Across these contexts, studies agree that fragmented responsibilities and weak enforcement undermine

shared infrastructure, but they locate the problem differently: some emphasise the absence of policy specific to gated communities (Landman & du Plessis, 2007; Mahgoub & Khalfani, 2012), others weak coordination among many actors (Maidment-Blundell, 2020), and others the incentives that shape approval decisions (Myers, 2011). Much of this literature rests on case studies and policy reviews, and little of it follows infrastructure beyond approval into post-occupancy management, which is the focus of this article.

Kenya's Institutional Framework

Housing and infrastructure development in Kenya is regulated through a multi-level framework of national ministries and agencies, county governments, professional regulatory boards and the judiciary (Muriungi & Shah, 2022). The National Construction Authority registers projects and enforces construction standards; counties prepare spatial plans, approve developments and enforce land-use regulation; and statutory boards license planners, architects, engineers, estate agents and contractors. Key instruments include the Physical and Land Use Planning Act (2019), which assigns development control to counties; the Sectional Properties Act (2020); the National Construction Authority Act (2011); the Sustainable Waste Management Act (2022), which places obligations on developers and property owners; and the National Building Maintenance Policy (2013) (Muriungi & Shah, 2022). The National Building Code, 2024, published as Legal Notice No. 47 of 2024, replaced the 1968 building by-laws and came into force on 1 March 2025 after a one-year transition, so it took effect during the fieldwork period (National Building Code, 2024). A development typically requires several approvals from different agencies (**Table 1**). Kimani and Musungu (2010) characterise the sector as one of fragmented legislation, overlapping mandates, weak enforcement and no integrated land-use planning framework.

The Sectional Properties Act also distinguishes statutory from informal estate management. When a sectional plan is registered, the unit owners are constituted as a management corporation, a body corporate responsible for the common property under the Act and its by-laws; management companies formed under earlier leasehold arrangements must transfer their assets and liabilities to the corporation and be wound up, and long-term sub-leases registered before the Act were to be converted to sectional titles within two years of its commencement (Sectional Properties Act, 2020; Sectional Properties Regulations, 2021). Homeowners' associations and residents' committees, by contrast, are voluntary or contractual bodies whose powers rest on lease covenants and members' agreement. Estates whose sectional plans have not been registered may therefore still be run by management companies or associations rather than by statutory corporations.

TABLE 1
Major development approvals in Kenya's planning and building sector

Approval	Purpose	Responsible Agency	Typical Processing Time
Development permission	Approval of proposed development	County executive member for physical planning	Up to 60 days
Change or extension of user	Approval of change or extension of land use	County department of physical planning	30–60 days
Architectural drawings	Approval of architectural designs	County executive member	Up to 45 days
Structural drawings	Approval of structural designs	County executive member	Varies
Environmental impact assessment licence	Assessment and mitigation of environmental impacts	National Environment Management Authority	45–90 days

Source: Adapted from Muriungi and Shah, (2022)

Note: Processing times are those reported by Muriungi and Shah (2022) at the time of their review; they are indicative and may differ from statutory limits and from current practice in individual counties.

AFRICA HABITAT REVIEW 21(3) 2026

Theoretical Framework

The Economic Theory of Clubs holds that some goods are provided most efficiently where membership is controlled and members jointly finance provision (Buchanan, 1965). Gated communities can be read as territorial clubs in which residents collectively consume and maintain shared infrastructure, with gating limiting congestion and free riding (Webster & Lai, 2003); critics note, however, that residents may bear high service charges and pay twice for services already funded publicly (Mohamed & Naryanasamy, 2011). Frischmann's (2005) theory of infrastructure and commons management treats infrastructure as a shared resource whose social value depends on how openness, control and sustainability are balanced in its management; in gated communities, homeowners' associations act as managers of such commons. Postmodern urbanism, finally, treats gated communities as controlled residential environments in which services and communal spaces are privatised, easing pressure on local government but privatising urban space (Landman, 2002b).

Taken together, these perspectives yield three sensitising propositions that guide the interpretation of the findings. First, from club theory, shared infrastructure is sustained where members contribute financially and observe collective rules (contribution and rule compliance). Second, from commons theory, its long-term value depends on participatory management that balances access, control and maintenance (participation and stewardship). Third, from postmodern urbanism and the planning literature, private estate regimes need to be embedded in, rather than detached from, public regulation (regulatory embeddedness). The article therefore examines governance at two levels: among the public agencies that regulate development, and between public regulation and the private governance of estates.

The relationships among the three theoretical perspectives, their sensitising propositions and the two levels of governance examined are summarised in **Figure 1.**

RESEARCH METHODS

This section outlines the case-study design, sampling procedures, participants, data collection instruments and analytical approach used to examine institutional and estate-level infrastructure governance.

Design and Setting

The article reports the institutional and governance component of a mixed-method case study (Bryman, 2016) of high-rise gated communities in Nairobi City County. Multistage random cluster sampling was used. In the first stage, two of the county's 17 sub-counties, Dagoretti North and Westlands, were randomly selected by balloting; in the second, one ward was selected by balloting from each, giving Kileleshwa and Parklands. Because no official register of gated communities existed, site visits produced a sampling frame of 76 developments of six or more storeys with shared infrastructure in the two wards, from which four were selected by balloting in each ward, giving eight.

Participants and Instruments

All eight developers and all eight estate managers of the sampled communities were contacted and invited to complete questionnaires. They contained rating items on planning, design and maintenance practice and multiple-choice items on governance and institutional challenges. Rating items used a five-point scale from 1 (very low) to 5 (very high), and mean scores were interpreted using equal-interval bands: 1.00–1.80 very low, 1.81–2.60 low, 2.61–3.40 moderate, 3.41–4.20 high and 4.21–5.00 very high. Key informants were selected purposively, with snowball referrals, for their involvement in developing or regulating gated communities, and regulatory officials for their statutory roles. Open-ended interviews covered planning, design, construction, environmental management, regulation and enforcement, and were held in person, by telephone or online; the Nairobi City County and National Construction Authority officials, who were unavailable during the main data collection period, were consulted later by telephone. Homeowners' association reports, audit reports, minutes of annual general meetings and management records were also reviewed. Data were collected from October 2024 to April 2025, after the instruments had been piloted.

Data Analysis

Interview data were analysed thematically: the raw interview responses were grouped into

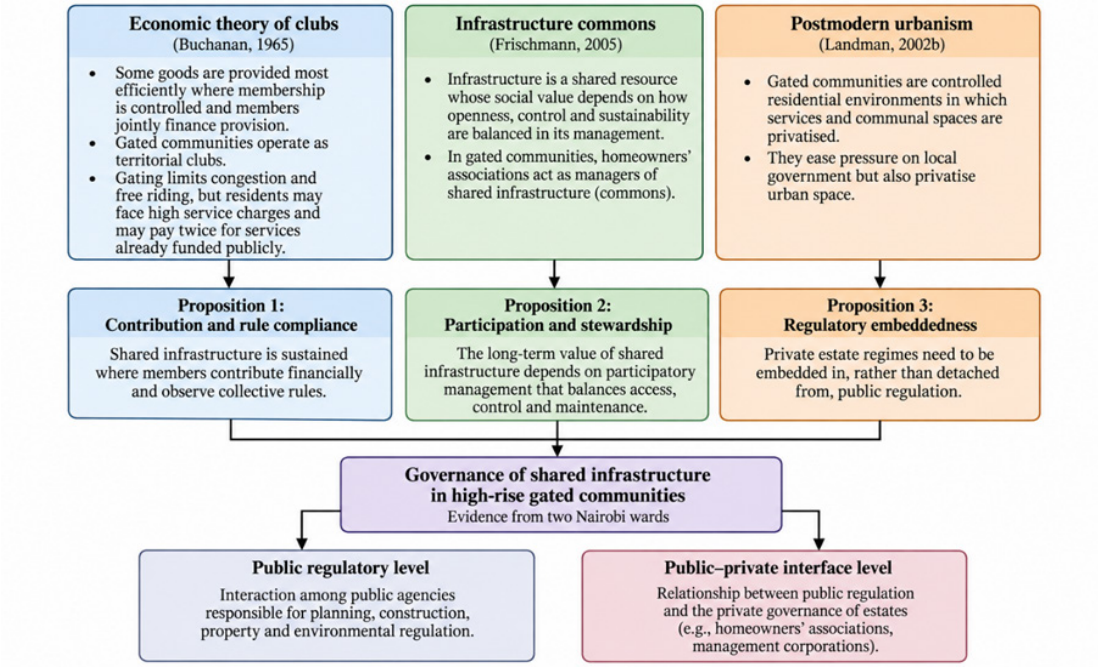


Figure 1: Theoretical framework: key theories, sensitising propositions and levels of governance
Source: Author's construct.

FIGURE 1
Theoretical framework linking shared infrastructure governance to sensitising propositions and governance levels
Source: Authors' conceptual synthesis based on Buchanan (1965), Frischmann (2005), Landman (2002b), and Webster and Lai (2003).

themes in Microsoft Excel. Responses from the planner, architects and contractors were coded to seven themes (sustainable infrastructure and innovations; quality and sustainability in construction; professional expertise and planning; resource efficiency; compliance and monitoring; legal and policy framework; project management and risk), and the environmental regulator's responses to six. Theme percentages are shares of each group's coded references (47 for the planner, 59 for the architects, 27 for the contractors and 14 for the regulator) and indicate relative emphasis, not the proportion of respondents. Questionnaire data were summarised with frequencies, percentages and mean scores, and findings were triangulated across sources. Inputs from the Nairobi City County and National Construction Authority officials, obtained later by telephone, were used only to triangulate the other findings and are not reported separately.

RESULTS

The findings are presented by respondent category, beginning with regulatory and professional perspectives and then considering developer practices and estate-level management. The tables report the descriptive and thematic evidence on which the interpretations are based.

Five of the eight developers and five of the eight estate managers responded (62.5 per cent in each group; **Table 2**). Because responding and non-responding estates could not be compared, the questionnaire results describe the responding estates only.

The Environmental Regulator's Perspective

Institutional roles and mandates, and compliance and enforcement, each accounted for 28.57 per cent of the regulator's coded references (**Table 3**). The officer explained that, although the Environmental Management and Coordination Act (1999) and related regulations provide the legal basis for environmental control, drainage, water supply, sewerage and urban planning fall largely under county governments and other agencies, limiting the authority's ability to intervene during early project planning. The officer estimated compliance in gated developments at about 60 per cent, with most violations occurring during construction and maintenance, when developers often failed

TABLE 2
Targeted and achieved participants by category, ward and data collection method

Participant Category	Targeted	Achieved (Parklands; Kileleshwa)	Method
Developers	8	5 (2; 3)	Questionnaire
Estate managers	8	5 (3; 2)	Questionnaire
Physical planner	1	1	Key informant interview
Architects (designers)	3	3	Key informant interview
Contractors	2	2	Key informant interview
National Environment Management Authority officer	1	1	Key informant interview
Nairobi City County official	1	1	Key informant interview (telephone)
National Construction Authority official	1	1	Key informant interview (telephone)

Source: Field survey, (2026)

Note: One developer and one estate manager were targeted for each of the eight sampled communities (four per ward). Achieved responses are shown by ward; a responding developer and estate manager need not relate to the same community. Key informants were not sampled by ward.

TABLE 3
Themes in the environmental regulator's responses (14 coded references)

Theme	Sub-themes	Share of References (%)
Institutional roles and mandates	Responsibility not the regulator's; overlapping authority; shared responsibility; planning department responsibility	28.57
Compliance and enforcement	Partial compliance (about 60%); developers ignore regulation; enforcement action taken; violations at construction and maintenance	28.57
Legal and policy framework	Existing environmental laws; outdated regulations	14.29
Monitoring and regulatory process	Late intervention; weak monitoring coverage (20% audited)	14.29
Environmental risks and impacts	Poor waste management and emergency infrastructure	7.14
Sustainability opportunities	Green buildings, solar energy and wastewater treatment	7.14

Source: Field survey, (2026)

to implement recommended corrective measures. Post-completion oversight was described as weak: by the officer's estimate, only about 20 per cent of completed communities were audited. Both figures are a single informant's estimates and were not corroborated against agency records in this study. Opportunities were nonetheless identified in green buildings, solar energy and wastewater treatment.

Built-environment Professionals

Thematic emphasis differed across the professional groups (**Table 4**). Sustainable infrastructure and innovations dominated the planner's responses (42.55 per cent), with attention to stormwater management, permeable surfaces, wastewater

recycling, accessible waste collection, road hierarchy, pedestrian circulation and parking, and to infrastructure impact assessments for traffic, sewer capacity, drainage and utilities. The planner cited the Physical and Land Use Planning Act (2019), the National Urban Development Policy (Republic of Kenya, 2016a), Vision 2030 (Government of Kenya, 2007) and the building code, but identified corruption, inconsistent inspections, weak county enforcement, poor inter-agency coordination and inadequate implementation of standards as constraints, noting that some projects bypass professional input because of financial pressure or weak enforcement.

Quality and sustainability in construction dominated the architects' responses (32.20 per cent). They reported designing to the Physical and Land Use Planning Act, the building code, construction and environmental regulations, the Public Health Act and standards of the Water Services Regulatory Board and the Kenya Bureau of Standards, with compliance secured through county approvals, oversight by the National Construction Authority and technical review committees, although enforcement was inconsistent. Rainwater harvesting and on-site waste treatment remained limited, and the architects stressed early multidisciplinary collaboration.

Contractors gave equal weight (22.22 per cent each) to professional expertise and planning and to construction quality, emphasising skilled labour, supervision, geotechnical investigation and detailed drawings; inadequate planning and weak coordination, they reported, cause redesigns, delays, cost overruns and defects. Inspections by county authorities and the National Construction Authority were valued, but contractors cited inconsistent enforcement, approval delays, bureaucracy and occasional corruption. Resource efficiency accounted for only 3.70 per cent of their references.

Developers' Practices and Institutional Constraints

All five developers cited a lack of adequate policies and guidelines, four cited adverse market conditions and high expectations, three delayed payments from homeowners and two corruption and bribery during approvals (**Table 5**). With five respondents, each response represents 20 percentage points, so these percentages describe the responding developers only and should not be generalised statistically.

Developers rated technical aspects of their planning and design practice highly, particularly constructible designs (4.4), their own involvement in design (4.2), feasibility studies and connection to existing infrastructure (4.0 each) (**Table 6**). Lifecycle and coordination aspects scored lower: involvement of designers and contractors during planning (3.4), maintainability (3.2), production of manuals (3.2) and consideration of the adequacy of existing infrastructure (3.0) were all moderate.

Governance within Estates

All five estate managers reported that residents were bound by formal agreements and that facilities were fully utilised (**Table 7**). Decisions were taken through board meetings in three communities and informed by surveys in one,

TABLE 4
Distribution of coded references across themes by professional group (%)

Theme	Planner (47 references)	Architects (59 references)	Contractors (27 references)
Sustainable infrastructure and innovations	42.55	18.64	11.11
Quality and sustainability in construction	21.28	32.20	22.22
Professional expertise and planning	14.89	13.56	22.22
Resource efficiency	8.51	11.86	3.70
Compliance and monitoring	6.38	11.86	14.81
Legal and policy framework	4.26	6.78	14.81
Project management and risk	2.13	5.08	11.11

Source: Field survey, (2026)

AFRICA HABITAT REVIEW 21(3) 2026

TABLE 5
Governance and institutional challenges reported by developers (n = 5)

Challenge	Frequency	Per cent
Lack of adequate policies and guidelines	5	100
Adverse market conditions and high expectations	4	80
Delayed payments from homeowners	3	60
Corruption and bribery during approvals	2	40
Lack of experienced designers and contractors	1	20
Financial burden on developers	1	20

Source: Field survey, (2026)

TABLE 6
Planning and design practices reported by developers (n = 5)

Practice	Mean score	Category
Constructible designs	4.4	Very high
Developers' involvement in design	4.2	High
Conduct of feasibility studies	4.0	High
Connection to existing infrastructure considered	4.0	High
Integration of common facilities with building fabric	4.0	High
Communication between developer, architect and engineer	3.8	High
High standards observed during design	3.8	High
Building codes and government regulations upheld	3.8	High
Goals outlined at planning stage	3.6	High
Involvement of designers and contractors during planning	3.4	Moderate
Proportion of maintenance integrated in design	3.4	Moderate
Maintainability of infrastructure considered during design	3.2	Moderate
Production of manuals	3.2	Moderate
Adequacy or limitations of existing infrastructure considered	3.0	Moderate

Source: Field survey, (2026)

Note: Scale 1 (very low) to 5 (very high). Bands: 1.00–1.80 very low; 1.81–2.60 low; 2.61–3.40 moderate; 3.41–4.20 high; 4.21–5.00 very high.

while one manager reported no decision-making process. Parking was the most frequent source of conflict, and disputes were mostly settled in one-to-one meetings. Three managers always referred to the Sectional Properties Act (2020), one did so sometimes and one never. These are managers' accounts; residents' own views of participation were not collected for this part of the study.

Estate managers described a structured maintenance regime (**Table 8**). The type of maintenance programme was rated 4.20, and inspection frequency, maintenance budget allocation and the proportion of maintenance considered in design 4.00 each, whereas maintenance frequency (3.80) and homeowners' maintenance culture (3.60) scored lowest, although all six items fell within the high band. Developers, for their part, rated the ability to resolve residents' issues and the diversified use of service charges 3.8 each, but increased participation in decision-making only 3.2.

DISCUSSION

This section interprets the findings in relation to

TABLE 7
Management practices reported by estate managers (n = 5)

Practice	Responses, n (%)
Facility utilisation	Utilised 5 (100)
Resident agreements	Yes 5 (100)
Decision-making process	Board meetings 3 (60); surveys 1 (20); none 1 (20)
Sources of conflict	Parking 2 (40); mismanagement of infrastructure 1 (20); noise 1 (20); other 1 (20)
Conflict resolution	One-to-one meetings 3 (60); other 2 (40)
Use of the Sectional Properties Act (2020)	Always 3 (60); sometimes 1 (20); never 1 (20)

Source: Field survey, (2026)

TABLE 8
Maintenance practices reported by estate managers (n = 5)

Practice	Mean score	Category
Type of maintenance programme selected	4.20	High
Frequency of infrastructure inspection	4.00	High
Maintenance budget allocation	4.00	High
Proportion of maintenance considered in design	4.00	High
Frequency of maintenance	3.80	High
Maintenance culture among homeowners	3.60	High

Source: Field survey, (2026)

Note: Scale and bands as in Table 6. Item-level distributions are not reported because of the small number of respondents.

the theoretical framework and existing scholarship, distinguishing regulatory fragmentation, professional implementation challenges and estate-level collective governance.

Fragmented Public Mandates

The regulator's account, which reflects one officer's perspective, indicates that environmental oversight of gated communities is divided by sector: the agency that licenses projects has little influence over the drainage, water and sewerage systems that county governments and other agencies control. This is consistent with the fragmentation, overlapping mandates and weak coordination identified in Kenya's planning and building sector (Kimani & Musungu, 2010; Muriungi & Shah, 2022) and in infrastructure provision elsewhere (Maidment-Blundell, 2020). On the officer's estimates, compliance falls during construction and maintenance and few completed estates are audited. If these estimates are representative, public oversight weakens precisely when operation passes to private bodies, the phase in which homeowners' associations confront rising costs, ageing infrastructure and inadequate reserves (McKenzie, 2016); confirming this would require agency inspection and audit records.

The finding that every developer cited inadequate policies and guidelines, despite an extensive body of legislation, suggests that the gap lies less in the absence of law than in the absence of guidance tailored to privately governed shared infrastructure. This is consistent with evidence that many countries lack policies specific to gated communities (Landman & du Plessis, 2007; Mahgoub & Khalfani, 2012), and with Myers' (2011) observation that approval decisions can be shaped by interests other than compliance.

Professional Practice and the Implementation Gap

Professionals demonstrated detailed knowledge of standards and of sustainable options, yet

AFRICA HABITAT REVIEW 21(3) 2026

corruption, inconsistent inspections and approval delays recurred in every group, consistent with evidence that weak regulation and supervision undermine construction quality (Chohan et al., 2011; Zou et al., 2007). The difference in emphasis between the planner, who stressed sustainable innovation, and the contractors, who stressed quality and expertise on site and barely mentioned resource efficiency, may indicate that sustainability intentions weaken as projects move from plan to construction. It may equally reflect the different roles of these professionals, so the contrast is suggestive rather than evidence of change over the project cycle.

Developers' moderate ratings for maintainability, production of manuals and early involvement of designers and contractors indicate that knowledge needed for long-term operation is not fully embedded in design or carried through to estate management. Inadequate attention to maintenance at the design stage raises lifecycle costs (Chidi et al., 2020; Ramly et al., 2006), while weak documentation and coordination contribute to defects (Andi & Minato, 2003; Hamzah et al., 2011). Estate managers rated the proportion of maintenance considered in design higher (4.00) than developers did (3.4), but this difference should be interpreted cautiously: the two groups answered separate questionnaires from different roles, developers reflecting on design decisions and managers on the systems they operate. Overall, these findings indicate that weaknesses in governance, coordination and enforcement, rather than a lack of technical knowledge, limit sustainable practice.

Club Governance Under Strain

Formal agreements, boards and service charges give gated communities the institutional structure of clubs (Buchanan, 1965; McKenzie, 2005; Webster & Lai, 2003). Club and commons theories also imply, however, that shared infrastructure depends on members contributing and taking part in collective decisions (Frischmann, 2005). Here, according to managers' reports, decision-making was centralised, surveys were used in only one community, participation was rated moderate and maintenance culture lagged behind managers' other maintenance ratings. Delayed payments from homeowners, reported by three developers, point to the financing fragility that McKenzie (1994, 2016) associates with ageing private infrastructure. Parking, the most common source of disputes, shows collective rules under pressure.

The inconsistent use of the Sectional Properties Act is significant because the Act is the main legal link between public law and private estate governance. Uneven reference to it suggests that the statutory framework for managing common property is not consistently shaping practice on the ground, which is consistent with Landman's (2002a, 2002b) argument that privatised governance can strengthen internal control while limiting participation and integration with the wider city. Alternative explanations cannot be ruled out with the available evidence. Legal structure may matter: estates whose sectional plans have not been registered would not yet have statutory management corporations, so managers may have little reason to refer to the Act. Developer incentives may also play a part, since developers' involvement largely ends at handover and four of the five cited adverse market conditions. Estate maturity is a third possibility, as the sampled estates ranged from those occupied for under three years to those occupied for more than 14 years, and newer estates may not yet have established participatory routines.

Read together, the findings point to fragmentation at two levels: among public agencies, whose mandates over the same infrastructure are divided, and between public regulation and private estate governance, whose connection weakens after completion. The evidence has limitations. The regulator, planner and contractors were few in number, and the compliance and audit figures rest on one informant; theme shares indicate emphasis rather than prevalence; the questionnaire findings come from five developers and five estate managers; residents were not interviewed, so conclusions about resident participation reflect managers' reports; the county and construction authority inputs, obtained later by telephone, were used only for triangulation; and the study covers two wards.

CONCLUSION

This exploratory study of eight high-rise gated communities in two Nairobi wards suggests that Kenya's legal and institutional framework for planning, construction and environmental management is extensive, but

that its implementation in these developments is fragmented and uneven. Mandates over drainage, water and sewerage are divided among agencies, regulatory attention appears concentrated at approval and, on the regulator's estimates, declines after completion, and corruption, inconsistent inspection and approval delays persist. Developers experience this not as an absence of law but as an absence of adequate guidance. Within estates, managers report that formal governance structures exist, but that decision-making is centralised, resident participation and maintenance culture are moderate, and the sectional property law intended to govern common property is applied inconsistently. The sustainability of privatised residential infrastructure therefore appears to depend less on technical knowledge, which professionals possess, than on governance capacity, institutional coordination, enforcement and long-term regulatory oversight. Because the evidence comes from small samples in two wards, these conclusions are indicative and should be tested more widely across Nairobi.

RECOMMENDATIONS

The following recommendations respond to the institutional coordination, post-occupancy monitoring and estate-governance challenges identified in the study. They are ordered by the strength of the supporting evidence and the feasibility of implementation.

Clarify institutional mandates and guidance
The national ministry responsible for housing and urban development, in consultation with county governments, should issue guidelines specific to privately governed shared infrastructure in multi-unit developments. These should clarify the respective roles of county planning departments, the National Environment Management Authority, the National Construction Authority and water and sewerage service providers at each stage from approval to occupation, using existing mandates under the Physical and Land Use Planning Act (2019), the National Construction Authority Act (2011) and the Environmental Management and Coordination Act (1999).

Establish routine post-occupancy monitoring
Post-occupancy monitoring should become routine. A workable framework would assign county planning and public health departments responsibility for periodic inspection of shared drainage, sewerage and waste facilities, with the National Environment Management Authority retaining responsibility for environmental audits. Inspections could be triggered by a change of estate management, by registration of a sectional plan, or by complaints and overflow incidents, and management corporations or managing agents could be required to submit an annual report on the condition and maintenance of shared infrastructure to the county, with follow-up through existing enforcement powers.

Strengthen resident participation and estate management
Management corporations, homeowners' associations and managing agents should broaden resident engagement through general meetings and surveys, publish annual accounts of service-charge expenditure and improve communication with residents; because this recommendation rests on managers' reports, it should be validated with residents. County governments and the National Construction Authority, working with professional bodies, could offer training for estate managers, management corporations and developers on governance, maintenance planning and obligations under the Sectional Properties Act.

Strengthen sustainability requirements and incentives
Planning and building regulations could be reviewed to require water conservation, wastewater recycling, stormwater management, renewable energy and long-term maintenance provisions, with incentives for developers who adopt sustainable infrastructure and green building technologies. This proposal extends beyond the measures directly tested in the study and should be assessed for feasibility by the responsible authorities.

Undertake comparative and longitudinal research
Further research should use comparative, multi-ward designs that include residents' own accounts and administrative records, such as approval, inspection and audit files, to validate and extend these findings. It should also track estates through conversion under the Sectional Properties Act and examine the financial sustainability of management corporations and homeowners' associations, governance and social inclusion in

AFRICA HABITAT REVIEW 21(3) 2026

gated communities, and the wider implications of privatised infrastructure governance for urban sustainability in Kenya and other developing countries.

CITED REFERENCES

Andi, A., & Minato, T. (2003). Design documents quality in the Japanese construction industry: Factors influencing and impacts on construction process. *International Journal of Project Management*, 21(7), 537–546. https://doi.org/10.1016/S0263-7863(02)00083-2

Atkinson, R., & Blandy, S. (2005). Introduction: International perspectives on the new enclavism and the rise of gated communities. *Housing Studies*, 20(2), 177–186.

Ben-Joseph, E. (2004). Land use and design innovations in private communities. *Land Lines*, 16(4), 8–12.

Blakely, E. J., & Snyder, M. G. (1997). *Fortress America: Gated communities in the United States.* Brookings Institution Press.

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Buchanan, J. M. (1965). An economic theory of clubs. *Economica*, 32(125), 1–14.

Caldeira, T. P. R. (2000). *City of walls: Crime, segregation, and citizenship in São Paulo.* University of California Press.

Chidi, E., Musa, S., Oladipupo, F., & Owolabi, A. (2020). An assessment of maintenance culture on public buildings in Nigeria (A case study of Osun State). *IOSR Journal of Mechanical and Civil Engineering,* 17(5), 53–57.

Chohan, A. H., Che-Ani, A. I., Tahir, M. M., Abdullah, N. A. G., Tawil, N. M., & Kamaruzzaman, S. N. (2011). Housing and analysis of design defects: A post-occupational evaluation of private housing in Malaysia. *International Journal of the Physical Sciences*, 6(2), 193–203. https://doi.org/10.5897/IJPS10.347

Constitution of Kenya, 2010. National Council for Law Reporting. Retrieved from https://kenyalaw.org/akn/ke/act/2010/constitution

County Governments Act, No. 17 of 2012, Laws of Kenya.

Environmental Management and Coordination Act, No. 8 of 1999, Laws of Kenya.

Frischmann, B. M. (2005). An economic theory of infrastructure and commons management. *Minnesota Law Review*, 89, 917–1030. https://doi.org/10.24926/265535.1573

Government of Kenya. (2007). *Kenya Vision 2030: A globally competitive and prosperous Kenya*. Government Printer.

Grant, J., & Mittelsteadt, L. (2004). Types of gated communities. *Environment and Planning B: Planning and Design*, 31(6), 913–930.

Hamzah, N., Ramly, A., Salleh, H., Tawil, N. M., Khoiry, M. A., & Che-Ani, A. I. (2011). The importance of design process in housing quality. *Procedia Engineering*, 20, 483–489. https://doi.org/10.1016/j.proeng.2011.11.191

Kimani, M., & Musungu, T. (2010). *Reforming and restructuring planning and building laws and regulations in Kenya for sustainable urban development* [Paper presentation]. 46th ISOCARP Congress, Nairobi, Kenya.

Landman, K. (2002a). *Gated communities in South Africa: Building bridges or barriers?* CSIR.

Landman, K. (2002b). *Planning in the African context: Reconsidering current approaches to gated communities in South Africa*. CSIR Boutek.

Landman, K., & du Plessis, C. (2007). The impact of gated communities on urban sustainability: A difference of opinion or a matter for concern? *Journal of Housing and the Built Environment*, 22(3), 291–305.

Le Goix, R. (2007). The impact of gated communities on property values: Evidence of changes in real estate markets, Los Angeles, 1980–2000. Cybergeo: *European Journal of Geography.* https://doi.org/10.4000/cybergeo.6225

Mahgoub, Y., & Khalfani, F. (2012). Sustainability

of gated communities in developing countries. *Developing Country Studies*, 2(6), 53–63.

Maidment-Blundell, L. (2020). *Infrastructure, place making and sustainability: A report for Places for People.* Cambridge Centre for Housing and Planning Research.

McKenzie, E. (1994). *Privatopia: Homeowner associations and the rise of residential private government.* Yale University Press.

McKenzie, E. (2005). Planning through residential clubs: Homeowners' associations. *Economic Affairs*, 25(4), 28–31.

McKenzie, E. (2016). *Privatopia revisited: Private communities and public life*. Urban Institute Press.

Mohamed, S. H. T., & Naryanasamy, J. (2011). Review of club theory in context of effective and efficient security management in Malaysian gated and guarded communities. *International Proceedings of Economics Development and Research*, 5.

Muiga, J. (2015). *Sustainability of gated communities: Implications for urban development: Case studies of Nairobi County* [Unpublished doctoral thesis]. University of Nairobi.

Muriungi, M., & Shah, S. (2022). *Legal, policy and institutional review of the affordable housing sector in Kenya*. FSD Kenya.

Myers, A. D. (2011). *The social implications of gated communities and the planning process: A suburban case study* [Master's thesis, Kansas State University]. K-REx. Retrieved from https://krex.k-state.edu/items/add827c0-b870-4db3-9ba2-a55ff2f6f697

National Building Code, 2024, Legal Notice No. 47 of 2024 (Kenya).

National Construction Authority Act, No. 41 of 2011, Laws of Kenya.

Physical and Land Use Planning Act, No. 13 of 2019, Laws of Kenya.

Polishchuk, L., & Sharygina, Y. (2016). Gating in Russia: Exit into private communities, and implications for governance. In A. Lehavi (Ed.), *Private communities and urban governance: Theoretical and comparative perspectives* (pp. 27–49). Springer. https://doi.org/10.1007/978-3-319-33210-9_2

Ramly, A., Ahmad, A. H., & Md-Zain, M. (2006). The effects of design on the maintenance of public housing buildings in Malaysia. *Journal of Building Appraisal*, 2(1), 69–83.

Republic of Kenya. (2016a). National urban development policy. Ministry of Transport, Infrastructure, Housing and Urban Development, State Department of Housing and Urban Development.

Republic of Kenya. (2016b). *Sessional Paper No. 3 of 2016 on National Housing Policy.* Ministry of Land, Housing and Urban Development. Retrieved from https://libraryir.parliament.go.ke/handle/123456789/6151

Sectional Properties Regulations, 2021, Legal Notice No. 236 of 2021. Laws of Kenya. Retrieved from https://new.kenyalaw.org/akn/ke/act/ln/2021/236/eng@2022-12-31

Sectional Properties Act, No. 21 of 2020, Laws of Kenya. Retrieved from https://new.kenyalaw.org/akn/ke/act/2020/21/eng@2022-12-31

Sustainable Waste Management Act, No. 31 of 2022, Laws of Kenya. Retrieved from https://new.kenyalaw.org/akn/ke/act/2022/31/eng@2022-08-12

Vitriana, A. (2018). Infrastructure provision by residential developers in the peri-urban neighbourhoods of Metropolitan Bandung Raya. *IOP Conference Series: Earth and Environmental Science*, 158(1), 012041. https://doi.org/10.1088/1755-1315/158/1/012041

Webster, C., & Lai, L. W.-C. (2003). *Property rights, planning and the gated community.* Edward Elgar.

Zou, P. X. W., Zhang, G., & Wang, J. (2007). Understanding the key risks in construction projects in China. *International Journal of Project Management,* 25(6), 601–614.