

A Climate Gentrification Assessment Framework for Low-Lying Coastal Cities: Evidence from Lagos, Nigeria

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Abstract

Climate gentrification research is dominated by evidence from Global North coastal cities, where geographical elevation and differential flood exposure explain neighbourhood change, housing-market transformation, and displacement. Whether these explanations apply in predominantly low-lying coastal cities remains insufficiently understood. This study examines whether infrastructure resilience can serve as an alternative pathway for understanding and assessing climate gentrification where elevation offers limited explanation. A qualitative meta-synthesis of 15 empirical climate gentrification studies published between 2018 and 2025 identified recurring indicators and mechanisms, which informed a Climate Gentrification Assessment Framework subsequently applied to Lagos, Nigeria, using triangulated observational, spatial, housing-market, and historical evidence from six coastal neighbourhoods. The synthesised indicators comprise three interrelated dimensions: physical and environmental conditions, socio-economic change, and governance and policy processes. These interact through three concurrent mechanisms: Resilience Investment, Superior Investment, and Cost-Burden. Despite limited elevation variance across the Lagos coastal area, the framework reveals substantial inequalities in housing quality, drainage infrastructure, road networks, waste and environmental management, and (re)development activity. These disparities correspond with contrasting patterns of infrastructure investment concentration, neighbourhood desirability, and housing-market transformation. The findings suggest that infrastructure resilience can function as an alternative spatial mechanism through which climate gentrification emerges in low-lying coastal cities. By extending climate gentrification beyond elevation-centred interpretations, the study advances a transferable framework that strengthens comparative analysis across diverse coastal contexts and highlights the need to integrate socio-spatial equity into climate resilience and urban planning.

Keywords: Climate gentrification; infrastructure resilience; climate adaptation; housing inequality; Lagos; coastal cities.

1.0 Introduction

Climate change and its associated risks are fundamentally reshaping the development trajectories of coastal cities. Flooding from rising sea levels, increasingly intense precipitation, and storm surges are altering patterns of urban growth, infrastructure investment, housing demand, and environmental risk across coastal cities (IPCC, 2022; Ruan et al., 2024; Laino & Iglesias, 2025). In response, public and private investment increasingly prioritises climate adaptation and resilience within urban planning, focusing on flood-resilient housing, flood-control infrastructure, drainage systems, shoreline protection, and transport networks, among other interventions (Mannucci, 2024; O'Hare, 2025). Although designed to improve environmental safety, these interventions have consequences that extend well beyond risk reduction. By altering the spatial distribution of environmental quality, accessibility, and perceived safety, resilience investments may also reshape urban land markets, influence neighbourhood desirability, and reinforce existing socio-spatial inequalities.

Recognition of these unintended consequences has driven the rapid emergence of climate gentrification as an important concept within urban studies. Broadly defined, climate gentrification describes processes through which climate risks and adaptation responses influence housing-market restructuring, neighbourhood change, demographic transition,

and, in some cases, the displacement of lower-income populations (Keenan et al., 2018; Aune et al., 2020; Tedesco et al., 2021; Best & Jouzi, 2022; Thompson et al., 2023; See et al., 2025). The concept extends earlier debates on environmental and ecological gentrification, which showed that environmental improvements frequently increase neighbourhood attractiveness, stimulate investment, and raise housing costs (Gould & Lewis, 2018; Anguelovski et al., 2019). Climate gentrification introduces climate risk as an increasingly important determinant of urban development: as flood hazards and sea-level rise become incorporated into planning and market behaviour, environmental safety acquires economic value. Keenan et al. (2018) provided the first empirical demonstration of this idea, and investigations have since expanded across coastal cities, documenting changes in property values, demographic composition, residential displacement, affordability pressures, and investment behaviour (De Koning & Filatova, 2020; Wang et al., 2023a; 2023b; Best & Jouzi, 2022; Tedesco et al., 2024).

Despite this growth, the literature exhibits a striking conceptual convergence in how the phenomenon is explained. Neighbourhood change is interpreted through the spatial redistribution of 'climate advantage', whereby locations perceived as less exposed to climate risk attract stronger investment, higher housing demand, and accelerated property appreciation. Within this explanation, geographical elevation has emerged as the dominant explanatory variable, particularly following evidence that higher-elevation neighbourhoods in Miami appreciated disproportionately as market actors incorporated climate risk into investment decisions (Keenan et al., 2018), a perspective reinforced by subsequent studies (De Koning & Filatova, 2020; Aune et al., 2020). Elevation-centred interpretations have been highly influential, providing one of the first empirically measurable explanations of how climate risk becomes translated into property-market dynamics. Yet their prominence raises questions of geographical transferability. Urban development trajectories are shaped not only by topography but by the uneven distribution of infrastructure, planning decisions, governance arrangements, historical investment, and entrenched socio-economic inequality. Much of the empirical literature nevertheless equates climate advantage with topographical advantage, devoting comparatively little attention to whether climate advantage may be produced through alternative spatial processes, particularly in coastal cities where topographical variation is limited but disparities in resilience-related infrastructure are substantial.

The need to broaden existing conceptualisations is especially evident across the Global South. Although coastal cities in Africa, Asia, and Latin America are among the most vulnerable to climate-related hazards (Uchiyama et al., 2021; Saber et al., 2025), they remain significantly underrepresented within empirical climate gentrification research, which is concentrated predominantly in North America and Europe (Best & Jouzi, 2022). Many Global South cities are characterised by rapid urbanisation, extensive informal development, uneven infrastructure, limited planning capacity, and pronounced socio-economic inequality (Kundu & Pandey, 2020; Myers, 2021; Randolph & Storper, 2023). Under such conditions, climate adaptation frequently occurs through highly selective patterns of investment, creating uneven landscapes of resilience that may influence neighbourhood desirability independently of topography. Extending climate gentrification research into these contexts is therefore not simply a matter of geographical representation; it is essential for evaluating the explanatory capacity of existing theory.

Lagos, Nigeria, provides a particularly compelling context in which to examine these questions. As one of Africa's largest and fastest-growing coastal megacities, Lagos experiences recurrent flooding associated with intense rainfall, tidal influences, inadequate drainage, rapid land-use change, and continuing urban expansion (Adelekan, 2010; 2020; Obaitor et al., 2024), alongside pronounced spatial inequalities in housing quality, infrastructure provision, environmental management, and access to urban services (Davies, 2018; Adeleke, 2021). Crucially, much of the metropolitan area occupies relatively low-lying coastal terrain, limiting the extent to which neighbourhood differentiation can be explained

by elevation alone (Arungwa et al., 2018; Nwilo et al., 2022; Enoch et al., 2023). Nevertheless, flood-resilient housing, engineered drainage, well-maintained road networks, environmental management programmes, and large-scale redevelopment are concentrated within selected neighbourhoods, while other communities rely on inadequate infrastructure and informal coping strategies to manage recurrent flood risk. This contrast suggests that climate advantage in Lagos may be produced less through topography than through differential access to infrastructure capable of reducing environmental risk and enhancing neighbourhood liveability.

This paper therefore proposes that infrastructure resilience constitutes an alternative spatial mechanism through which climate gentrification may emerge in predominantly low-lying coastal cities. Rather than rejecting the importance of elevation, the study argues that the processes underpinning climate gentrification are better understood as the uneven spatial production of 'climate advantage'. In some coastal cities, that advantage may derive principally from higher elevation; in others, it may emerge through sustained investment in resilience-enhancing infrastructure that reduces perceived environmental risk, attracts public and private capital, improves neighbourhood desirability, and stimulates housing-market transformation. This interpretation shifts attention from where climate advantage is located towards how it is spatially produced.

Examining this proposition requires an analytical approach capable of moving beyond isolated, case-specific characteristics towards a systematic understanding of how climate gentrification manifests across diverse coastal contexts (Maloutas, 2012; 2018). Existing studies have identified a wide range of indicators: flood exposure, housing-market appreciation, residential mobility, demographic change, redevelopment, displacement (Best & Jouzi, 2022; Wang et al., 2023a; Melix et al., 2023; Gao et al., 2026), but these are often examined independently or operationalised in ways that reflect individual case-study geographies, leaving comparative research without a consistent methodological basis. To address this, the study develops a Climate Gentrification Assessment Framework through a qualitative meta-synthesis of empirical climate gentrification research, synthesising recurring indicators and mechanisms into a coherent, transferable analytical structure. The framework is then applied to Lagos using triangulated evidence collected across six coastal neighbourhoods. Rather than treating Lagos solely as an empirical case study, the city serves as a theory-building context: the objective is not simply to determine whether climate gentrification exists in Lagos, but to examine whether the mechanisms through which it emerges differ from those that currently dominate the literature.

Accordingly, the study addresses the following research question: to what extent can infrastructure resilience function as an alternative spatial mechanism through which climate adaptation influences housing-market transformation and socio-spatial inequality in low-lying coastal cities, beyond conventional elevation-centred interpretations? The study makes three principal contributions. Theoretically, it demonstrates that climate advantage may be produced through the uneven distribution of infrastructure resilience rather than solely through topographical advantage, broadening the applicability of climate gentrification theory to predominantly low-lying coastal cities. Methodologically, it develops the framework as a structured, transferable approach for identifying and comparing climate gentrification across diverse geographical contexts, improving conceptual consistency within an emerging field. Empirically, it extends climate gentrification scholarship to Lagos, one of Africa's largest and most rapidly urbanising coastal cities, responding to longstanding calls for greater geographical diversity within urban climate adaptation research.

The remainder of the paper describes the methodological approach (Section 2), presents the meta-synthesis, the framework, and its Lagos application (Section 3), discusses the findings in relation to existing scholarship (Section 4), and concludes (Section 5).

2.0 Methodology

2.1 Research Design

The study adopted a theory-building design situated within a broader qualitative research project. Rather than testing predetermined causal relationships, it sought to extend existing conceptualisations of climate gentrification by synthesising empirical evidence from the international literature and evaluating its explanatory capacity in a contrasting coastal context. Consistent with an interpretive philosophy (Cuthbertson et al., 2020; Oluka, 2025), climate gentrification is understood as a socio-spatial process shaped by interactions between environmental conditions, urban development trajectories, governance arrangements, housing markets, and adaptation interventions; its indicators and mechanisms are therefore expected to vary across geographical settings rather than conform to a single universal pattern (Maloutas, 2012, 2018; Keenan et al., 2018).

The research proceeded in two sequential, interconnected stages. Stage 1 comprised a qualitative meta-synthesis of empirical climate gentrification studies, identifying recurring indicators, relationships, and mechanisms from which the Climate Gentrification Assessment Framework was developed. Stage 2 applied the framework in Lagos, Nigeria, using triangulated observational, geospatial, housing-market, and secondary evidence. Throughout, methodological and data-source triangulation strengthened analytical credibility and reduced reliance on any single evidence source (Vivek et al., 2023).

2.2 Stage 1: Qualitative Meta-Synthesis of Climate Gentrification Studies

Qualitative meta-synthesis generates higher-order conceptual interpretations by integrating evidence across multiple empirical investigations (Finfgeld-Connett, 2018; Abedijafari & Amiri, 2019). The approach was appropriate because the objective was not to estimate effect sizes or statistical relationships, but to identify recurring indicators, explanatory mechanisms, and conceptual patterns capable of informing a transferable analytical framework.

A structured literature search used Google Scholar as the principal platform because of its broad interdisciplinary coverage of urban studies, planning, geography, housing, environmental studies, and climate adaptation research (Martín-Martín et al., 2018). Supplementary searches in Scopus and Web of Science identified two additional eligible empirical studies. Searches combined "climate gentrification" with climate adaptation, climate resilience, flooding, sea-level rise, urban resilience, displacement, and housing. Eligibility was restricted to empirical studies published or completed between 2018 and 2025, the period in which climate gentrification emerged as a distinct area of empirical research. Peer-reviewed journal articles constituted the primary evidence base; however, reflecting the emergent state of the field, postgraduate theses and other scholarly outputs reporting original empirical evidence were also eligible, consistent with meta-synthesis guidance recommending the inclusion of grey literature to reduce publication bias in developing research areas (Finfgeld-Connett, 2018). Non-peer-reviewed sources were retained only where they demonstrated methodological transparency equivalent to peer-reviewed work, including a clearly described research design, identifiable data sources, and an explicit analytical approach. In addition, two early concept-defining contributions (Gould & Lewis, 2018; Anguelovski et al., 2019) were retained despite their commentary format because they report original observational evidence from named urban cases and established indicator categories subsequently operationalised across the empirical literature; their inclusion grounds the synthesis in the field's foundational conceptual vocabulary rather than expanding its empirical claims. The searches yielded 1,502 records. Following duplicate removal, title and abstract screening, and full-text assessment, studies were retained if they (i) presented empirical evidence, (ii) explicitly examined climate gentrification or closely related adaptation–socio-spatial change relationships, (iii) reported identifiable indicators, mechanisms, or outcomes, and (iv)

focused on coastal, flood-prone, or climate-vulnerable urban contexts. Purely conceptual papers without empirical evidence and methodologically opaque studies were excluded, producing a final dataset of 15 empirical studies (Fig. 1).

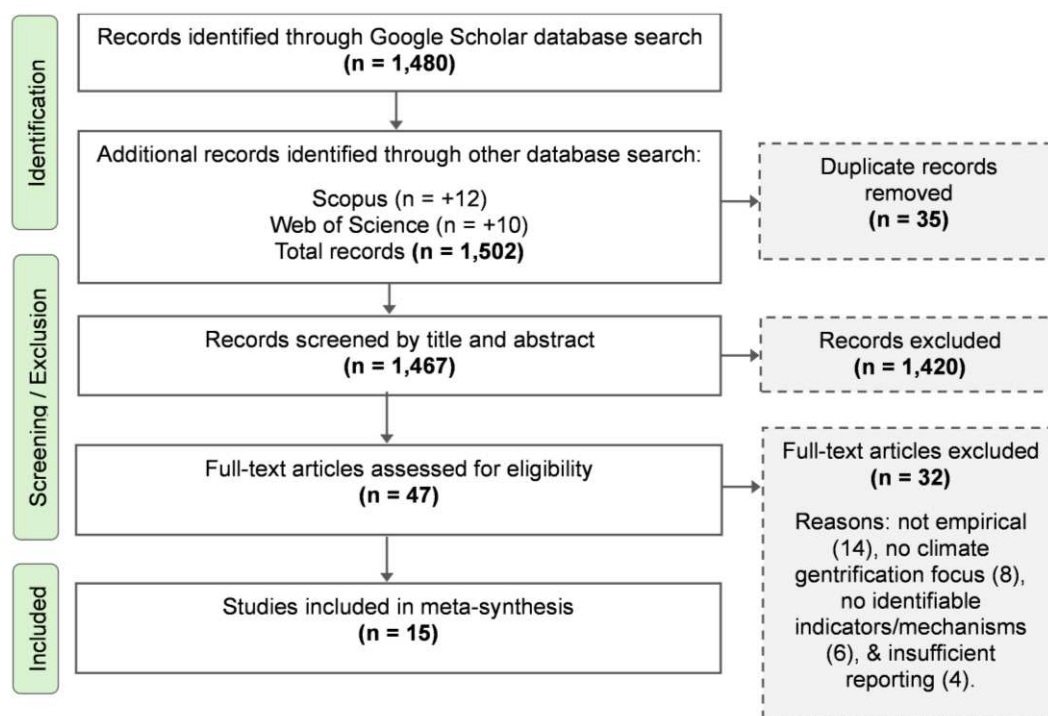


Fig. 1 PRISMA-inspired study selection process for identifying empirical climate gentrification studies included in the qualitative meta-synthesis. Source: developed from the qualitative meta-synthesis conducted in this study.

Analysis of the 15 studies followed an iterative process of coding, comparison, categorisation, and conceptual abstraction consistent with established meta-synthesis procedures (Finfgeld-Connett, 2018). First-order concepts were extracted from the findings, discussion, and conclusion sections of each study and grouped, through constant comparison, into broader categories representing recurring indicators of climate gentrification across geographical contexts. A second analytical step identified the processes connecting these indicators, drawing on the logic of Keenan et al. (2018) but extending it through cross-case synthesis, and integrated the resulting categories and mechanisms into a single analytical structure. The synthesised indicators, mechanisms, and resulting Climate Gentrification Assessment Framework are presented in the Results section.

2.3 Stage 2: Theory-Building Application in Lagos

Stage 2 evaluated the explanatory capacity of the framework within Lagos, Nigeria. As outlined in Section 1, Lagos was selected not simply for its high exposure to coastal flooding but because its predominantly low-lying terrain (Arungwa et al., 2018; Nwilo et al., 2022), rapid urbanisation, pronounced socio-spatial inequality (Adelekan, 2010; Nwanna, 2012; Adegun, 2023), and uneven infrastructure provision make it a theoretically significant context for examining climate gentrification beyond the elevation-centred settings dominating existing scholarship.

Six coastal neighbourhoods (Table 1) were purposively selected to represent contrasting flood resilience conditions and housing market dynamics; their geospatial characteristics are presented in the Results (Fig. 4), where the Digital Elevation Map (DEM) analysis forms part of the empirical evidence. Together, these neighbourhoods encompass a broad spectrum of urban conditions while remaining broadly comparable in coastal exposure, enabling the framework to

be evaluated across locations with differing patterns of flood adaptation and resilience, housing development, and environmental management.

Table 1. Approximate centroid coordinates and spatial classification of the six selected Lagos coastal neighbourhoods.

Lagos Coastal Neighbourhood	Approximate latitude	Approximate longitude	Representation in study
Ikoyi	6.4464°N	3.4244° E	Lagos Island Area
Victoria Island	6.4319° N	3.4425° E	
Lekki	6.4439° N	3.4953° E	
Maroko	6.4272° N	3.4536° E	
Makoko	6.4961° N	3.3928° E	Lagos Mainland Area
Apapa	6.4519° N	3.3619° E	

Note: Coordinates represent approximate central-point locations used for spatial identification. Field observations were conducted across selected streets and publicly observable spaces within each neighbourhood rather than at a single fixed point.

Operationalisation drew on multiple complementary evidence sources. Photographic recordings from observations, together with digital elevation data from Quantum Geographic Information System (QGIS), were used to examine physical characteristics, flood exposure, and the spatial distribution of flood resilience-related infrastructure. Observation domains comprised housing conditions, flood exposure, drainage and transport infrastructure, environmental quality, socio-economic differentiation, adaptation measures, and evidence of recent public or private investment. Housing-market evidence (property values, land prices, rental trends, and redevelopment activity) were compiled to assess changing neighbourhood desirability, including the concentration of infrastructure and housing investment. Related investigations and media reports provided secondary evidence of long-term patterns of urban development, infrastructure distribution, and neighbourhood transformation. These indicator domains correspond directly to the dimensions of the Climate Gentrification Assessment Framework, while photographic records and geospatial imagery supported systematic inter-neighbourhood comparison and enhanced the transparency of observational interpretation.

2.4 Analytical Strategy

The Lagos evidence was analysed using directed qualitative content analysis (Hsieh & Shannon, 2005), with coding guided by the indicators and mechanisms identified in Stage 1. This deductive orientation enabled systematic comparison between empirical patterns reported in the international literature and the evidence derived from Lagos, with the analysis oriented towards conceptual convergence and divergence rather than statistical generalisation.

To ensure analytical consistency across the six study locations, a visual observation coding protocol was applied to all photographs collected during fieldwork. Recurrent environmental and built-environment features were assigned standardised visual symbols denoting housing quality, drainage infrastructure, road conditions, and waste management. Coded observations were then summarised in a comparative observation matrix, enabling structured cross-neighbourhood comparison and enhancing the transparency and replicability of observational interpretation. This visual evidence was analysed alongside comparative geospatial analysis of digital elevation data and housing-market trends compiled from consolidated real-estate inventories, allowing observational, spatial, and market indicators to be triangulated against the framework's dimensions.

2.5 Ethical Considerations

The wider research was conducted in accordance with approved ethical procedures. Ethical approval was granted by the relevant institutional research ethics committee before data collection commenced. Details are withheld for double-blind review. No personally identifiable information was collected, participation in informal conversations was voluntary, and photographic records were restricted to publicly observable environmental and infrastructural features. All research materials were securely stored in accordance with institutional governance procedures and managed in compliance with the UK Data Protection Act (2018) and the Nigeria Data Protection Act (2023).

3.0 Results

3.1 Characteristics of the Empirical Studies Included in the Meta-Synthesis

The systematic search and screening process identified 15 empirical studies published between 2018 and 2025 that satisfied the predefined inclusion criteria. Collectively, these studies represent the current empirical evidence base on climate gentrification across coastal and climate-vulnerable urban environments. Their geographical distribution reveals a pronounced concentration within North America ($n = 8$), particularly the United States, including Miami, Little Havana, New York City, Tampa, California, and Edgemere (Queens). The remaining studies were distributed across Europe, Australia, Asia, South America, and Africa. Regions where climate vulnerability and rapid urbanisation are often most acute therefore remain comparatively under-examined, an imbalance that provides important context for the theory-building application undertaken in Lagos.

The principal characteristics of the included studies are summarised in Table 2. The studies examined a broad spectrum of climate-related hazards: sea-level rise, coastal flooding, storm surge, extreme rainfall, and heat-related risks and an equally varied range of adaptation responses, encompassing flood-control infrastructure, green infrastructure, ecosystem-based adaptation, redevelopment, relocation programmes, shoreline protection, and resilience planning. Despite this diversity, considerable convergence is evident in the reported socio-spatial outcomes: housing-market transformation, redevelopment, changing neighbourhood attractiveness, residential mobility, affordability pressures, and displacement recur across the literature, although their relative importance varies with local environmental, institutional, and housing-market conditions.

Table 2. Analytical Coding of Indicators & Mechanisms of Climate Gentrification from Empirical Case Studies Included in the Meta-Synthesis (n = 15).

Study ID	Author(s) & Year	Case Study Location	Climate Risk	Resilience Intervention	Evidence of Inequality / Displacement	Initial Codes of Gentrification Indicators
S01	Keenan et al. (2018)	Miami, USA	Sea-level rise, flooding	Market responses to climate risk	Lower-income areas become targets for redevelopment	Higher-elevation neighbourhood appreciation
S02	Gould & Lewis (2018)	Brooklyn, New York, USA	City climate adaptation	Sustainability and green redevelopment	Redevelopment linked to exclusion	Eco-gentrification; Housing market transformation
S03	Anguelovski et al. (2019)	Multiple cities	Flooding, climate adaptation	Green infrastructure and resilience planning	Environmental improvements increase housing costs	Socio-spatial inequality; Green gentrification
S04	Aune et al. (2020)	New Orleans, Louisiana, USA	Hurricane-induced flooding, storm surge, and low elevation	Post-Hurricane Katrina rebuilding and recovery; neighbourhood redevelopment following flood impacts	Areas eligible for gentrification experienced shallower flooding and higher ground elevation.	Higher-elevation neighbourhood appreciation; post-disaster redevelopment; Racial displacement; Income upgrading; Housing redevelopment; Socio-spatial inequality; Climate gentrification; Elevation advantage;
S05	De Koning & Filatova, 2020	Beaufort and Greenville, North Carolina, USA	Repetitive coastal and river flooding driven by climate change	Outmigration, risk-based relocation, and market responses to increasing flood risk	Outmigration of higher-income households, lower-others trapped in flood-prone areas	Market-driven relocation; Climate gentrification; Socio-spatial inequality
S06	Ahsan & Ozbek (2022)	Coastal Bangladesh and Louisiana, USA	Sea-level-rise-induced flooding and migration	Infrastructure resilience	Indirect displacement pressures	Housing market transformation
S07	Taylor & Aalbers (2022)	Greater Miami, Florida, USA	Sea-level rise, coastal flooding, hurricane wind risk, storm surge,	Flood adaptation infrastructure, municipal resilience planning (Miami Forever Bond), flood insurance (NFIP)	Affluent coastal municipalities finance expensive adaptation infrastructure via luxury development; Rising insurance premiums	Climate gentrification; Climate-risk speculation; Higher-elevation; Socio-spatial inequality
S08	Wang, Wang & Liu (2023a)	Gold Coast, Australia	Sea-level rise, coastal flooding risk	Neighbourhood resilience, adaptation to sea-level rise, relocation and resettlement responses	Human relocation & resettlement linked to elevation	Socio-economic profile change; gentrification of suburbs; residential relocation; neighbourhood transformation
S09	Jacobson (2023)	California, USA	Sea-level rise, heat, extreme weather	Ecosystem-Based Adaptation (EbA)	EbA concentrated in gentrifying areas	Green gentrification
S10	Berg (2023)	Göteborg, Sweden	Flooding and climate impacts	Green infrastructure and housing adaptation	Physical and psychological displacement	Rent increases and attractiveness
S11	Thompson et al. (2023)	Flood-prone UK city (anonymised), United Kingdom	Fluvial flooding, pluvial flooding, coastal flooding, sea-level rise,	Flood resilience measures, flood insurance reforms, property-level adaptation, resilience-informed property valuation	Slower property appreciation than comparable unexposed properties; higher insurance costs, reduced property value	Property value depreciation; Differential property appreciation; Capital reallocation; Selective investment; Housing market restructuring; Financial vulnerability; Displacement pressure; Climate injustice; Climate-resilient investment
S12	Ramirez (2024)	Tampa, Florida	Sea-level rise, storm inundation	Climate Gentrification Index (CGI)	Lower-income neighbourhood vulnerability	Inland migration of affluent residents
S13	Tedesco et al. (2024)	Coastal cities	Flooding and sea-level rise	Climate adaptation	Social exclusion	Housing market transformation
S14	See et al. (2025)	Tacloban, Philippines	Flooding and storm surge	Hard infrastructure and embankments	Infrastructure-induced displacement	Spatial inequality
S15	Ricci, Mariano & Marino (2025)	Little Haiti (Miami, USA) and Medellín (Colombia)	Sea-level rise, coastal flooding, urban heat island, rising temperatures, climate change	Flood adaptation planning, urban regeneration, green infrastructure, blue-green infrastructure, Green Corridors	Higher-elevation neighbourhoods became attractive to investors; speculative redevelopment, rising rents, luxury; displacement	Climate justice; Climate adaptation; Urban regeneration; High-ground investment; Climate-risk investment; Housing unaffordability; Rent escalation; Luxury redevelopment; Residential displacement; Cultural displacement

3.2 Meta-Synthesised Indicators and Interacting Mechanisms of Climate Gentrification

Qualitative meta-synthesis of the 15 studies identified recurring indicators through which climate gentrification has been observed across diverse coastal settings. Individual studies employed different analytical approaches and investigated different forms of adaptation, but recurring patterns were consistently identifiable and were synthesised into three higher-order analytical dimensions: physical and environmental conditions, socio-economic change, and governance and policy processes (Table 3).

Table 3. Meta-Synthesised Indicators and Associated Climate Gentrification Mechanisms

Coded Gentrification Indicator		Study ID	Studies (n)	Mechanism		
Code Category	Codes			CB	RI	SI
Physical/Environmental	Flooding/flood exposure	S01, S03, S04, S08, S10, S13, S14, S15	8	✓	Δ	Δ
	Sea-level rise	S01, S06, S09, S12	4	✓	Δ	✓
	Environmental/infrastructure improvement	S02, S03, S04, S08, S10, S13, S15	7	Δ	✓	✓
	Geographical elevation advantage	S01, S04, S07, S08, S15	5	✓	Δ	Δ
	Storm surge	S04, S07, S14	3	✓	Δ	Δ
	Protective infrastructure	S07, S14	2	Δ	✓	Δ
	Extreme weather/heat risk	S09, S15	2	✓	Δ	Δ
Socio-Economic	Displacement pressure	S01, S04, S06, S10, S11, S14, S15	7	✓	Δ	Δ
	Housing cost pressure/affordability decline	S03, S07, S10, S11, S15	5	✓	Δ	Δ
	Residential relocation/mobility	S05, S06, S08, S12	4	✓	Δ	Δ
	Housing market transformation	S05, S06, S11, S13	4	✓	Δ	Δ
	Socio-economic profile change	S04, S08	2	Δ	✓	✓
	Inland migration of affluent residents	S12	1	Δ	Δ	✓
	Social exclusion	S02, S13	2	✓	Δ	Δ
	Housing insecurity	S12	1	✓	Δ	Δ
Governance & Policy	Climate adaptation planning	S02, S03, S07, S11, S15	5	✓	Δ	✓
	Urban redevelopment/neighbourhood rehabilitation	S01, S02, S04, S15	4	Δ	✓	✓
	Relocation policies and programmes	S05, S06, S08	3	✓	✓	Δ
	Infrastructure investment prioritisation	S05, S10, S13, S15	4	Δ	✓	✓
	Land governance and urban management	S15	1	✓	Δ	✓
	Ecosystem-based adaptation governance	S09	1	✓	Δ	✓

Key: ✓ = primary association with mechanism; Δ = secondary association with mechanism. CB = Cost-Burden; RI = Resilience Investment; SI = Superior Investment. Note: studies are listed against an indicator only where that indicator was coded as contributing to climate gentrification dynamics in the study's findings, not merely present as contextual hazard information.

Physical and environmental indicators were the most consistently reported dimension across the empirical literature. Flooding and flood exposure appeared most frequently (n = 8), followed by environmental and resilience-related infrastructure improvement (n = 7) and geographical elevation advantage (n = 5); other recurring indicators included sea-level rise (n = 4), storm surge exposure (n = 3), protective infrastructure (n = 2), and extreme weather and heat-related risks (n = 2). Some studies emphasised naturally occurring characteristics, such as elevation and coastal exposure, whereas others focused on built interventions, including flood-control infrastructure, ecosystem restoration, and neighbourhood

upgrading. In each case, these indicators described the physical conditions through which climate risk and climate adaptation became spatially differentiated within urban environments.

Socio-economic indicators captured the consequences associated with climate adaptation and changing patterns of urban investment. Displacement pressure was the most frequently reported ($n = 7$), followed by housing-cost escalation and declining affordability ($n = 5$), residential relocation and mobility ($n = 4$), and housing-market transformation ($n = 4$). Additional indicators included changing socio-economic composition ($n = 2$), social exclusion ($n = 2$), inland migration of higher-income residents ($n = 1$), and housing insecurity ($n = 1$). While studies differed in the relative prominence of these indicators, each documented observable changes within housing markets and neighbourhood composition following climate adaptation or changing perceptions of environmental risk.

Governance and policy indicators constituted the third dimension. Although reported less frequently than physical or socio-economic indicators, governance-related variables appeared consistently within studies examining climate adaptation planning ($n = 5$), neighbourhood redevelopment and rehabilitation ($n = 4$), infrastructure investment prioritisation ($n = 4$), and relocation policies and programmes ($n = 3$), with further observations concerning land governance arrangements ($n = 1$) and ecosystem-based adaptation governance ($n = 1$). Collectively, these indicate that governance processes shape the spatial distribution of adaptation investment and influence how resilience benefits are experienced across different contexts.

Beyond identifying recurring indicators, the meta-synthesis revealed three interacting mechanisms through which climate gentrification manifests across the empirical literature. Resilience Investment (RI) is associated with interventions that enhance neighbourhood resilience through improvements to environmental quality, infrastructure, or adaptation capacity. Superior Investment (SI) reflects the concentration of public and private investment within neighbourhoods perceived to offer greater environmental security or development potential. Cost-Burden (CB) captures the affordability pressures, displacement risks, and socio-economic inequalities that may emerge alongside adaptation and redevelopment processes. Importantly, analytical coding demonstrated that many indicators were associated with more than one mechanism: infrastructure improvements frequently coincided with increased investment concentration and subsequent housing-market change, while redevelopment often occurred alongside affordability pressures and displacement. Rather than discrete processes, RI, SI, and CB operate concurrently through overlapping indicators and mutually reinforcing relationships. These findings provide the empirical foundation for the framework presented next.

3.3 Climate Gentrification Assessment Framework

The recurring relationships identified through the meta-synthesis were integrated into the Climate Gentrification Assessment Framework (Fig. 2). The framework conceptualises climate gentrification as the interaction of the three analytical dimensions established in Section 3.2, operating concurrently through the RI, SI, and CB mechanisms. Reinforcing and balancing (R/B) relationships connect socio-economic vulnerability, governance and policy processes, and biophysical exposure, such that infrastructure resilience to flood risk functions as the independent variable through which multiple impact pathways translate into climate gentrification within coastal cities.

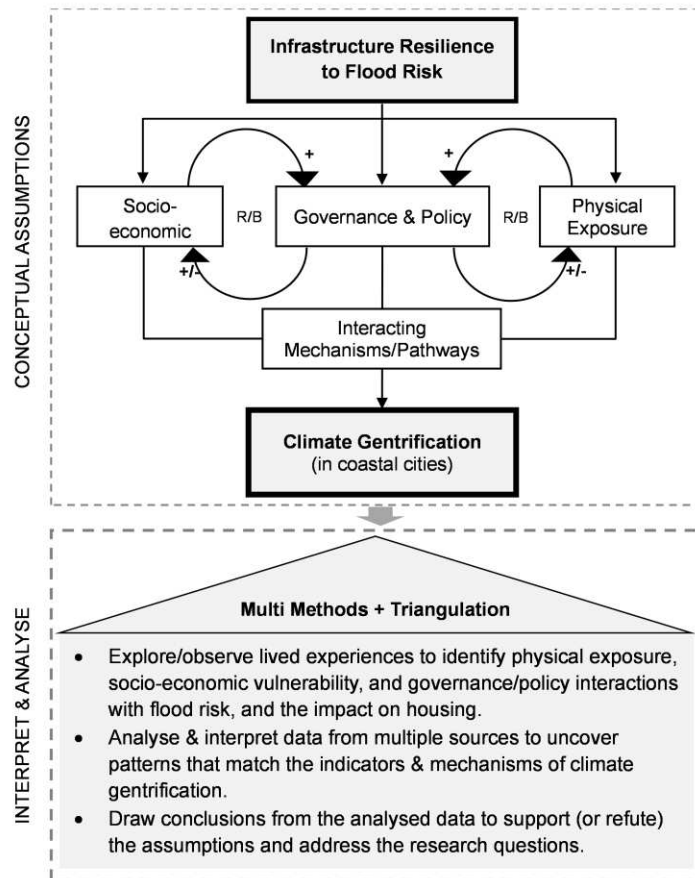


Fig. 2 Framework for assessing Climate Gentrification in coastal cities. The framework operationalises the interaction between infrastructure resilience to flood risk, socio-economic vulnerability, biophysical exposure, and governance and policy processes. It also incorporates multiple impact mechanisms/pathways through which climate gentrification may occur in coastal cities. R/B denotes reinforcing or balancing relationships. Source: developed from the qualitative meta-synthesis conducted in this study.

Rather than a prescriptive model, the framework provides a transferable analytical structure for identifying and examining climate gentrification across diverse coastal contexts. By recognising that ‘climate advantage’ may be produced through different spatial processes depending on local environmental, institutional, and urban development conditions, it enables examination of the phenomenon beyond elevation-centred interpretations while maintaining conceptual consistency across comparative studies. To evaluate its explanatory capacity, the framework was operationalised using triangulated evidence from six coastal communities in Lagos, presented in the following section.

3.4 Theory-Building Application of the Climate Gentrification Assessment Framework in Lagos

Application of the framework revealed substantial spatial variation in the distribution of infrastructure, flood adaptation and resilience, housing conditions, environmental quality, and development across the six Lagos neighbourhoods. Although all are located within the same coastal metropolitan region and remain broadly exposed to similar climatic hazards, marked differences were observed across each of the three analytical dimensions, with the most pronounced contrasts occurring between neighbourhoods on the Island (Ikoyi, Victoria Island, Maroko, and Lekki) and neighbourhoods on the Mainland (Apapa and Makoko). The findings are presented below according to the three dimensions of the climate gentrification assessment framework.

i. Physical and Environmental Conditions

Content analysis of photographic records from field observation revealed pronounced spatial differences in housing quality, infrastructure, waste management, and observable flood adaptation and resilience conditions across the six neighbourhoods (Fig. 3a-f). Ikoyi, Victoria Island, Maroko, and Lekki are characterised by contemporary residential developments, engineered drainage systems, well-maintained road networks, and comparatively planned environments, with evidence of recent infrastructure upgrading and continuing redevelopment consistently observed. In contrast, Makoko and parts of Apapa exhibit generally informal housing conditions, absent or poorly maintained drainage, deteriorating road infrastructure, and limited environmental management; waterlogging, blocked drainage channels, waste accumulation, and informal adaptation measures were more frequently observed, reflecting greater visible exposure to recurrent flood impacts. Fig. 3a-f and Table 4 summarise the principal physical and environmental indicators observed, with differences evident across all observation domains.



Fig. 3a-c Contrasting physical and environmental conditions across selected Lagos coastal communities. Photographs illustrate differences in housing quality (HQ), drainage infrastructure (DC), road conditions (RC),

waste management (WM), and exposure to flooding (FE) between Island and Mainland communities. Source: field observations.

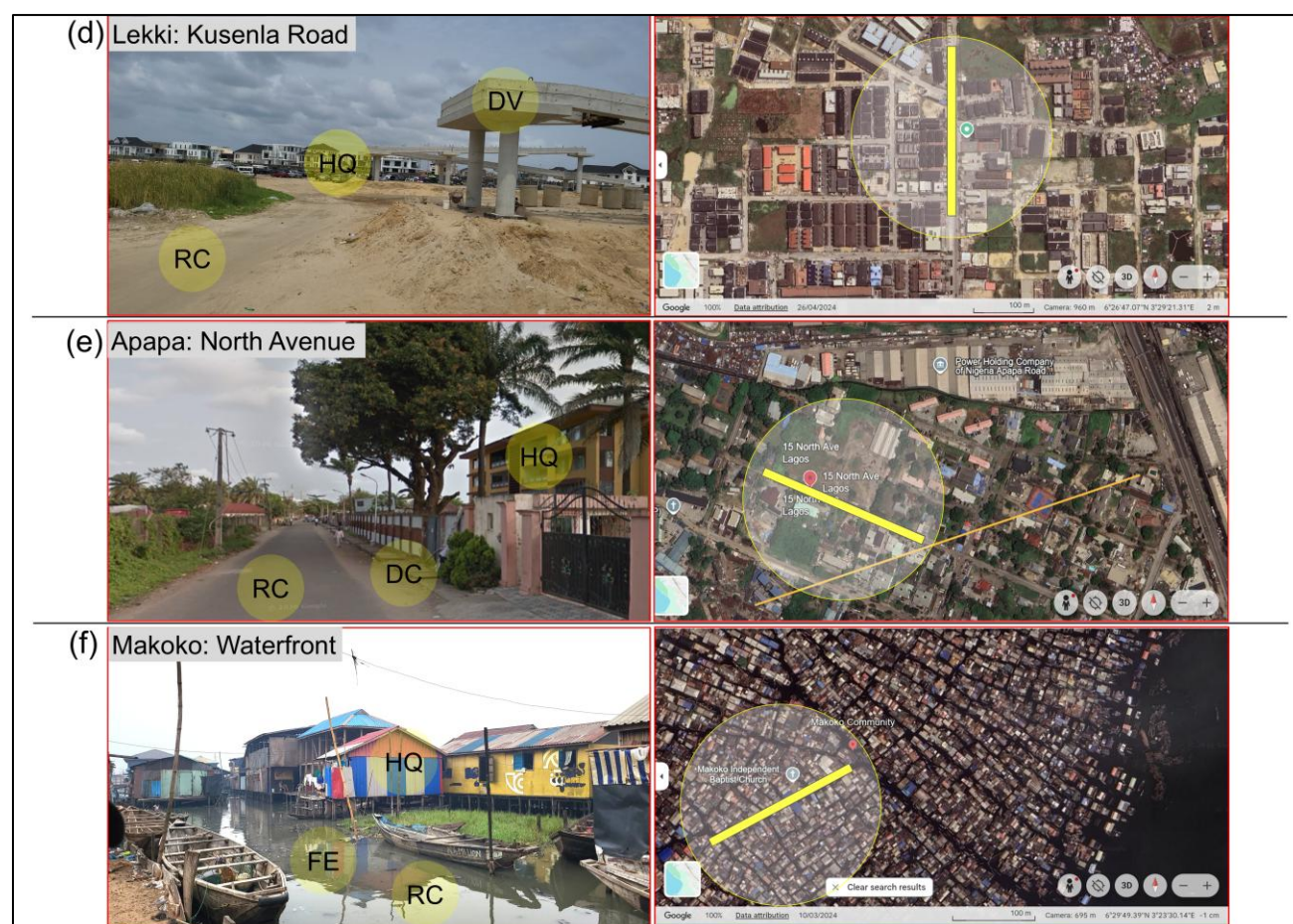


Fig. 3d-f Contrasting physical and environmental conditions across selected Lagos coastal communities. Photographs illustrate differences in housing quality (HQ), drainage infrastructure (DC), road conditions (RC), waste management (WM), and exposure to flooding (FE) between Island and Mainland communities. Source: field observations.

Table 4. Physical and Environmental Indicators of Climate Gentrification Across Lagos Coastal Communities

Indicator	Photo Code Legend	Lagos Island (Ikoyi, Victoria Island, Maroko, Lekki)	Lagos Mainland (Makoko, Apapa)	Climate Gentrification Implication
Housing quality/typology	HQ	Predominantly contemporary housing, gated estates, high-rise developments	Informal settlements, older housing stock, makeshift structures	Uneven housing resilience reinforces spatial inequalities
Drainage Condition	DC	Extensive formal drainage systems with evidence of maintenance and upgrading	Informal, blocked, or poorly maintained drainage systems	Differential flood protection influences neighbourhood attractiveness
Road Condition	RC	Paved roads, wider carriageways, integrated drainage provision	Narrow roads, potholes, waterlogging, limited maintenance	Infrastructure disparities affect accessibility and investment potential
Waste Management	WM	Regular waste collection and cleaner public environments	Waste accumulation, blocked drains, limited environmental services	Environmental quality contributes to perceived resilience and desirability

Flood exposure	FE	Lower visible evidence of flood impacts	Greater evidence of waterlogging and flood vulnerability	Uneven resilience capacity shapes exposure to climate risk
(Re)development activity	DV	Active redevelopment and infrastructure upgrading	Limited redevelopment activity	Investment concentration reinforces spatial differentiation

Spatial analysis (Fig. 4) further demonstrates that these differences are not readily explained by elevation. Although all six communities occupy broadly low-lying coastal environments, QGIS analysis (Fig. 4) illustrates that neighbourhood differentiation corresponds more closely with the quality and distribution of resilience-enhancing infrastructure than with topographical variation across the metropolitan area.

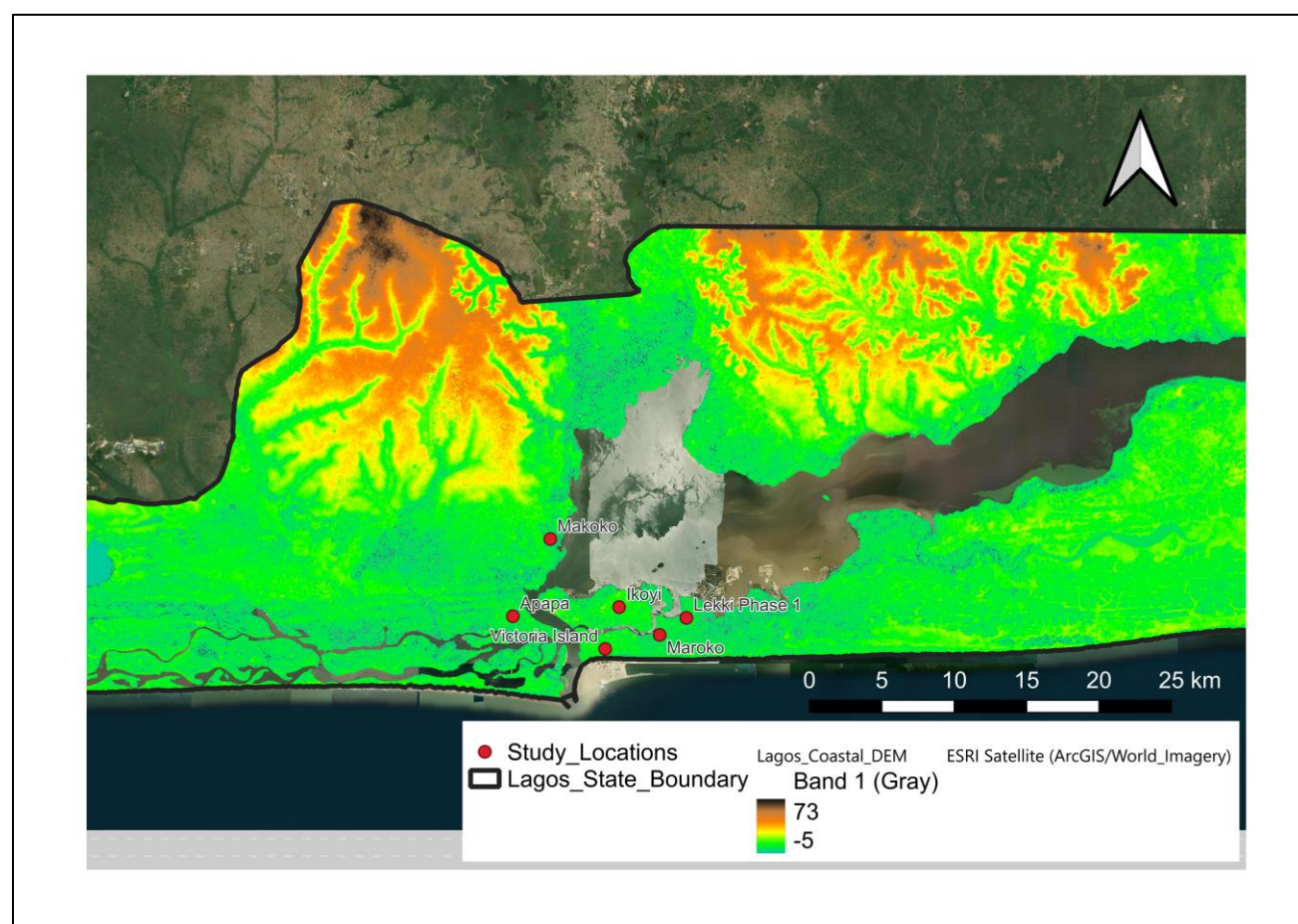


Fig. 4 Digital elevation model (Copernicus GLO-30, 30 m resolution) of the Lagos coastal study area. DEM shows study area as low-lying terrain (approx. -5m to 10m above mean sea level) across the metropolitan coastal area. Inset: location of Lagos, Nigeria. Source: QGIS analysis using Copernicus DEM and base-map data © USGS.

ii. Socio-Economic Change and Housing-Market Conditions

Housing-market evidence showed a clear distinction between neighbourhoods with sustained infrastructure investment and those with limited environmental upgrading, broadly corresponding with the spatial distribution of flood adaptation and resilience-enhancing infrastructure. Property values, land prices, rental costs, and development activity were consistently higher within Ikoyi, Victoria Island, and Lekki than within Makoko and Apapa (Fig. 5a-c), and the Island communities also exhibited greater concentrations of contemporary residential development, commercial investment, and higher-value housing stock. Because all values are reported in nominal naira across a period of substantial inflation and currency

depreciation, absolute price levels partly reflect macroeconomic conditions common to the entire metropolitan area; the analysis therefore rests on the differential appreciation between neighbourhoods exposed to identical macroeconomic pressures, whereby the widening gap between Island and Mainland communities, rather than the absolute magnitude of price growth, constitutes the indicator of diverging neighbourhood desirability.

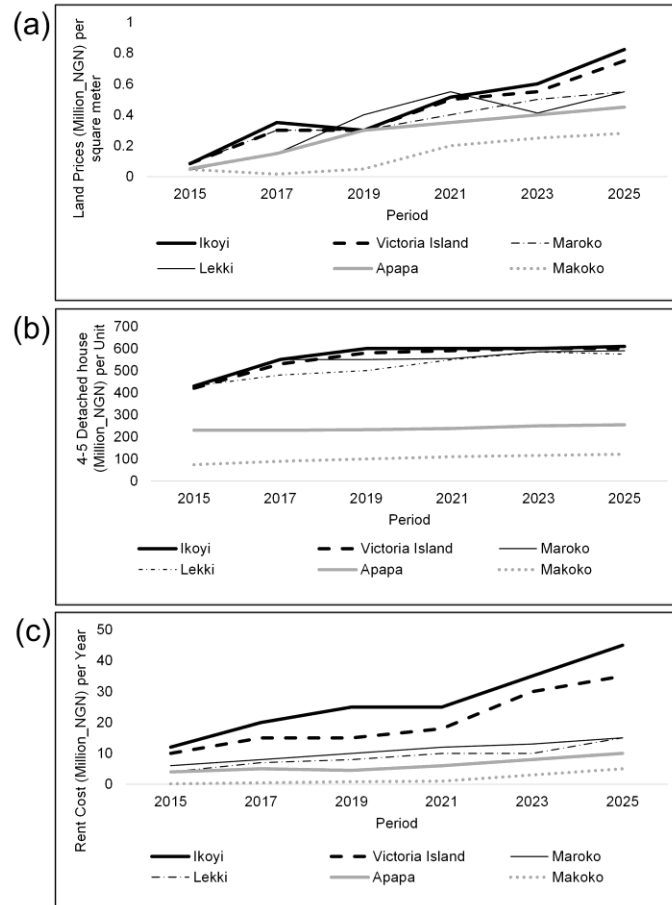


Fig. 5 Trends in (a) land values, (b) detached house values, and (c) annual rents across selected Lagos coastal communities, 2015–2025 (NGN million). Derived from sales inventories and appreciation rates reported by three Lagos real-estate firms. Values are nominal; see Section 3.4 regarding interpretation. Source: synthesis of multiple housing inventories during field observations. Note: underlying values are provided in supplementary Table S1.

Differences in neighbourhood desirability were similarly reflected in residential development and market activity. The Island neighbourhoods displayed extensive private-sector investment, high-density luxury developments, commercial expansion, and continuing redevelopment, whereas Makoko and parts of Apapa exhibited limited redevelopment, older housing stock, and fewer visible indicators of sustained private investment. Variation was also evident in affordability: rental evidence indicated considerably higher accommodation costs within communities characterised by greater infrastructure resilience and environmental quality, while property-market reports and documentary evidence indicated increasing barriers to housing access within higher-value neighbourhoods, particularly for lower-income households. Residential mobility and neighbourhood transition were likewise apparent, with observational and documentary evidence identifying continued redevelopment and replacement of older residential properties within Ikoyi, Victoria Island, Maroko, and Lekki, accompanied by increasing concentrations of higher-income housing.

iii. Governance and Policy Processes

Unlike the physical and socio-economic dimensions, the governance and policy dimension of the framework was not evidenced through primary data within the Lagos application. It is instead substantiated through secondary historical and documentary sources, which nevertheless provide a consistent account of how governance processes have shaped the uneven distribution of resilience-enhancing infrastructure documented in the preceding sections.

Historical scholarship indicates that unequal urban investment in Lagos reflects long-standing planning trajectories rather than recent climate adaptation alone (Nwanna, 2012; 2018). Colonial planning policies established enduring spatial differences by concentrating administrative functions, infrastructure investment, and public services within selected neighbourhoods, particularly Ikoyi and Victoria Island. These neighbourhoods were the centre of colonial governance, and later expanded and redeveloped, reinforcing patterns of continued prioritisation of strategic commercial and residential districts (Nwanna, 2012; 2018). Documentary evidence from print-media reports similarly identified multiple large-scale redevelopment and resilience projects implemented by government agencies and private developers within the Island neighbourhoods, while neighbourhoods on the Mainland received comparatively less public investment despite persistent flood exposure. The contrasting patterns of infrastructure quality, environmental management, and redevelopment observed in the field (Section 3.4.i) are consistent with this documented evidence.

This secondary evidence suggests that governance and policy processes are implicated in the spatial differentiation of resilience across Lagos, corresponding with the variations in physical conditions and housing-market performance documented in the preceding sections. However, because this dimension rests on historical and documentary evidence rather than primary data, it remains the least directly evidenced of the three dimensions within the Lagos application. Therefore, direct examination of governance and policy processes is required to substantiate and validate this dimension empirically, representing an important avenue for future research.

3.5 Comparative Analysis of Lagos and Global Dynamics of Climate Gentrification

Comparing the Lagos application with the global evidence base reveals both convergence and an important divergence (Fig. 6). Consistent with the patterns reported across the 15 empirical studies, neighbourhoods possessing greater environmental security in Lagos exhibit higher property values, stronger redevelopment, more extensive public and private investment, and improved environmental conditions, while communities experiencing persistent deficits display lower housing-market performance, limited redevelopment, and continued environmental vulnerability. The divergence lies in the source of that security: whereas the dominant international accounts associate ‘climate advantage’ with elevation and differential flood exposure, in Lagos the corresponding differentiation tracks the uneven distribution of resilience-enhancing infrastructure across communities of broadly similar elevation. The three analytical dimensions and interacting mechanisms of the framework were nevertheless consistently identifiable across both evidence bases, indicating that climate gentrification exhibits recurring structural characteristics while permitting variation in the specific environmental and institutional processes through which neighbourhood differentiation emerges. The following section interprets these findings in relation to existing scholarship.

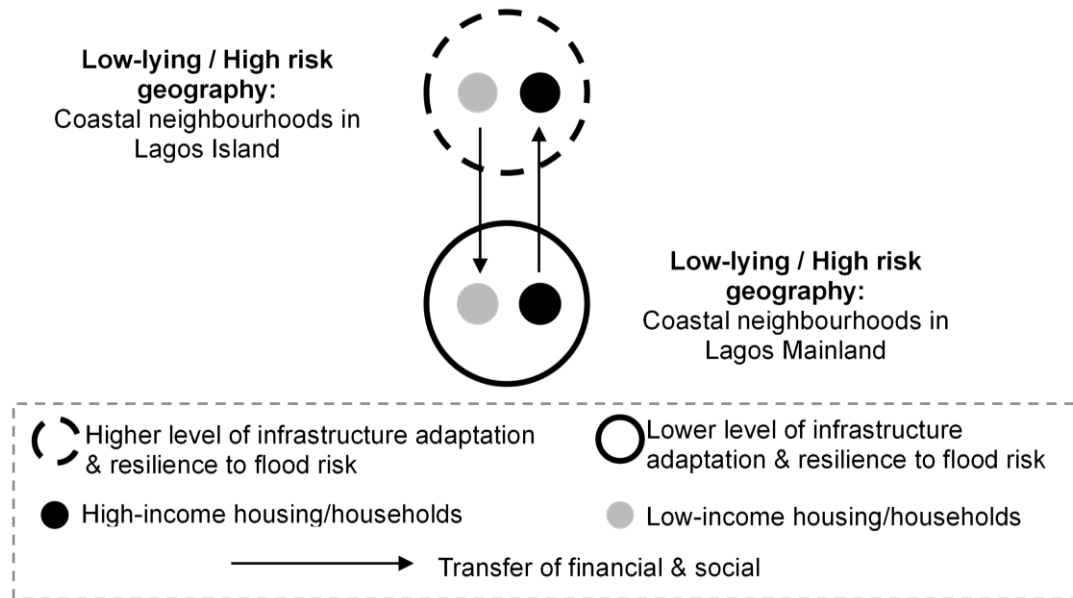


Fig. 6 The climate gentrification mechanism observed in Lagos: financial and social capital transfers toward coastal neighbourhoods with higher levels of infrastructure adaptation and resilience, despite both geographies exhibiting comparable flood-risk exposure. Source: developed from the Lagos framework application conducted in this study.

4.0 Discussion

4.1 Infrastructure Resilience and the Spatial Production of Climate Advantage

These findings extend current understandings of climate gentrification by showing that infrastructure resilience can act as an alternative spatial mechanism through which adaptation reshapes housing markets and socio-spatial inequality in low-lying coastal cities. Previous research has established clear links between climate risk, elevation and neighbourhood change (Keenan et al., 2018; Connolly, 2025; Gao et al., 2026). Taken together, however, the evidence presented here suggests that the processes behind climate gentrification are better understood through the spatial production of '*climate advantage*' than through topography alone. Across the 15 studies reviewed, environmentally safer neighbourhoods consistently attracted more investment, performed more strongly in housing markets, and saw more extensive redevelopment (Keenan et al., 2018; Jacobson, 2023; Ramirez, 2024; See et al., 2025). In most cases that advantage is contextualised as higher elevation or lower flood exposure, but a reflection of the cities studied (Maloutas, 2012). The Lagos application shows that similar patterns of neighbourhood differentiation can emerge even where elevation barely varies (see Fig. 4), corresponding instead to the uneven distribution of resilience-enhancing infrastructure.

This distinction matters for how the concept is framed. Elevation is better treated as one context-specific mechanism capable of producing '*climate advantage*', not as the theoretical foundation of the phenomenon itself. In Miami, higher ground confers a relative environmental advantage increasingly reflected in property investment and residential mobility (Keenan et al., 2018). In Lagos, comparable housing-market differentiation follows neighbourhoods that have benefited from sustained investment in drainage, roads, waste and environmental management, and redevelopment (Ajibade, 2019; Anguelovski et al., 2019; Kim et al., 2025). Elevation-centred and infrastructure-centred findings are therefore not rival explanations; they are different mechanisms within the same underlying process underpinning the unequal production of environmental security and urban resilience.

The Climate Gentrification Assessment Framework supports this interpretation. The 15 empirical studies vary considerably in environmental conditions, hazards, adaptation interventions and institutional contexts, yet the three analytical dimensions and the interacting mechanisms of Climate Gentrification (Resilience Investment, Superior Investment and Cost-Burden) could be identified in each (Table 3). That these relationships were found in Lagos suggests they remain stable even when the environmental processes generating climate advantage differ from those documented in the existing literature. Climate gentrification may therefore be characterised more effectively by recurring structural relationships than by any single environmental indicator. In this way, infrastructure resilience is not simply an outcome of climate adaptation and resilience but a potential driver of urban restructuring. In other words, once resilience becomes embedded in urban investment strategies, it can be capitalised into land and housing markets (Gould & Lewis, 2018; Anguelovski et al., 2019), reshaping (re)development, property valuation and residential mobility.

The findings also contribute to wider debates on the geographical transferability of urban theory. Scholars have increasingly questioned the tendency for concepts developed within cities of the Global North to be applied uncritically across contrasting contexts (Parnell & Robinson, 2012; 2017; Robinson, 2014; Maloutas, 2012), and climate gentrification scholarship has similarly been shaped by evidence derived predominantly from North American coastal cities (Table 2). By demonstrating that comparable socio-spatial outcomes emerge through different environmental and institutional pathways in Lagos, this study illustrates how urban theories can be extended through comparative application rather than simple replication. The contribution lies not in rejecting existing theory but in expanding its explanatory scope. For future comparative research, the more productive question is not whether climate gentrification is driven primarily by elevation, but how climate advantage is produced across diverse coastal settings: through resilience-enhancing infrastructure, ecosystem restoration, managed retreat, coastal protection schemes, planning interventions, insurance systems, or other forms of adaptation that alter the spatial distribution of environmental safety.

4.2 Implications for Climate Adaptation Planning and Housing Equity

These findings carry important implications for flood and climate adaptation planning, housing policy, and urban governance. Adaptation interventions are frequently evaluated according to their technical effectiveness in reducing risk (Mannucci, 2024; O'Hare, 2025), but the evidence presented in this study suggests that their distributional consequences deserve equal consideration. Where resilience-enhancing infrastructure is distributed unevenly, adaptation may reinforce existing inequalities by concentrating housing and infrastructure investment (Keenan et al., 2018), improving desirability, and intensifying housing-market pressures within selected locations while leaving vulnerable communities under-served (Anguelovski et al., 2019), reinforcing environmental justice arguments that adaptation should be judged not only by its capacity to reduce hazards but also by how its benefits and opportunities are distributed across social groups (Anguelovski et al., 2019; Mannucci, 2024; Pellow, 2025).

Housing and flood-resilience infrastructure should therefore be planned as part of a broader strategy for equitable urban development, not as isolated engineering interventions. Selective investment in drainage, transport, environmental upgrading and flood management risks compounding disparities in affordability, desirability and access to resilience over time (Anguelovski et al., 2019; Berg, 2023; Melix et al., 2023; See et al., 2025). The Climate Gentrification Assessment Framework offers one way of supporting more balanced decisions. By bringing physical and environmental conditions, socio-economic change and governance processes into a single analytical structure, it allows planners and policymakers to examine both the intended and unintended consequences of resilience investment, and to identify where adaptation could inadvertently generate affordability pressure or displacement.

Because the mechanisms generating '*climate advantage*' are context-dependent (Maloutas, 2012), adaptation policy should not assume that evidence from one geographical setting transfers directly to another. In rapidly urbanising coastal cities such as Lagos, where infrastructure deficits remain widespread (Nwanna, 2012; 2018), improving resilience in historically under-invested communities may offer a chance to reduce environmental risk and socio-spatial inequality at the same time. More broadly, the findings reinforce growing calls for climate adaptation to be integrated with housing policy, land-use planning and environmental justice objectives rather than delivered as a stand-alone technical agenda (Hendricks, & Van Zandt, 2021; Mannucci, 2024).

4.3 Strengths and Limitations

This study contributes to the growing climate gentrification literature by integrating qualitative meta-synthesis with a theory-building application in a major African coastal city. Triangulating observational, spatial, historical, documentary, and housing-market evidence strengthens the robustness of the findings by reducing reliance on any single source of data. Several limitations should nevertheless be acknowledged.

First, the meta-synthesis included 15 empirical studies, reflecting the relatively early stage of climate gentrification scholarship (Best & Jouzi, 2022). Future iterations of the framework should incorporate additional studies representing a broader range of contexts and adaptation strategies. Second, the empirical application focused on Lagos alone. Comparative applications in other low-lying coastal cities would clarify how infrastructure resilience operates under different institutional, environmental and housing-market conditions. Third, within the Lagos application, the governance and policy dimension of the framework rested on secondary historical and documentary sources rather than primary evidence. Validating this dimension directly will require stakeholder-level investigation, which forms a focus for further research. Fourth, the study adopted a qualitative approach. Future work could complement these findings through quantitative modelling, longitudinal property-market analysis, and geospatial techniques capable of tracing how climate gentrification evolves over time and at larger spatial scales.

These limitations point to opportunities for refinement rather than weaknesses in the principal contribution: the framework is intended as an evolving analytical tool for comparative research, not a definitive account of every form climate gentrification might take.

5.0 Conclusion

This study asked whether infrastructure resilience can act as an alternative spatial mechanism through which climate gentrification emerges in low-lying coastal cities. The question responds to the continued dominance of elevation-centred explanations in a field whose empirical evidence remains concentrated in the Global North. To address it, the study developed a Climate Gentrification Assessment Framework through qualitative meta-synthesis of 15 empirical studies, then applied the framework, using triangulated multi-source evidence, across six coastal communities in Lagos, Nigeria.

The findings demonstrate that the framework's three analytical dimensions and its three interacting mechanisms are consistently identifiable across both the existing literature and the Lagos application. Despite limited topographical differentiation, Lagos exhibits pronounced spatial variation in resilience-enhancing infrastructure, housing conditions, redevelopment, and governance intervention variation that corresponds with contrasting patterns of investment concentration, neighbourhood desirability, and housing-market transformation. Comparable patterns of climate gentrification may therefore emerge through different physical (environmental), socio-economic, and governance and policy processes, all depending on local conditions.

The principal theoretical contribution is to move climate gentrification beyond elevation-centred interpretations. The more fundamental process is the uneven spatial production of climate advantage, within which elevation is one mechanism and infrastructure resilience another. Methodologically, the study offers a transferable framework, developed through meta-synthesis and tested through theory-building application for identifying, comparing and interpreting climate gentrification across contrasting contexts. Empirically, it extends the scholarship to one of Africa's largest coastal megacities, showing that climate gentrification is not confined to cities with substantial topographical variation.

More broadly, the findings suggest that climate adaptation should be understood not simply as an environmental or engineering challenge but as a process capable of reshaping urban housing markets and socio-spatial relations. As public and private investment in flood-resilient infrastructure grows, how the benefits of resilience are distributed deserves far closer attention. By showing that infrastructure resilience can produce climate advantage just as elevation does, this study offers both a practical analytical framework and a wider theoretical foundation for examining the socio-spatial consequences of climate adaptation across diverse coastal cities.

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Appendix

Table S1. Average land values, detached house prices, and rents across selected Lagos coastal neighbourhoods (2015–2025). Note: values were derived from averaging sales inventories and annual appreciation rates reported by three real-estate firms/agencies in Lagos. Importantly, all values are nominal NGN and unadjusted for inflation.

(a) Average land prices (NGN million/m²)

Level of Housing/Infrastructure Upgrade & Resilience to flooding	neighbourhood	Average Land Prices (NGN - Million/m ²)					
		2015	2017	2019	2021	2023	2025
Higher	Ikoyi	0.084	0.35	0.3	0.515	0.6	0.823
	Victoria Island	0.084	0.3	0.3	0.5	0.55	0.75
	Maroko	0.084	0.3	0.3	0.4	0.5	0.55
	Lekki	0.042	0.15	0.4	0.55	0.412	0.55
Lower	Apapa	0.052	0.15	0.3	0.35	0.4	0.45
	Makoko	0.046	0.016	0.05	0.2	0.25	0.28

(b) Average prices of 4–5 bed detached houses (NGN million/unit)

Level of Housing/Infrastructure Upgrade & Resilience to flooding	neighbourhood	Average Detached (4-5 bed) House Prices (NGN - Million/unit)					
		2015	2017	2019	2021	2023	2025
Higher	Ikoyi	430	550	600	600	600	610
	Victoria Island	420	530	580	590	600	600
	Maroko	430	550	550	555	585	590
	Lekki	430	480	500	550	584	575
Lower	Apapa	230	230	232	238	250	255
	Makoko	74	89	100	110	116	121

(c) Average detached (4–5 bed) house rent per year (NGN million/unit)

neighbourhood	Average Detached (4-5 bed) House Rent
---------------	---------------------------------------

Level of housing/Infrastructure Upgrade & Resilience to flooding		(NGN - Million/ <i>unit</i>)					
		2015	2017	2019	2021	2023	2025
Higher	Ikoyi	12	20	25	25	35	45
	Victoria Island	10	15	15	18	30	35
	Maroko	6	8	10	12	13	15
	Lekki	4	7	8	10	10	15
Lower	Apapa	4	5	4.5	6	8	10
	Makoko	0.12	0.50	0.84	1	3	5