RESILIENCE AND LIVABLE CITIES IN A WARMING WORLD

A FESTSCHRIFT IN HONOUR OF

TPL. DR. JOSHUA ADEWUMI ADEBISI FNITP, RTP



EDITED BY

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Editors:
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ISBN: 978-978- 63753-0-4

Published By:

The Nigerian Institute of Town Planners,
Oyo State Chapter,
Quarter 704, Iyaganku GRA, Ibadan.

Supported By:

Center for Sustainable Urban Planning,
Logistics, Infrastructure and Future Transport
3B, Upper Ijesha Road, Taiwo Estate, Iponri, Lagos.

Printed By:
DCrowns Multiventures,
P. O. Box 27796, Ibadan.
oludarebiyi@gmail.com | +234-8053896026

TABLE OF CONTENTS

Foreword..... vii

The Profile of TPl. Dr. Joshua Adewumi Adebisi viii

Scholarly Perspectives to Celebrate Tpl. Dr. Joshua A. Adebisi in Grace and Honour..... x

Table of Contents xvii

Preface..... xx

Contributors Profile.....xxii

SECTION ONE: CLIMATE CHANGE AND URBAN PLANNING

1. Climate-Resilient Housing and Informal Settlements in Lagos State: Pathways Toward Adaptive Urban Governance and Sustainable Development
- ALABI Oluwole Titilayo **2**

SECTION TWO: ENVIRONMENTAL JUSTICE, SAFETY AND SUSTAINABILITY

2. Environmental Safety Risks of Traffic-Related Carbon Monoxide Emissions in Uyo Metropolis, Akwa Ibom State, Nigeria - AKPAN Patrick Etim **15**

3. Integrating Sustainable Strategies in The Design of Convention Centers in Lagos, Nigeria
- OLADELE Victor Olayinka & ADEDEJI Afolabi Idowu **34**

SECTION THREE: GREEN INFRASTRUCTURE AND ECOSYSTEM-BASED APPROACHES

4. Appraisal of The Effectiveness of Green Infrastructure and Ecosystem-Based Approaches in Enhancing Urban Resilience in Sub-Saharan African Cities
- AKINADE Adekunle Joshua **50**

SECTION FOUR: URBAN AGRICULTURE AND FOOD SECURITY

5. Fear of Crime and Food Security Dynamics in Oke-Ogun Rural-Urban Border Communities of Oyo State: Implications for Livelihoods and Spatial Resilience
- OGUNDIRAN Olayinka Robert **67**

6. Assessing the Spatial Patterns of Urban Agriculture in Ibadan, Nigeria: Integrating Satellite Imagery into Land Use Planning Strategies for Enhanced Food Security
- OLADIRAN Ibironke Olaide **82**

7. Urban Agriculture and Social Justice: Comparative Analysis of Inclusive Planning Policies in Lagos And Ibadan, Nigeria - OYEJIDE Olarinola I., ADEBOWALE-SALAWU Temiloluwa E. & OYEJIDE Oyedeji T. **98**

SECTION FIVE: DIGITAL INNOVATION AND SMART URBAN ADAPTATION

8. Smart Solutions for Resilient Transportation Infrastructure and City Livability: Examples from The State of Connecticut, United States of America - OLALEYE Eyitayo, OLUWOYE Jacob & OGUNKAN David **114**

9. AI-Driven Portfolio Management for Ibadan Wash Infrastructure: A Strategic Framework for Sustainable Planning in Ibadan Metropolis - ODUNFA Victoria O., ELEGBEDE Olufola. T., TAIWO Olushola S. & OGUNDIRAN A. A. **137**

10. Synergizing Global System of Mobile Communications and Artificial Intelligence for Inclusive Regional Development in Nigeria - ADEBISI Joshua Adewumi **157**

SECTION SIX: INCLUSIVE AND PARTICIPATORY URBAN GOVERNANCE

11. Promoting Community Inclusiveness in Public Recreational Facilities Through Design-Based Strategies in Nigerian Cities - OGUNDARE Abiodun Olusogo, ADEDEJI Afolabi Idowu & OLADELE Victor Olayinka **162**

SECTION SEVEN: HEALTH, WATER, SANITATION AND URBAN WASTE

12. Socio-Economic Determinants and Utilization Patterns of Primary Health Care (PHC) Facilities in Ibadan Metropolis, Nigeria - ADEJARE Jacob Ayorinde **173**

13. Water Quality Evaluation and Sanitary Surveying in Southwest Nigeria - LASISI Kamil Oluranti **190**

14. Econometric Analysis of Health Care Accessibility and Health Care Outcome in Semi-Urban Area: Evidence from Alakia Primary Health Care Centre, Ibadan, Oyo State - KOLAPO Oluyemi Mary & OMEOKWE Favour Chibueze **206**

15. Assessment of Private Sector Participation in Solid Waste Management in Ojokoro Community, Lagos Stat - IYANDA Oladimeji **223**

SECTION EIGHT: PUBLIC SPACE, HOUSING AND LAND USE PLANNING

16. Urban Redevelopment and The Reconfiguration of Public Space in Ibadan, Nigeria AKANMU Ayobami Ademola, SALISU Umar Obafemi, FASINA Simeon Oluwagbenga, & SANNI Sekinat Motunrayo **243**

17. Incremental Housing and Physical Planning Standards' Compliance in Ibadan Sub-Urban Areas, Oyo State, Nigeria - LASISI Kamil Oluranti **258**

18. An Overview of Adoption of Government Regulations on Building Projects in The Oke-Ogun Area of Oyo State, Nigeria - AJAO Ayodele Christianah, AREMU John Adekunle & TIJANI Kabiru Okegere **277**

SECTION NINE: RISK REDUCTION AND DISASTER-RESILIENT CITIES

19. Integrated Flood Risk Management and Urban Livability in Nigeria's Coastal Cities: Insights from Ibeju-Lekki Corrido - OGUNSESAN Abimbola Simiat & BOLUKALE Oluwatoyin **287**

20. Mitigating Urban Flood Risks: Lessons from Ibadan For A Disaster-Resilient City - AYORINDE Adedayo & BOLUKALE Oluwatoyin **306**

21. Integrating Climate Resilient Design Principles into Sustainable Residential Development in Ibadan, Nigeria - ABAIRE Oluwatobiloba, ORKPE Arwashima Kristen & OLADELE Victor Olayinka **326**

SECTION TEN: URBAN MOBILITY AND LOW CARBON TRANSPORT

22. Decarbonizing Urban Mobility in Nigeria: Opportunities and Constraints for Transitioning to Electric Public Transport Systems - ADEBOWALE-SALAWU Temiloluwa E. and OYEJIDE Olarinola I. **340**
23. Road Transport System in Nigeria: Key Issues and Challenges - ADEYINKA Ebenezer Olasupo & ALABI Folami Munta & ANIMASHAUN Idris Olalekan **349**
24. Urban Road Traffic Resilience and Sustainable Development in Ibadan, Nigeria - OGUNSESAN Durodola Kamoru & OGUNSESAN Abimbola Simiat **360**
25. Residents' Appraisal of Urban Mobility and Low Carbon Transport Solutions in Ibadan, Oyo State - TEJUOSHO Itunu Elizabeth, OLORUNFEMI Samuel Oluwaseyi & ADENIRAN Adetayo O. **376**
26. Road Infrastructure Vulnerability and Urban Mobility Safety Risks in Southwestern Nigerian Cities - SALISU Umar Obafemi, NALAILA Stephano & Akanmu Ayobami Ademola **391**

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ISBN: 978-978- 63753-0-4

CHAPTER
19

INTEGRATED FLOOD RISK MANAGEMENT AND URBAN LIVABILITY IN NIGERIA'S COASTAL CITIES: INSIGHTS FROM IBEJU-LEKKI CORRIDOR

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Abstract
Rapid urbanization, rising sea levels, and unpredictable rainfall patterns have worsened flood risk in Nigeria's coastal areas. The Ibeju-Lekki corridor of Lagos has become one of the most vulnerable regions. The July 2024 flood event flooded major roads and disrupted socioeconomic activities. This highlights the growing vulnerability of regional urban systems (Adelekan et al., 2024). This paper presents a framework for mainstreaming flood risk management (FRM) into urban liveability planning. The goal is to build resilience in Ibeju-Lekki and other coastal regions. This paper presents an Integrated Flood Risk Management and Liveability Framework (IFRMLF) by synthesizing recent literature, spatial analyses, and policy documents. The framework integrates structural and non-structural measures, as well as social inclusion and governance reforms. The framework aligns with modern methods that emphasize ecosystem-based adaptation, sustainable drainage systems, and community-driven risk governance. Research on Lagos's coastal districts shows that inadequate drainage, unregulated development, and institutional fragmentation increase flood exposure. The proposed IFRMLF suggests hybrid interventions. These include green infrastructure, such as bioswales, retention basins, and wetland restoration; participatory land-use planning; early-warning systems; and flood-resilient housing design. The approach further incorporates liveability indicators. These include health, mobility, and access to basic services. This helps assess the trade-offs that are characteristic of resilience. This study integrates resilience theory and principles of urban liveability. It provides policy recommendations to local authorities and planning commissions. These support coping with recurrent floods and maintaining socio-economic well-being. Ibeju-Lekki presents a case that demonstrates the potential of integrated, community-based flood management. Such management can enhance the sustainability and livability of Global South coastal cities.

Keywords: Flood Risk Management; Urban Livability; Coastal Resilience; Ibeju-Lekki Corridor.

1.0 Introduction

Urban development in Nigeria lacks proper coordination, and therefore, cities in coastal areas are at a higher risk of flooding due to increased urbanisation and climate change. The rapid population growth along coastlines has compounded land-use conversion, wetland intrusion, and infrastructure strain, without the corresponding investments in drainage systems, spatial planning, and environmental controls. These dynamics have made them more susceptible to flooding and have undermined several

aspects of urban livability, including mobility, community health, housing quality, and access to basic services (Ndimele et al., 2024; Sahavacharin et al, 2022).

Floods in Nigerian coastal cities have ceased to be a mere environmental problem and have become a constraint on development. For instance, flood risk in such cities as Lagos, Port Harcourt, Uyo and in many other coastal cities is no longer predetermined by the extreme rainfall events, but the combination of the climatic stressors with the unregulated urban growth, institutional disintegration, and deficit of governance (Aiyewunmi, 2023 & United Nations, 2023). In this regard, traditional flood management methods that primarily rely on engineered drainage systems have been found inadequate because they do not account for the social, spatial, and institutional aspects of risk that define ordinary urban life. Also, the southern coastal Atlantic highway in Nigeria has emerged as one of the largest growth regions in the country due to colossal residential estates, industrialization, and transport infrastructures. The investments have transformed the area economically, but they have also altered natural drainage patterns and surface runoff, exposing the area to flooding. The July 2024 flood that affected the area and inundated major access roads, disrupting socioeconomic activities within the corridor, was an obvious illustration of how shaky the urban system was and that the available flood management provisions were insufficient (Arshad et al., 2025).

Meanwhile, a high flood rate in Ibeju-Lekki implies that it has affected liveability in urban centers beyond the destruction of buildings, while inadequate and inefficient mobility and access to jobs, health facilities, and education puts citizens' health at greater risk and the recurring flooding worsen housing, family health and city livability (Akanmu, Gbadamosi & Omole, 2022). The mentioned impacts justify abandoning the hazard-driven approach to flood management and adopting sustainable methods that explicitly incorporate the notion of liveability in the development of urban resilience (Akanmu et al, 2025; Shah et al., 2025; Dowell et al., 2025; Akanmu & Salisu, 2024). However, most recent studies are being strongly driven by the advocacy of integrated flood risk management (IFRM) as a means to address the multi-factorial, interrelated nature of flood vulnerability in fast-urbanising settings. The focal points of IFRM are structural-nonstructural interventions, ecosystem adaptation, participatory governance, and intersectoral, inter-scale coordination (Qazi & Khan 2025; Okolo et al., 2025; Ogunsesan, Akanmu & Salisu, 2025). Nevertheless, these principles are still loosely applied in planning in most cities along the Nigerian coastline, leading to disjointed interventions with little impact on long-term urban living. In addressing this gap, the study further develops an Integrated Flood Risk Management and Liveability Framework (IFRMLF) grounded in the realities of coastal cities in Nigeria, using the Ibeju-Lekki corridor as a case study.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Conceptual Perspectives on Flood Risk Management and Urban Liveability in Coastal Cities

Over the past 20 years, flood risk management (FRM) has undergone a significant shift, no longer confined to flood control but becoming more balanced and responsive to the reality that flooding is a socio-spatial phenomenon embedded in the overall urban structure. The studies of FRM focus on the relationships among hazard, exposure, and vulnerability, and on the impacts of cities, governance, and socio-economic inequalities on flood outcomes (Ingels et al., 2024; Schlumberger et al., 2026). In the Global South and in rapidly urbanising cities, especially, changes in land-use, insufficient infrastructure, and fragmented institutions tend to exacerbate the impacts of climatic hazards. One of the primary theoretical responses to these complications is involved in Integrated Flood Risk Management (IFRM). IFRM facilitates the synergistic application of structural and non-structural solutions (including drainage infrastructure and risk-resistant housing, land-use planning, early warning mechanisms, and risk awareness) within a multi-actor, multi-scaled governance framework (Ogunsesan et al, 2025; Klijn et al., 2021). Recent research highlights that IFRM is no longer a technical toolkit but a planning paradigm that must coordinate spatial planning, environmental management, and social policy (Qazi and Khan, 2025). The view is particularly applicable in coastal settings, where road-related environmental impacts, diminished ecological quality, and fluctuations in climatic conditions influence flood risk.

In line with changes in FRM, the term urban liveability has been widely introduced into the discourse of planning theory and policy. The idea of urban liveability is generally defined as the extent to which urban areas promote human well-being, including transportation, safety, housing, the environment, and the affordability of facilities and key amenities (Akanmu et al, 2025; Akanmu and Salisu, 2024; Khorrami et al., 2021). Due to older quality-of-life measures, which in most cases were largely economic, contemporary models of liveability are place-centred and multidimensional, acknowledging that daily urban living results from physical and social infrastructure. The Global South's cities are highly vulnerable, and their risks are closely linked to the problem of liveability. The direct impact of flooding on liveability is that it damages transport infrastructure, pollutes water supplies, destroys housing, and exposes individuals to disease. Indirectly, recurrent floods can erode livelihoods, exacerbate inequalities, and erode public trust in government institutions (Pelling et al., 2022). As a result, current planning scholarship holds that resilience and liveability are more appropriately viewed more complementary than competing goals (Arshad et al., 2025; Akanmu & Salisu, 2024). Resilient cities are not only those capable of receiving and recovering from shocks, but also those capable of sustaining acceptable living conditions for inhabitants throughout and after disturbances.

The entrenchment of FRM and urban liveability also supports innovation in resilience theory. The urban resilience frameworks have changed, now emphasizing flexibility, education, and inclusiveness, and no longer rely on engineering definitions

of robustness but instead on socially grounded interpretations of system performance (Lowe et al., 2024). Through this, the flood management interventions are not evaluated solely by their effectiveness in curbing inundation, but also by their contribution to the overall social good, including equity, accessibility, and the health of the population. The movement aligns with people-centred development planning strategies and the co-governance of risks with affected populations.

Meanwhile, Ecosystem-based Adaptation (EbA) has emerged as a pivotal gap between FRM and liveability. EbA strategies use natural systems, including wetlands, mangroves, and permeable landscapes, to minimize flood risk and provide co-benefits for urban liveability, such as better microclimates, recreational spaces, and biodiversity conservation (Ogunsesan, Akanmu & Salisu, 2024; Kabisch et al., 2022). The adoption of green infrastructure interventions as an alternative to hard engineering solutions in cities along the coast is becoming an agreed cost-effective, and a socially useful substitute. However, the successful implementation of EbA relies on positive planning policies, institutional coordination, and community embracement, which are still disproportionately lacking in most urban environments in Nigeria.

In addition, the theory of governance is also central to perceptions of integrating FRM and liveability. Haphazard institutional roles, overlapping and duplicative mandates, and a weak enforcement infrastructure often contribute to inconsistent flood management in fast-expanding urban centres (Aiyewunmi 2023). According to scholars, successful IFRM requires governance systems that ensure planning authorities, environmental agencies, infrastructure providers, and local communities collaborate (Schlumberger et al., 2026). This governance-based conception views planning institutions not as regulators of land use but as coordinators of collective action to address complex urban risks.

Therefore, international policy frameworks also support the conceptual linkages among flood risk, liveability, and sustainable urban development. The New Urban Agenda and the Sustainable Development Goals include climate adaptation, disaster risk reduction, and inclusive urban development, especially in vulnerable coastal areas (United Nations, 2023). Equally, the institutions of global development emphasize that investments in urban resilience should lead to real improvements in living conditions to be socially and politically viable (Akanmu, Salisu, Ogunsesan & Olorunfemi, (2024). These policy decisions also provide a significant normative foundation for planning models that align risk management with daily urban needs.

Combined, these conceptual and theoretical strands highlight the limitations of treating flood risk management and urban liveability as distinct policy areas. The city of Ibeju-Lekki, which is highly urbanized and poorly adapted to weather and environmental conditions, appears to require shor - and long-term actions to mitigate short-term flood risks and long-term health issues affecting the urban population. The chapter situates the provided framework, the Integrated Flood Risk Management and Liveability Framework (IFRMLF), within a robust theoretical framework that engages with existing debates on planning and the realism of urbanisation in the Global South.

3.0 Materials and Methods

3.1 Study Area

The study focuses on Ibeju-Lekki Corridor, located in the eastern coastal axis of Lagos State, Nigeria. It forms part of the wider Lekki Peninsula and is administratively associated with Ibeju-Lekki Local Government Area. The corridor is bordered by the Lekki Lagoon and other inland water bodies to the north and the Atlantic Ocean to the south, making it a hydrologically sensitive coastal environment. Its low-lying terrain, lagoonal setting, sandy soils, and proximity to the Atlantic coast expose it to pluvial flooding, coastal inundation, stormwater accumulation, and drainage-related hazards. These characteristics make the area highly relevant for examining the relationship between flood risk management and urban liveability.

Ibeju-Lekki was historically dominated by fishing, farming, wetlands, mangroves, and relatively low-density rural settlements. However, the corridor has experienced rapid land-use transformation due to large-scale public and private investments. Major projects such as the Lekki Free Trade Zone, Dangote Refinery and Petrochemical Complex, Lekki Deep Sea Port, and expanding residential estates have repositioned the area as one of Lagos State's most strategic growth corridors (Ndimele et al., 2024). Lekki Deep Sea Port became operational in 2023 and has further strengthened the corridor's role in logistics, industrialization, and regional economic development.

The physical and environmental conditions of Ibeju-Lekki increase its flood vulnerability. Lagos is generally exposed to intense rainfall, coastal subsidence, sea-level rise, and extreme precipitation events, all of which intensify flood risk in low-lying coastal settlements (Lagos State Government, 2021). In the Ibeju-Lekki axis, rapid urbanization has reduced wetlands and natural water-retention spaces while increasing impervious surfaces through roads, housing estates, industrial layouts, and commercial developments. This has altered natural drainage pathways and increased surface runoff, particularly during heavy rainfall events. The chapter also identifies the July 2024 flood event as evidence of the corridor's growing vulnerability, with flooding disrupting major access roads and socio-economic activities in the area.

The corridor was selected because it represents a contemporary example of the planning challenges facing Nigeria's coastal cities. It combines rapid urban expansion, ecological sensitivity, mega-infrastructure development, poor drainage integration, and increasing flood exposure. These conditions provide a suitable context for developing an Integrated Flood Risk Management and Liveability Framework that links flood control, land-use planning, green infrastructure, institutional coordination, and community wellbeing. Lessons from Ibeju-Lekki are therefore useful not only for Lagos State but also for other rapidly urbanizing coastal cities in Nigeria and the wider Global South.

3.2 Methodology

3.2.1 Study Approach and Analytical Framework

This study adopts a conceptual-analytical approach, synthesizing and interpreting the available scholarly literature, policy documents, and evidence on spatial planning for flood risk management and urban liveability in coastal cities. The study also uses topical peer-reviewed articles (2021-2026), official planning and climate policy sources, and documented flood incidents to create an analytical framework that can be obtained as part and parcel of the research aimed at Amazonia in the Nigerian context. The three steps of the analytical strategy are interrelated. In this chapter, the existing data on flood risk management, urban resilience, and liveability are analyzed to understand the concepts, planning principles, and implementation challenges, particularly in Global South cities. Second, secondary sources on the Ibeju-Lekki corridor, land-use processes, infrastructure planning, governance, and recent flood patterns are reviewed to place these concepts in the context of a fast-urbanising coastal setting. Third, these strands are gleaned to create the Integrated Flood Risk Management and Liveability Framework (IFRMLF), which integrates structural and non-structural interventions, ecosystem-based solutions, participatory governance, and liveability indicators.

This method is suitable for discussing the study objectives, as it allows integrating theory, planning practice, and policy concerns without reducing flood risk to a technical issue. The chapter presents analytically sound yet practically applicable conceptual information and reflections within the case studies of planning, serving as a planning-based framework important to management in contexts of coastal urban management in Nigeria and beyond.

4.0 Findings and Discussion

4.1 Flood Risk and Urban Development Dynamics in the Ibeju-Lekki Corridor

One of the rapidly growing coastal regions in Lagos is the Ibeju-Lekki area, which has been driven by high residential construction, industrial estate development, and transport infrastructure (Figure 1). This is occurring in a small, hydrologically sensitive coastal environment where lagoon systems, natural wetlands, and natural drainage corridors have traditionally controlled the flow of surface water. The impact of urbanization on flood risk in the corridor becomes increasingly proximate to the interplay between physical exposure and planning practice, but not to climatic determinants. In this regard, flooding in Ibeju-Lekki can be regarded as an anthropogenic risk arising from land-use choices, infrastructure availability, and institutional capacity (Ogunsesam et al, 2025; United Nations, 2023; Osanyintuyi et al., 2022).

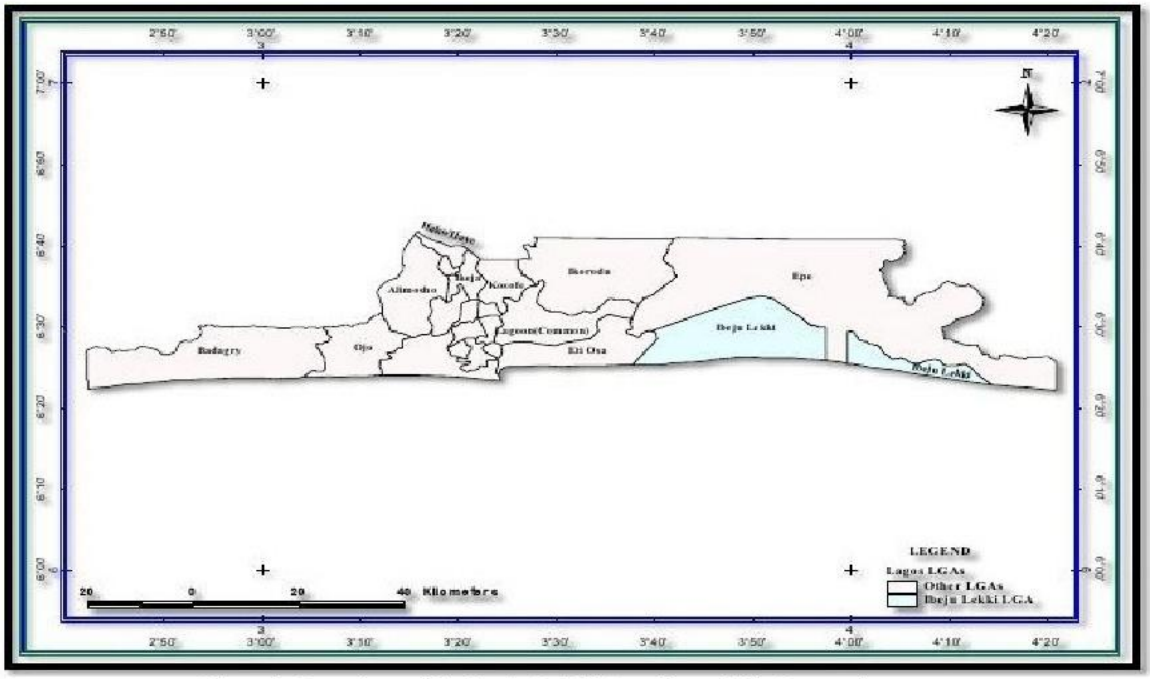


Figure1: Location of the Ibeju-Lekki Corridor within Lagos State
Source: Adapted by the author from Lagos State Geographic Information System (LASG GIS),2026

4.2 Urban Expansion and The Reshaping of Flood Exposure

Some of the urbanization features in Ibeju-Lekki are the rate of urbanization, the spatial distribution of urbanization, and urbanization characteristics. Even when no attention was given to drainage and environmental planning, the wetlands and open spaces along the coast of Lagos have inevitably been destroyed to make way for residential estates and commercial developments. The study of the urbanisation process in Lagos showed that the threat of flooding from urbanisation grows with the expansion of non-permeable areas and the loss of natural storage space, particularly in areas prone to flooding, without proper solutions (Qazi and Khan, 2025; Akanmu & Salisu, 2024; Osanyintuyi et al., 2022). This is witnessed along the Ibeju-Lekki axis, where the pressures of development in low-lying areas have gradually made these areas more prone to normalised construction activities, thereby naturally predisposing them to water pooling.

The unique feature of Ibeju-Lekki compared with older urban districts is the volume and value of assets that have become susceptible to flooding. Flooding is not limited to informal or low-income settlements or even to high-value investments and strategic mobility networks; new estates, industrial facilities, and transport corridors are being built out. The World Bank analysis of Lagos includes vulnerability to riverine and urban flooding, which is systemic in the city, with the only difference that the accelerated coastal development is entrapping the flood threat in urban space unless planning and land-use management are enhanced (United Nations, 2023). This further

supports the perception that flood risk in the corridor is being generated promptly by spatial development decisions.

4.3 Drainage Performance, Runoff Pathways, and Everyday Flooding

The effects of floods in Ibeju-Lekki tend to be disruptions or frequent disasters. Massive downpours are common, leading to flooded roads, pooling in residential estates, and overflooded drainage systems that frustrate normal movement and access to services. The city of Lagos has been identified as one of the regions facing persistent climate risks, where flooding could be caused by the combination of low altitude, high rainfall, and high urbanisation (United Nations, 2023). The transfer of this risk consciousness to planned drainage, however, is not balanced, especially along the fast-urbanising corridors.

Urban floods in Nigeria cities are consistently associated with frequent flooding due to a lack of drainage systems, poor maintenance, and blockages in channels by solid waste (Aiyewunmi 2023). Parcel-by-parcel development also leads to drainage problems in Ibeju-Lekki, where individual projects may provide only internal drainage, failing to consider downstream effects. This is a piecemeal approach that interferes with natural runoff pathways and diverts floodwaters to alternative roads and neighbourhoods. The result is a tendency towards common everyday flooding that compromises livelihoods through delays, high household repair costs, and a threat to the health of the population.

4.4 Governance Complexity and Development Control Challenges

Along with the physical infrastructure and systems of governance, the efficiency of development control, and the Ibeju-Lekki flood risk, other factors also affect it. Various bodies affect land distribution, building control, environmental issues, and infrastructure provision, and these requirements are uncoordinated and disjointed. In areas with less regulation, development can disrupt drainage routes, fail to meet setback requirements, or begin with inadequate flood control. This institutional fragmentation prevents coordinated flood risk management and allows the development that causes the risk to proceed, in Nigerian cities (Aiyewunmi 2023).

From a planning perspective, the key issue is not the absence of regulations, but the gap between regulatory intent and implementation (Ogunsesan, Akanmu & Salisu (2025b). Lagos policy frameworks are becoming increasingly sensitive to the need to plan for resilience and coordinate processes more effectively. The corridor demonstrates how quickly fast-growing areas can outpace institutional capacity. According to Qazi and Khan (2025), the vulnerability of coastal cities is often reinforced by a decision-making structure that prioritizes short-term development outcomes over long-term risk reduction. This dynamic has helped slow the entrenchment of flood risk within the new urban form in Ibeju-Lekki.

4.5 Flood Events as Stress Tests for Urban Systems

The recent floods in Lagos can be considered stress tests that demonstrate the vulnerability of daily urban systems to the interplay of rainfall intensity, limited drainage options, and weak land-use designs. Although the chapter is not based on

reporting of events as the main evidence, the occurrence of floods demonstrates how easily mobility, the economy, and service accessibility may be disrupted. These stress events, as Khorrami et al. (2021) reveal, expose the weaknesses of the urban system and may also serve as a valuable learning experience regarding the limits of existing resiliency strategies.

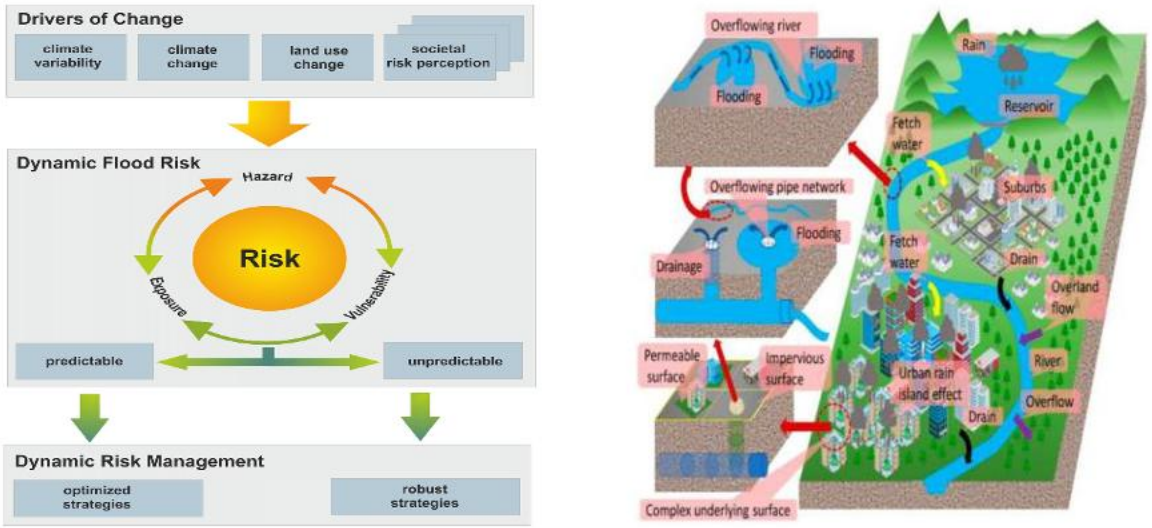


Figure 2: Conceptual relationships between urban development dynamics, governance conditions, and flood risk–liveability outcomes in the Ibeju-Lekki corridor.
*Source: Authors' conceptualisation, informed by coastal flood risk and urban resilience literature (*Sahavacharin et al., 2022; Aiyewunmi 2023*)*

Inundation of accessibility routes and arterial roads in the Ibeju-Lekki area has major effects that extend beyond the destruction of local assets. Once the important functional corridors are congested, commuting patterns, logistics, and emergency response are affected across a wider geographic area. These cascading effects demonstrate that the risk of flooding cannot be perceived as a technical problem; it directly overlaps with issues of liveability, such as accessibility, safety, and economic survival (Figure 2).

4.6 Why Ibeju-Lekki is a Suitable Case for Integrated Flood–Liveability Planning

The Ibeju-Lekki is a case in point, especially informative for integrated flood risk and liveability planning, given its combination of rapid urbanisation along the coastline, ecological sensitivity, high-value development, and complex governance systems. The urban risk profile of Lagos has consistently identified the coastal and adjacent areas of the lagoons as regions of increased vulnerability to the effects of climatic stressors and developmental dynamics (Osanyintuyi et al., 2022; United Nations, 2023). This is the case where flood risk management measures central to drainage infrastructure are unlikely to yield sustainable results.

The experience of the corridor (Table 1) highlights the need for planning methods that connect the regulation of land use, infrastructure design, ecosystem protection, and institutional coordination, with particular reference to daily city functioning. Flood management activities that fail to consider mobility, housing standards, societal health, and service reach stand to diminish the effects of hazards and leave liveability at a low point. Such identification provides the empirical and contextual basis for the Integrated Flood Risk Management and Liveability Framework (IFRMLF) developed in the following section, which aims to balance risk reduction with the broader objective of sustainable and inclusive coastal urban development.

4.7 The Integrated Flood Risk Management and Liveability Framework (IFRMLF)

This part builds the Integrated Flood Risk Management and Liveability Framework (IFRMLF) as a response to the planning-oriented response to the flood risk and urban development dynamics within the Ibeju-Lekki corridor. The framework is geared towards a core vulnerability of existing flood management practice in coastal Nigerian cities: the perception of flooding as a technical drainage issue rather than a spatial, institutional, and social dilemma inherent in daily life in urban areas. The IFRMLF aligns resilience not as an aim, but as the requirement for maintaining desirable living conditions in swiftly urbanising coastal settings, explicitly linking flood risk management with urban liveability outcomes (Aiyewunmi, 2023; Tillermuir et al., 2025).

The IFRMLF is based on the fact that the risk of flooding in Ibeju-Lekki is more a product of land-use choices, infrastructure provision, and governance options than a purely climatic factor. As indicated in Section 3, exposure is expanding due to development in low-lying areas and the fragmentation of drainage systems, and institutional coordination is uneven. The framework thus focuses on integration across the domains of planning, aiming to bring together spatial regulation, infrastructure systems, governance procedures, and social outcomes within a single conceptual framework (Sahavacharin et al., 2022; Qazi & Khan, 2025). The risk-sensitive land-use planning and development control is the first pillar of the IFRMLF. This component understands that prevention through space-based decision-making is the best way to

Table 1: Flood Risk Drivers, Manifestations, and Planning Implications in the Ibeju-Lekki Corridor

Key Drivers	Observed Manifestations in Ibeju-Lekki	Planning and Policy Implications
Rapid coastal urbanisation and land-use conversion	Expansion of residential estates and infrastructure into wetlands and low-lying terrain; reduction of natural flood storage areas	Strengthen coastal land-use zoning; protect wetlands and floodplains; integrate flood risk screening into development approvals
Increased impermeable surfaces	Accelerated surface runoff; frequent waterlogging of roads and residential areas after rainfall	Promote permeable surfaces, green infrastructure, and sustainable drainage systems in new and existing developments
Inadequate and fragmented drainage infrastructure	Undersized or poorly connected drains; localised flooding that spills onto major access roads	Adopt catchment-based drainage planning; coordinate drainage design across parcels and jurisdictions
Weak development control and enforcement	Encroachment on drainage corridors and setbacks; inconsistent compliance with planning regulations	Enhance development control capacity; enforce setbacks and drainage reservations; improve monitoring and sanctions
Institutional fragmentation and coordination gaps	Overlapping mandates among planning, environment, and infrastructure agencies; slow response to emerging risks	Strengthen inter-agency coordination mechanisms; clarify institutional roles in flood risk governance
Poor solid-waste management	Blocked drains and channels; increased flood duration and extent	Integrate waste management into flood risk strategies; combine infrastructure maintenance with community engagement
Exposure of high-value assets and mobility networks	Flooding of arterial roads disrupts commuting, logistics, and access to services	Treat mobility and access as core flood-management outcomes; prioritise flood-resilient transport corridors
Climate variability and intense rainfall events	More frequent and intense flooding episodes acting as stress tests for urban systems	Embed climate adaptation and early-warning systems into local planning and emergency response frameworks

Source: Authors' Compilation, 2026

manage flood risks. This, in practice, means safeguarding floodplains and wetlands, imposing development setbacks, and integrating flood risk screening into land use and building consent procedures. Instead of managing flooding after it occurs, this pillar focuses on anticipatory planning to reduce the accumulation of risk over time. The modern literature on urban planning consistently positions land-use regulation as a vital yet underutilized disaster risk mitigation tool in cities along coastlines, especially in areas where engineering solutions predominate (Sahavacharin et al., 2022; Tillermuir et al., 2025). In the Ibeju-Lekki setting, this pillar is directly applicable to the need to control growth paths before the vulnerability to flooding is irreversibly incorporated into the new urban form.

The second pillar is based on the integrated drainage systems and green infrastructure. Although the use of traditional drainage structures remains essential, the

IFRMLF goes beyond grey engineering to recommend a combined approach that integrates the structural drainage system with nature-based solutions. The retention basins, bioswales, permeable surfaces, and wetland restoration are not only considered as hydraulic interventions but also as multifunctional urban amenities that improve liveability by enhancing environmental quality and providing public space (Kabisch et al., 2022). This approach reflects an increased awareness that ecosystem solutions can minimize flood hazard while also enhancing thermal comfort, recreation, and ecological well-being. In Ibeju-Lekki, natural water storage capacity is decreasing due to rapid development. Reintroducing green infrastructure into urban structures is one mechanism to reduce runoff volume and enhance the quality of the urban environment.

The third pillar is the coordination of governance and institutional capacity, which addresses the fragmentation identified in Section 3. Managing flood risk in coastal cities is rarely the responsibility of a single agency; it is shared among planning agencies, environmental organizations, infrastructure planners, and municipalities. The IFRMLF consequently considers governance a primary aspect of resilience, rather than a state in the background. The successful integration must include clear roles, collaboration among the agencies, and enforcement measures that ensure flood risk considerations are carried out across sectors (Aiyewunmi, 2023). From a planning perspective, this pillar underscores that technical solutions will never succeed without institutional coherence. In the Ibeju-Lekki area, development pressure is high; thus, coordination and development control capacity need to be enhanced to prevent risk-producing practices from remaining uncontrolled.

The fourth pillar incorporates the community engagement and liveability outcomes into the flood risk management practice. This element indicates a shift from top-down, infrastructure-based measures to people-focused planning that acknowledges residents as bearers of risk and agents in developing resilience. Flooding influences daily city life, including mobility, housing standards, city health, and service accessibility, and these aspects should be seen as part and parcel of flood management, not as indirect effects. Studies of urban risks in the Global South highlight that measures that do not consider social circumstances and experiences tend to lack authority and fail to provide long-term benefits (Satterthwaite et al., 2022). In the IFRMLF, community involvement is thus associated with community awareness, local infrastructure maintenance, and feedback mechanisms that enable planning institutions to respond to realities on the ground. The only difference the IFRMLF has with many current frameworks is that these parts are not new; rather, it is the manner in which they are linked. Interventions anchored in the daily urban nexus, responding to everyday urban demands, include risk-sensitive land-use planning exposure limits, runoff management through integrated drainage and green infrastructure, governance coordination through consistency and enforcement, and community engagement. This is a set of elements that make up a harmonious system that places flood risk mitigation within the broader context of ensuring the sustainability of usable, habitable cities. The idea of resilience throughout the integration logic is motivated by current resilient thinking, which emphasizes flexibility, inclusiveness, and system-wide performance rather than technical solutions (Khorrami et al., 2021).

Interestingly, the IFRMLF is not intended to be an operational roadmap but rather a blueprint. It provides guidance to planners and policymakers to review existing practices, identify gaps, and harmonize interventions across sectors. It may be adapted to different coastal environments in Nigeria and remain focused on integration and liveability. International policy agendas are increasingly concerned with such built-in strategies, arguing that investments in urban resilience should deliver real improvements in living conditions, provided they are socially and politically sustainable (United Nations, 2023). In Ibeju-Lekki, the IFRMLF provides a prism for reconsidering existing issues and redirecting future development. Placing flood risk management within a broader project of urban liveability, the framework redefines resilience as a planning task that extends beyond infrastructure delivery to encompass land-use control, institutional transformation, and social welfare. This framing preconditions the following part of the chapter, which will focus on how IFRMLF can educate policy and planning practice in Nigeria coastal cities.

4.8 Policy and Practice Implication for Coastal Urban Planning in Nigeria

The implications of the Integrated Flood Risk Management and Liveability Framework (IFRMLF) for the concept, regulation, and implementation of coastal urban planning in Nigeria are directly conceived. The framework does not introduce entirely new policy agendas. Instead, it restates the old planning functions by ensuring that flood risk reduction and urban liveability are treated as twin objectives. This section will put the framework into practice in spatial planning, infrastructural provision, institutional coordination, and community involvement, especially in fast-urbanising metropolitan areas like Ibeju-Lekki. The first implication concerns spatial planning and development control. The IFRMLF supports the dominance of risk-sensitive land-use planning as a first-line risk-reduction instrument. Planning authorities in coastal areas should stop responding to flooding events and shift more focus to anticipatory regulation, such as floodplain and wetland protection, and systematize flood risk screening in the development approval process. Although Nigerian planning laws already include development control provisions, their implementation in the rapidly growing coastal belts is inconsistent, thereby posing threats of uncontrolled development. The framework also suggests that planning practice should shift to an outcome-oriented approach, with procedures primarily focused on long-term safety and liveability (Sahavacharin, 2022; Schlumberger et al., 2022). In practice, this means that planning authorities must consider flood exposure as a material consideration when conducting land allocation and building approvals, rather than as an external environmental concern.

The second implication is associated with the infrastructure planning and the urban service provision. Traditional methods of flood management in Nigerian cities have been characterized by a focus on isolated drainage systems that are rarely synchronized across catchments and by neglect of downstream impacts. The IFRMLF highlights the need to integrate drainage planning to balance the grey infrastructure with the green and nature-based planning. It has a great impact on the prioritisation and evaluation of the infrastructure investments. Drainage systems, transport corridors, housing designs, and public spaces will be designed as interrelated systems that

influence runoff, access, and the daily operation of the city. Liveability does not see Flood-resilient infrastructure as a measure to prevent floods; rather, this infrastructure ensures mobility continuity, access to health-related services, and safe conditions during and after heavy precipitation (Kabisch et al., 2022; United Nations, 2023). This requires redirecting infrastructure planning toward multi-functional systems that can provide quality-of-life benefits and reduce risks.

The third implication relates to institutional coordination and governance arrangements. Fragmentation among agencies responsible for planning, environment, water management, and infrastructure are among the most enduring hindrances to effective flood management in coastal cities in Nigeria. The IFRMLF does not conceive governance as a background condition, but as a part of resilience and liveability. The implementation of the framework implies a more detailed definition of the institutions' work, increased mechanisms of cooperation among the agencies, and the ability to improve enforcement within the institutions of planning (Aiyewunmi 2023). This can involve setting up coordination platforms where land-use decisions are made in line with drainage planning and environmental protection at the area or catchment level, such as in Ibeju-Lekki, which faces high development pressure. However, without this kind of coordination, even a well-created policy will be sabotaged through fragmentary action.

The impact of the framework on community engagement and the social aspects of the planning practice is also important. The most tangible risk of floods is the daily inconvenience they cause to movement, livelihoods, housing, and even health. The IFRMLF proposes a shift towards a less technocratic, top-down approach of risk management, towards more holistic approaches that can engage the residents as stakeholders in flood management. Community participation is not displayed as a symbolic side but as an effective instrument to enhance the maintenance of local infrastructure, raise awareness of risks, and ensure that interventions are grounded in everyday life (Pelling et al., 2022). The participatory strategies can also be applied in formal and informal settlements along the coasts to close the gap between plans and practical implementation, thereby strengthening the legitimacy and effectiveness of flood management strategies.

The Ibeju-Lekki corridor is not the only area where IFRMLF will serve as the basis for the future expansion of integrated flood-liveability planning in cities on the Nigerian coast. Although local environments differ, the common issues faced by coastal urban centres include high land conversion rates, drainage issues, and fragmented institutions. Its flexibility to other contexts, related to its focus on integration, is worth keeping in mind, provided that local ecological contexts, government, and social dynamics are taken into consideration. Notably, IFRMLF is not prescriptive, offering a structured approach that planners and policymakers can apply to diagnose problems, align interventions, and assess trade-offs among development, risk, and liveability (United Nations, 2023).

The framework aligns with national and global policies that call for integrating climate adaptation, disaster risk reduction, and sustainable urban development. It is helping in its role of translating these agendas into planning relevant implications that directly address the role of urban and regional planners. The IFRMLF puts planners on

their toes to look beyond whether flood risks are mitigated, and also enquires whether the urban environment, once subjected to changing climatic conditions, remains functional, accessible, and socially inclusive (Khorrami et al., 2021).

The policy and practice implications discussed in this section highlight the need to refocus coastal urban planning in Nigeria. Flood risk management should not be considered as a specialised technical discipline that works alongside planning practice, but rather as being part of the mainstream of spatial control, infrastructure provision, government coordination, and community engagement. This integration can be sought by the IFRMLF, which offers a consistent perspective through the lens through which the chapter moves to further consider planning scholarship, professional practice, and institutional legacy in the latter part of its chapters.

4.9 Professional Practice, Planning Scholarship, and Legacy

Urban and regional planning is not only a technical or regulatory activity, but also a knowledge tradition influenced by scholarship, professional norms, and institutional memory. This expanded concept of planning as a field of knowledge encompassing ideas, practice, and mentorship is addressed in this chapter as the Integrated Flood Risk Management and Liveability Framework (IFRMLF) is developed. The risk of flooding in coastal cities like Ibeju-Lekki not only reveals the weaknesses of infrastructure but also the boundaries of dispersed planning knowledge and the delusion of professional practice. However, to solve such challenges, new policies and projects are not enough; they need intellectual continuity and perseverance of thought.

The planning of the scholarship is important in shaping how practitioners conceptualise their problems and appraise their solutions. Planning theory evolves, and the transition from technocratic control to participatory and resilience-oriented approaches has altered perceptions of risk, the environment, and social well-being in the field (Khorrami et al., 2021). The IFRMLF is based on this and extends it by showing how flood risk management can be redefined as part of urban liveability rather than a niche or fringe issue. In that way, it is an indication of the impact that scholars of planning have always placed on the necessity of tying theory to practice and of giving abstract ideas concrete expression in the context of rapid urbanisation.

Professionals' practice is frequently out of step with academic developments. Planners in most of the cities on the Nigerian coast are forced by their institutional environments to work with limited resources, conflicting mandates, and pressurising development. These circumstances can limit the implementation of integrated planning approaches, even in fields where conceptual clarity is present. The case of Ibeju-Lekki exemplifies such tension: on the one hand, policy documents and academic literature are increasingly supportive of integrated and resilience-based planning, while on the other hand, implementation is inconsistent. It is only achievable by addressing the gap with intellectually and ethically committed professionals who are also technically skilled (Sahavacharin et al., 2022; Aiyewunmi, 2023). In this respect, professional legacy gains a particularly important role (Akanmu & Salisu, 2023). Senior scholars and practitioners not only engage in planning but also do so in teaching, mentoring, and institutional leadership. They influence the concept of older planners by shaping their

relationship between ideals of planning and the constraints of the real world, and they allow older planners to navigate the turns and curves of practice without losing normative hopes, including equity, safety, and liveability (Akanmu, 2023). The integration orientation of the IFRMLF is a response to the practices of planning tradition, holistic approach, interdisciplinary engagement, and responsiveness to the local conditions. These are values that one may not necessarily be taught in an academic and professional environment, but rather through extended mentoring.

5.0 Conclusion and Recommendations

The study has discussed the issue of flood threat and the liveability of the urban cities and townships of the Ibeju-Lekki corridor in Nigeria, in the broader context of flood processes, massive urbanisation, and institutional complexity, which occur globally. The chapter examines the production of flood risk driven by changes in land use, infrastructural fragmentation, and governance gaps. It indicates that technical/sectoral remedies cannot control flooding in urban coastal areas. Rather, the risk of flooding is a planning issue that will overlap with the city's day-to-day activities and social well-being.

The fundamental input in the chapter is the setting of the Integrated Flood Risk Management and Liveability Framework (IFRMLF). The framework incorporates risk-sensitive land use, integrated drainage and green infrastructure, integrated governance, and attainable community outcomes. The IFRMLF is explicit in connecting flood risk reduction to urban liveability, because resilience is a state that supports functional, accessible, and socially inclusive urban environments rather than an abstract or narrowly technical outcome. This integrative approach responds to the empirical context of Ibeju-Lekki and aligns with modern planning arguments that emphasize systems thinking, inclusiveness, and long-term sustainability (Khorrami et al., 2021; Schlumberger et al., 2022).

Planning- and policy-wise, the study highlights the need to realign coastal urban management in Nigeria. Flood risk management should be embedded in the very core of planning processes, spatial controls, infrastructure provision, institutional coordination, and community integration, to achieve meaningful and sustainable results. The IFRMLF is not a proposal for a universal template but an attempt to provide a systematic method for identifying issues and interventions, and for evaluating trade-offs among development pressures, risk exposure, and liveability objectives. The fact that it is flexible enables its applicability not only to the Ibeju-Lekki region but also to the other coastal cities in Nigeria, where there is a dynamic of growth and vulnerability.

Hypothetically, IFRMLF can experiment and operate there, comparing outcomes across various coastal regions and studying how differences in governance capacity, ecological conditions, and social organization affect implementation outcomes. A methodological change that future research could introduce into the framework is the use of spatial modelling, participatory assessment, and performance measures to improve its application at both the local and metropolitan levels. In practice, this framework emphasizes the need to strengthen planning institutions and professional capacity to address complex cross-sectoral risks in rapidly changing urban settings. The problems of flood risk and urban habitation in littoral cities will be exacerbated by

climate change and further urban sprawl. Hence, their effective treatment will not rely solely on new technologies or policies, but also on the capacity of planning for knowledge and professional practice to develop in a manner that is socially grounded and institutionally strong. The IFRMLF, in this respect, is not only a practical planning instrument but also reflects a longer scholarly tradition that emphasizes the importance of holistic, critical, and continuous thinking in urban planning.

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