E-ISSN: 1116 - 2759 P-ISSN: 3027-0111
MPRI-EDIR | INTERNATIONAL JOURNAL OF EARTH DESIGN AND INNOVATION RESEARCH
VOL. 13 NO. 4 – JULY, 2026

ENVIRONMENTAL GOVERNANCE AND COMMUNITY RESILIENCE AMID MEGA COASTAL DEVELOPMENT

ABIMBOLA SIMIAT OGUNSESAN; & OLARINOLA IBUKUNOLUWA OYEJIDE

[1]Department of Urban and Regional Planning, The Polytechnic, Ibadan, Nigeria
Corresponding Author:
abimbolaolasunmi.ao@gmail.com
DOI: https://doi.org/10.70382/mejedir.v13i4.089

Abstract

Rapid mega coastal development is transforming coastal environments across the Global South, yet its implications for environmental governance and community resilience remain insufficiently understood. This study examined the relationship between environmental governance and community resilience in Magbo Esan, a host community within the Ibeju-Lekki coastal development corridor of Lagos State, Nigeria. A case-study approach combined spatial analysis, household surveys, key informant interviews and field observations. Data from 137 valid household questionnaires were analysed using descriptive statistics, composite indices, Pearson correlation and simple linear regression. The findings identified flooding, ocean surge, coastal erosion and pollution as the principal environmental pressures affecting the community. Environmental governance was generally weak, particularly in compliance with environmental impact assessment requirements, public participation, and compensation and grievance redress. Community resilience was moderate and depended largely on social cohesion, collective action and household adaptation rather than formal institutional support. Environmental governance showed a positive but modest relationship with community resilience ($r = 0.209$, $p = 0.014$), explaining 4.4% of the observed variation. The study demonstrates that environmental governance strengthens, but does not

Keywords:
Environmental Governance; Community Resilience; Mega Coastal development; Coastal Communities; Ibeju-Lekki.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

independently determine, community resilience. Instead, resilience emerges through the interaction of governance, social capital, livelihood systems and local adaptive capacity. The findings underscore the need for governance systems that reinforce community-led adaptation through preventive environmental management, inclusive participation and resilient coastal planning to support more sustainable coastal development.

Introduction

Coastal regions are becoming epicenters of economic transformation and environmental risk, creating one of the most pressing sustainability challenges of the twenty-first century. Major investments in ports, industrial zones, free-trade corridors, transport infrastructure and land reclamation are reshaping coastal landscapes and strengthening their roles in global trade and national development. Yet these investments frequently occur in environmentally sensitive areas already exposed to sea-level rise, flooding, erosion, ecosystem degradation and livelihood insecurity (Steven et al., 2020; Glavovic et al., 2022). The resulting tension is not simply between development and conservation, but between infrastructure-led growth and the capacity of governance systems to prevent new risks, distribute benefits equitably and protect communities living closest to development sites.

These pressures are especially pronounced in rapidly urbanising regions of the Global South, where infrastructure expansion may outpace environmental regulation, spatial planning and public-service provision. Coastal risk arises from the interaction among climatic hazards, settlement growth, infrastructure decisions, ecosystem decline, and socioeconomic inequality, rather than from climate change alone (IPCC, 2022). Large-scale coastal projects can generate employment and improve connectivity, but they may also alter shorelines, degrade wetlands, restrict access to common resources and disrupt livelihoods that depend on fisheries, agriculture and other ecosystem services. Communities may therefore experience the benefits and burdens of development simultaneously, although their ability to adapt differs according to income, housing conditions, social networks, infrastructure access and institutional support.

Environmental governance provides the institutional mechanism through which these competing pressures are negotiated. It includes laws, regulatory enforcement, environmental monitoring, inter-agency coordination, transparency, public participation, risk communication, compensation and access to remedies. Effective governance can reduce exposure, strengthen preparedness and ensure that development decisions incorporate ecological limits and community knowledge. However, coastal governance

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

frequently remains fragmented across sectors and administrative levels, while affected communities are often engaged after major decisions have already been taken (Rölfer et al., 2022). Recent governance research also shows that assessment frameworks tend to understate the role of formal regulation and environmental justice while giving greater attention to collaboration and project implementation processes (van der Jagt et al., 2023). Governance quality should therefore be evaluated not by the existence of policies alone, but by their implementation, inclusiveness and capacity to influence resilience outcomes.

Community resilience offers a corresponding basis for assessing how households and settlements respond to development-related pressures. It encompasses the ability to anticipate, absorb, adapt to and recover from environmental and socioeconomic disturbances while sustaining essential functions. Contemporary resilience thinking extends beyond restoring pre-disturbance conditions to include learning, reorganisation and, where necessary, transformation (Rölfer et al., 2022). Nevertheless, resilience should not be interpreted as an obligation for vulnerable communities to cope indefinitely with inadequate regulation or exclusionary planning. The Sendai Framework identifies strengthened risk governance, investment in resilience and inclusive preparedness as public responsibilities required to prevent the creation of new disaster risks (UNDRR, 2015). Community resilience is thus partly an outcome of governance rather than solely a product of local adaptive behaviour.

The relationship between governance and resilience is particularly important in coastal Lagos; where industrial investment, port development, transport expansion and real-estate growth coexist with recurrent flooding, shoreline change, wetland pressure and livelihood vulnerability. Earlier research documented the severe flood exposure of low-income coastal settlements and the limitations of household-level coping responses in Lagos (Adelekan, 2010). More recent evidence confirms that vulnerability, adaptive capacity and resilience remain uneven across the state's coastal communities, with livelihood conditions, preparedness, infrastructure and access to support shaping household outcomes (Ndimele et al., 2024). These studies demonstrate persistent vulnerability, but they provide a limited explanation of how governance practices associated with large-scale coastal development influence community resilience.

Problem Statement

Rapid mega coastal development has generated growing concern regarding its environmental and social implications for host communities. While previous studies have examined coastal flooding, household vulnerability, engineering responses, and livelihood adaptation, environmental governance and community resilience are commonly investigated as separate areas of inquiry. Governance is frequently treated as

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

a contextual condition rather than a measurable factor that can influence resilience outcomes. Consequently, there remains limited empirical evidence explaining how governance dimensions such as regulatory enforcement, environmental monitoring, institutional coordination, public participation and institutional responsiveness shape the resilience of communities affected by large-scale coastal development.

This limitation is particularly evident within the Ibeju-Lekki coastal development corridor, where rapid industrial and infrastructural expansion coincides with recurrent flooding, shoreline change, ecosystem degradation and livelihood vulnerability. The absence of integrated evidence linking environmental governance with community resilience limits both theoretical understanding and the development of effective policy interventions capable of supporting sustainable coastal development. This study addresses this gap by examining how environmental governance influences community resilience in Magbo Esan, a host community within the Ibeju-Lekki coastal development corridor of Lagos State, Nigeria.

Research Objectives

The broad objective of this study is to examine the relationship between environmental governance and community resilience in Magbo Esan within the Ibeju-Lekki coastal development corridor.

The specific objectives are to:

- examine the environmental challenges affecting Magbo Esan;
- assess residents' perceptions of environmental governance and institutional response;
- evaluate the level of community resilience in the study area; and
- examine the relationship between environmental governance and community resilience.

Research Questions

The study seeks to answer the following questions:

i. What are the major environmental challenges affecting Magbo Esan?
ii. How do residents perceive environmental governance and institutional response in the community?
iii. What is the level of community resilience in Magbo Esan?
iv. What relationship exists between environmental governance and community resilience?

Theoretical Background and Conceptual Framework

Environmental governance offers a useful lens for understanding how the environmental and social consequences of large-scale coastal development are negotiated. It

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

encompasses the laws, institutions, actors and decision-making processes through which environmental priorities are established, implemented and contested. In practice, its effectiveness depends on more than the formal existence of environmental policies. Regulatory enforcement, environmental monitoring, institutional coordination, accountability, access to information and meaningful public participation determine whether such policies influence development outcomes. These functions are particularly important in coastal environments, where ecological processes extend beyond administrative boundaries and responsibilities for land, water, infrastructure, fisheries and environmental protection are often divided among several institutions.

Mega coastal development complicates these governance arrangements because it combines major infrastructure investment with extensive changes in land use, ecosystems and local economies. Ports, industrial estates, transport corridors, free-trade zones and land-reclamation projects may generate employment, public revenue and improved regional connectivity. At the same time, they may alter shorelines, reduce wetlands, increase pollution, restrict access to common resources and disrupt livelihoods that depend on fishing, agriculture and ecosystem services. These effects are rarely confined to individual project boundaries. They accumulate across wider development corridors and interact with sea-level rise, flooding, erosion and other climate-related pressures. The IPCC (2022) therefore frames coastal risk as the outcome of interactions among climatic hazards, settlement patterns, infrastructure choices, ecosystem decline and social inequality rather than as a consequence of climate change alone.

This interpretation places environmental governance at the centre of the relationship between development and vulnerability. One body of scholarship argues that collaborative governance, stakeholder participation and knowledge exchange can improve the legitimacy and adaptability of coastal management. Such arrangements may bring local experience into planning, build trust among institutions and communities, and support responses that are sensitive to changing environmental conditions. Rölfer et al. (2022), however, contend that operationalising coastal resilience requires more than consultation; it requires a clear understanding of the social–ecological system, agreement about desired outcomes and the capacity to translate knowledge into transformative action. Their argument suggests that participation is useful only where it can meaningfully influence decisions and strengthen institutions' ability to respond to environmental change.

A contrasting concern is that collaboration may be presented as evidence of good governance even where power remains concentrated in government agencies and private developers. Consultation conducted after project priorities have been determined may provide communities with information without giving them meaningful influence over those priorities. Participation can therefore legitimise existing decisions rather than

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

correct environmental inequalities. Van der Jagt et al. (2023) similarly found that governance assessments often emphasise collaborative processes while paying less attention to formal regulation, accountability and justice. In mega-development corridors, this imbalance is consequential because host communities may possess fewer financial, technical and political resources than the institutions and investors promoting development. Environmental governance must therefore combine participation with enforceable standards, transparent decision-making and effective remedies for environmental and livelihood losses.

Community resilience provides a corresponding basis for evaluating the outcomes of these governance arrangements. Contemporary resilience scholarship has moved beyond the idea that communities should simply return to their pre-disturbance condition. Resilience now includes the ability to anticipate, absorb and recover from disruption, but also to learn, reorganise and transform conditions that repeatedly produce vulnerability. Rölfer et al. (2022) distinguish between resilience as stability and resilience as transformation, emphasising that sustainable coastal governance requires deliberate choices about which characteristics of a system should be preserved and which should be changed. This distinction is important where pre-existing conditions already include unsafe housing, livelihood insecurity, weak infrastructure or limited representation in planning.

The framing of resilience influences the kinds of interventions considered appropriate. Jozaei et al. (2022) found that coastal governance frequently relies on engineering, community and disaster-resilience perspectives that emphasise resistance, recovery and a return to normality. Such perspectives may overlook the deeper relationships between social vulnerability, ecosystem change and institutional arrangements. A social–ecological understanding is more suitable for mega coastal development because it recognises that communities and coastal ecosystems are interdependent. Wetland degradation may increase flooding, declining fisheries may undermine household income, and inadequate institutional support may prevent residents from adjusting their livelihoods. Resilience, therefore, cannot be assessed solely through household coping behaviour.

For the present study, community resilience is understood as a multidimensional condition. Social resilience concerns collective organisation, trust, mutual support and the inclusion of vulnerable groups. Economic resilience reflects livelihood continuity, income stability and the capacity to access alternative opportunities. Infrastructural resilience relates to housing safety, drainage, transport, water, health facilities, and other services needed under normal conditions and during periods of disruption. Environmental resilience concerns the integrity of wetlands, shorelines, fisheries and other natural systems upon which communities depend. Institutional resilience involves access to information, representation, public assistance and confidence in the agencies responsible

for managing environmental risks. These dimensions are interconnected, meaning that weakness in one may reduce the effectiveness of the others.

Resilience should not, however, be used to transfer responsibility for development-related risks from institutions to communities. Residents may repeatedly adapt their routines, repair damaged houses or seek alternative livelihoods, but persistent coping does not necessarily indicate resilience. It may reveal the absence of viable choices. Elrick-Barr et al. (2024) show that governance innovation can support social–ecological resilience, although fragmented responsibilities, limited resources and institutional resistance to change often restrict transformative outcomes. Justice is equally important. Pellerey et al. (2025) demonstrate that resilience initiatives may reproduce inequality where they neglect how benefits and burdens are distributed, whose voices shape decisions and whether previous environmental harms are addressed. In coastal development corridors, these questions relate directly to compensation, relocation, livelihood restoration, environmental remediation and access to project benefits.

Despite increasing recognition of these connections, governance and resilience are still frequently studied as separate domains. Governance research tends to evaluate policies, institutions and participation, while resilience studies often concentrate on household resources, social capital, preparedness or hazard exposure. Governance is commonly acknowledged as important but is seldom operationalised as a measurable determinant of multidimensional resilience. This separation leaves limited evidence on whether enforcement, monitoring, coordination, transparency, participation, or institutional responsiveness has the greatest influence on host communities' ability to manage development-related pressures. It also limits understanding of why settlements exposed to similar environmental changes may experience different resilience outcomes.

The conceptual framework presented in Figure 1 addresses this gap by connecting mega coastal development, environmental change, environmental governance, and community resilience within a single analytical pathway. Mega coastal development is expected to generate environmental and socioeconomic pressures through land-use change, ecosystem disturbance, pollution, increased exposure to flooding, shoreline alteration, and livelihood disruption. These pressures may directly increase vulnerability, but their consequences are mediated by the quality of environmental governance. The governance dimensions identified in the framework comprise regulation and enforcement, environmental monitoring, institutional coordination, transparency and accountability, community participation, compensation and institutional responsiveness.

Effective governance is expected to strengthen social, economic, infrastructural, environmental and institutional resilience by reducing exposure, improving access to information and assistance, protecting livelihoods and enabling communities to participate in decisions that affect them. Weak, fragmented, or exclusionary governance

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

may produce the opposite outcome by shifting environmental costs onto households and limiting their capacity to respond. Household characteristics, exposure levels and wider political and economic conditions are included as contextual influences rather than treated as direct products of governance. Figure 1, therefore, presents governance as the principal mediating mechanism by which mega coastal development pressures translate into different community resilience outcomes. This framework guides the selection of indicators, construction of the governance and resilience indices, formulation of the study hypotheses and interpretation of the empirical findings.

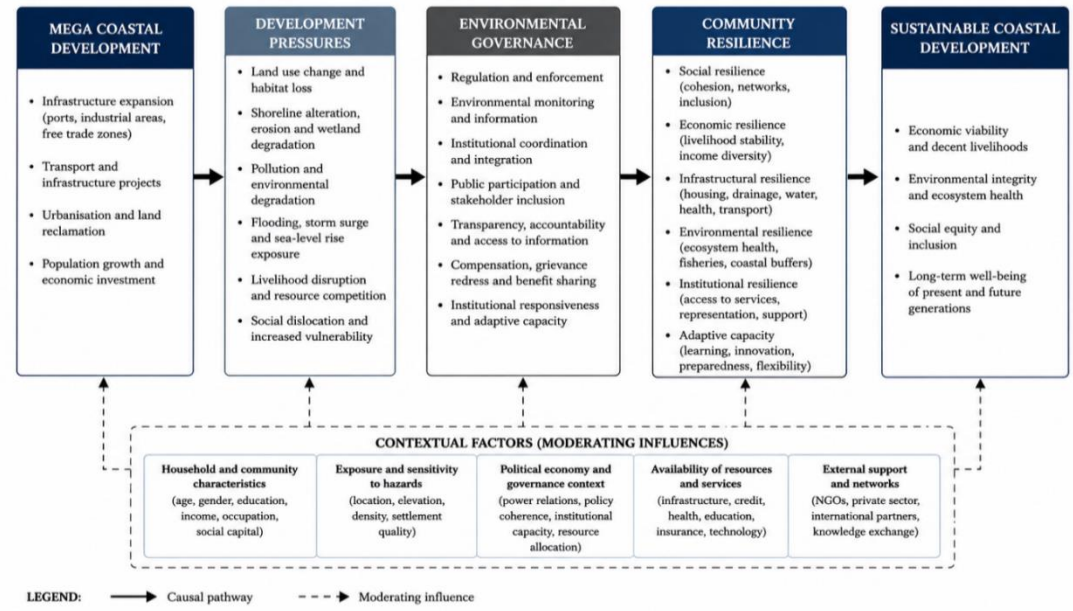

Figure 1. Conceptual framework linking mega coastal development, environmental governance and community resilience
Source: Authors' conceptualization based on the reviewed literature

Materials and Methods

The study was undertaken in Magbo Esan, a coastal settlement in Ibeju-Lekki Local Government Area of Lagos State, Nigeria. The community lies within the rapidly developing Ibeju-Lekki coastal corridor, where large-scale investments in port infrastructure, industrial development and associated urban expansion coexist with long-established coastal settlements. This setting presents an appropriate case for investigating how environmental governance influences community resilience amid accelerated coastal transformation. A case-study approach was therefore adopted because it permits an in-depth examination of governance processes and community responses within a clearly defined environmental and geographical context.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

The spatial extent of the investigation was limited to a 500 m shoreline exposure zone. This boundary was adopted as an operational research boundary to concentrate the study on buildings located closest to the coastal interface, where the influence of shoreline instability, ocean surges, coastal flooding, ecosystem disturbance and development-related environmental pressures was expected to be most pronounced. Google Earth Pro was used to delineate the shoreline, establish the 500 m inland boundary and digitise all buildings located within the defined area. The digitised buildings were subsequently verified through detailed physical enumeration to improve positional accuracy and confirm their existence in the field. Figure 2 illustrates the location of Magbo Esan and the shoreline exposure zone adopted for the study.

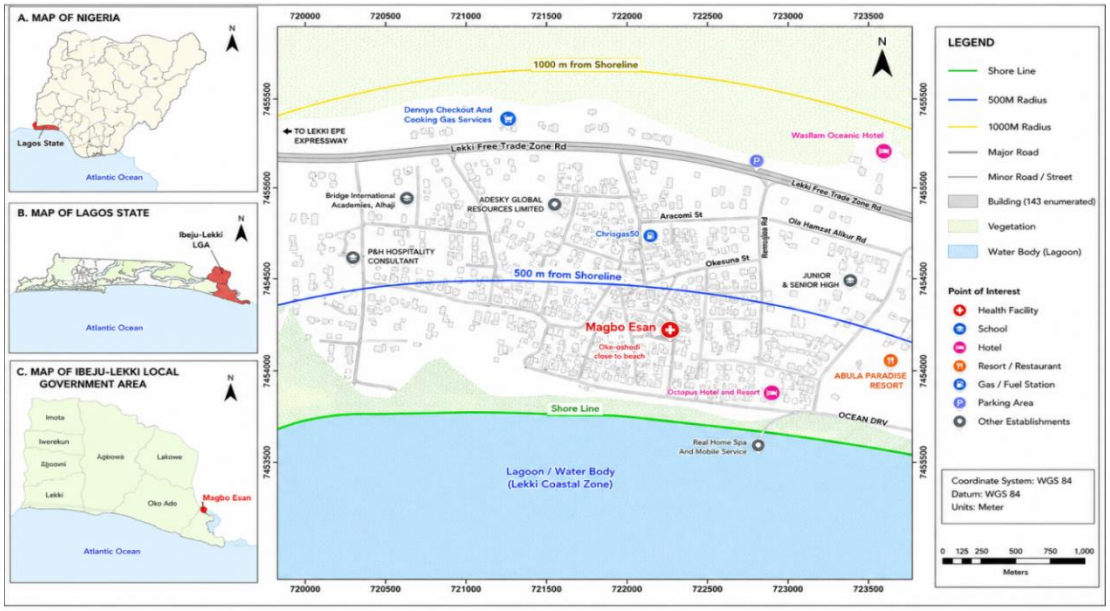

Figure 2. Location of Magbo Esan and the 500m shorelines exposure zone in Ibeju-Lekki Local Government Area
Source: Authors' GIS analysis based on Google Earth Imagery and Field Survey, 2026.

The field verification identified 143 buildings within the delineated area, which constituted the study frame. Given the relatively small and spatially defined population, complete enumeration was considered more appropriate than probability sampling because it enabled comprehensive coverage of all buildings within the exposure zone while eliminating sampling error associated with selecting only a proportion of the identified structures. Household information was obtained from one knowledgeable adult representative in each occupied building. Where a building accommodated more than one household, one household was selected through simple random selection to avoid disproportionate representation.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Primary data were collected through a structured questionnaire, key informant interviews and systematic field observation. The questionnaire obtained information on household characteristics, perceived environmental changes, environmental governance and community resilience. Environmental governance was operationalised through indicators relating to regulatory enforcement, environmental monitoring, institutional coordination, transparency, community participation, compensation mechanisms and institutional responsiveness. Community resilience was assessed across social, economic, infrastructural, environmental and institutional dimensions using five-point Likert-scale statements. The questionnaire was reviewed to establish content validity and was pilot-tested in a neighbouring coastal settlement prior to the main survey. Internal consistency of the measurement scales was assessed using Cronbach's alpha, and only items demonstrating acceptable reliability were retained for analysis.

Qualitative evidence was obtained through semi-structured interviews with the Baale (traditional community head), selected Omo Onilu (indigenous community representatives with long-standing knowledge of the settlement), community livelihood representatives and officials responsible for environmental management and physical planning within the study area. These interviews provided contextual information on shoreline change, environmental governance, institutional engagement and community responses to coastal development. Systematic field observation was undertaken concurrently to document shoreline conditions, drainage, infrastructure, land-use characteristics and other visible manifestations of environmental change.

Quantitative data were analysed using descriptive statistics comprising frequencies, percentages, means and standard deviations. Composite Environmental Governance and Community Resilience indices were developed from the respective indicators to evaluate the two principal constructs. Pearson's correlation analysis examined the association between governance and resilience, while multiple linear regressions assessed the influence of environmental governance dimensions on community resilience. Qualitative interview transcripts and field observations were analysed thematically and integrated with the quantitative findings to strengthen interpretation through methodological triangulation. Participation in the study was voluntary; respondents were informed of the purpose of the research before data collection; informed consent was obtained from all participants; and all responses were anonymised to ensure confidentiality.

Coastal Exposure and Livelihood Vulnerability in Magbo Esan

Coastal vulnerability in Magbo Esan reflects the combined influence of physical exposure, livelihood dependence and limited capacity to absorb prolonged disruption. The building inventory in Table 1 shows that 79.0% of the 143 structures within the 500 m shoreline zone were residential, while another 17.5% accommodated both residential and commercial

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

activities. Environmental hazards, therefore, threaten not only housing but also household-based enterprises and everyday economic activity. The five buildings already rendered dilapidated by ocean surge provide visible evidence that coastal processes are affecting the settlement's physical fabric.



Figure 3. A typical dilapilated building at Magon Esan
Source: Field Survey (2026).

Table 1. Physical, socioeconomic and housing characteristics of the study community

Variable	Category	Frequency	Percentage (%)
Building use (n = 143)	Residential	113	79.0
	Mixed use	25	17.5
	Primary school	1	0.7
	Vacant/abandoned	4	2.8
Building condition (n = 143)	Good/fair	138	96.5
	Dilapidated due to ocean surge	5	3.5
Occupation (n = 137)	Fishing	78	56.9
	Trading	46	33.6
	Others/unemployed	13	9.5

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Variable	Category	Frequency	Percentage (%)
Educational attainment (n = 137)	No formal education	16	11.7
	Primary	56	40.9
	Secondary	62	45.3
	Tertiary	3	2.2
Length of residence (n = 137)	Less than 5 years	26	19.0
	5–10 years	57	41.6
	11–20 years	41	29.9
	20 years and above	13	9.5
Flood duration (n = 137)	Less than 24 hours	82	59.9
	1–3 days	34	24.8
	4–7 days	11	8.0
	More than one week	10	7.3

Source: Field Survey (2026).

Livelihood dependence intensifies this exposure. Fishing constituted the main occupation of 56.9% of respondents, while 33.6% depended on trading. Disruption to shoreline ecosystems, fishing access, and local mobility can therefore quickly translate into reduced household income and food security. Comparable research in coastal fishing communities shows that dependence on climate-sensitive natural resources can magnify the effects of environmental and socioeconomic stressors. Residents identified flooding as the most persistent environmental challenge, with a mean score of 4.20, followed by ocean surge at 3.51 (Table 2 and Figure 3). Coastal erosion and pollution were less frequent but remained recurring concerns.



Figure 4. A typical source of livelihood for the resident of Magon Esan
Source: Field Survey (2026).

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Table 2. Perceived environmental challenges in the study community

Environmental challenge	Never	Rarely	Sometimes	Often	Very often	Mean	Rank
Flooding	3	4	11	63	56	4.20	1
Ocean surge	1	3	71	49	13	3.51	2
Coastal erosion	3	4	81	38	11	3.36	3
Environmental pollution	5	18	92	13	9	3.02	4

Source: Field Survey 2026.

These findings are consistent with recent studies demonstrating that vulnerability across rapidly urbanising coastal communities is shaped by the interaction of recurrent flooding, livelihood dependence, infrastructure deficits and uneven adaptive capacity (IPCC, 2022; UN-Habitat, 2024; Ndimele et al., 2024). Collectively, the results indicate that vulnerability in Magbo Esan is not produced by coastal hazards alone but by the interaction between environmental exposure, settlement characteristics and livelihood dependence. This empirical context provides the basis for examining governance performance and institutional response in the subsequent section.

Governance Performance and Institutional Response

The findings suggest that environmental governance has not evolved at the same pace as the rapid coastal transformation occurring within the Ibeju-Lekki corridor. The overall governance mean of 2.48 reflects weak institutional performance, with deficiencies evident across regulation, participation, information access, compensation and grievance redress. As shown in Table 3, only the government response to flooding and ocean-surge events and the monitoring of regulatory compliance reached the moderate threshold. This pattern suggests that institutional visibility is greater during or after environmental disturbances than in the preventive governance processes required to reduce risk before impacts occur.

Table 3. Governance performance and institutional response in Magbo Esan (n = 137)

Governance indicator	Mean	Rank	Interpretation
Government responds promptly to flooding and ocean-surge events	2.73	1	Moderate
Government agencies adequately monitor regulatory compliance	2.63	2	Moderate
Traditional institutions collaborate with government agencies	2.59	3	Low
Government support during environmental emergencies is adequate	2.59	3	Low
Local and state institutions collaborate effectively	2.57	5	Low
Environmental conditions are regularly monitored	2.56	6	Low
Government agencies coordinate environmental management effectively	2.53	7	Low

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Governance indicator	Mean	Rank	Interpretation
Community opinions influence environmental decisions	2.51	8	Low
Government communicates environmental risks clearly	2.51	8	Low
Coastal development activities are frequently inspected	2.50	10	Low
Authorities take timely action to reduce environmental risks	2.50	10	Low
Environmental regulations are effectively enforced	2.47	12	Low
Residents receive timely environmental information	2.47	12	Low
Environmental degradation is promptly addressed	2.45	14	Low
Residents participate in environmental management	2.45	14	Low
Information on coastal development is accessible	2.40	16	Low
Grievance mechanisms are accessible and effective	2.37	17	Low
Community complaints are addressed fairly	2.36	18	Low
Residents are consulted before major projects are implemented	2.33	19	Low
Developers comply with EIA requirements	2.26	20	Low
Affected households receive adequate compensation	2.20	21	Low
Overall governance index	**2.48**	—	**Low**

Source: Field Survey (2026).

The lowest-rated indicators form a consistent pattern of weak anticipatory and justice-oriented governance. Inadequate compensation, poor perceived compliance with environmental impact assessment requirements, limited consultation and ineffective grievance mechanisms suggest that residents have little influence over decisions or remedies after losses occur. This supports recent governance scholarship showing that participation alone is insufficient where regulation, accountability and environmental justice remain weak or unevenly implemented (van der Jagt et al., 2023).

Institutional coordination and traditional-government collaboration performed slightly better, but remained below the moderate threshold. This indicates that some relationships exist among governance actors, yet they have not translated into consistent monitoring, information sharing or community protection. Coastal governance requires a combination of enforceable regulation, cross-institutional coordination, knowledge exchange and capacity for adaptive action; weaknesses in any of these areas can limit the transition from short-term response to long-term resilience planning (Rölfer et al., 2022; Elrick-Barr et al., 2024).

Environmental governance in Magbo Esan, therefore, appears predominantly reactive. Institutions are more visible when flooding or ocean surge has already occurred, while preventive regulation, inclusive planning and compensation remain weak. This governance pattern places much of the burden of adaptation on households and local networks, providing an important basis for examining the extent to which community resilience is being sustained independently of formal institutional support.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Community-Led Resilience under Institutional and Environmental Constraints

Despite the institutional weaknesses identified in the preceding analysis, resilience in Magbo Esan is sustained largely through social relationships, collective action and household adaptation rather than formal governance mechanisms. The overall Community Resilience Index of 2.94 indicates a moderate level of resilience, but the distribution of scores in Table 4 shows that resilience is uneven across its social, economic, infrastructural, environmental and institutional dimensions. The strongest capacities are rooted within the community itself rather than in formal public support systems.

Table 4. Community-led resilience under institutional and environmental constraints in Magbon Esan

Community resilience indicator	Mean	Rank	Interpretation
Community members support one another during environmental disasters	3.72	1	High
Residents are willing to work together to solve environmental problems	3.62	2	High
Community organisations contribute to disaster preparedness	3.47	3	High
Households have adopted effective strategies to cope with flooding	3.34	4	Moderate
The community has become more resilient over time	3.28	5	Moderate
Households are better prepared for future environmental hazards	3.27	6	Moderate
Coastal ecosystems continue to provide environmental protection	2.85	7	Moderate
Households can recover financially after flooding or ocean surge	2.82	8	Moderate
Emergency response systems are effective	2.80	9	Moderate
Household income sources are sufficiently diversified	2.77	10	Moderate
Coastal development has improved livelihood opportunities	2.77	11	Moderate
Environmental quality has been maintained despite development	2.72	12	Moderate
Housing structures can withstand coastal hazards	2.71	13	Moderate
Drainage infrastructure effectively reduces flood impacts	2.58	14	Low
Natural resources remain available for community livelihoods	2.57	15	Low
Government programmes strengthen community resilience	2.57	16	Low
Government assistance reaches affected households promptly	2.50	17	Low
Roads remain accessible during flooding	2.47	18	Low
Overall Community Resilience Index	**2.94**	—	**Moderate**

Source: Field Survey (2026).

The three highest-rated indicators all relate to social resilience. Mutual assistance during disasters, willingness to work collectively, and the contribution of community organisations suggest that repeated exposure to flooding and ocean surge has encouraged locally organised forms of support. These networks allow residents to share information, labour and material assistance when households are disrupted. The community's long residential history and livelihood interdependence, particularly among fishing and trading households, may help explain why collective coping remains stronger than institutional protection.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Beyond social cohesion, household-level adaptation also contributed to resilience, although at a more moderate level. Residents reported adopting coping strategies and becoming better prepared for future hazards, but financial recovery and livelihood diversification remained limited. This suggests that households can manage immediate disturbances without necessarily possessing the resources required for long-term recovery or transformation. The weakest indicators concern roads, public assistance, drainage and government resilience programmes. These deficiencies show that community solidarity is operating within an environment of inadequate infrastructure and limited institutional support. Resilience in Magbo Esan rests more heavily on social capital and practical experience than on public systems or environmental protection. While these local capacities reduce immediate disruption, they may be insufficient as coastal hazards intensify. These findings suggest that while community-led adaptation currently underpins resilience in Magbo Esan, its long-term sustainability will increasingly depend on stronger governance institutions, resilient infrastructure, and more inclusive coastal planning. This provides the foundation for examining the statistical linkage between environmental governance and community resilience in the next subsection.

Linking Environmental Governance to Community Resilience

The statistical analysis confirms that environmental governance is positively associated with community resilience in Magbo Esan, although the strength of the relationship remains modest. As shown in Table 5, the Environmental Governance Index correlated positively with the Community Resilience Index ($r = 0.209$, $p = 0.014$). Respondents who reported relatively better regulation, monitoring, institutional coordination, participation, and responsiveness tended to report stronger resilience. The modest coefficient, however, indicates that governance is an enabling condition rather than the sole basis of the community's capacity to withstand coastal pressures.

Table 5. Relationship between environmental governance and community resilience in Magbo Esan

Panel A: Pearson correlation

Variables	Pearson's *r*	*p*-value	Interpretation
Environmental Governance Index and Community Resilience Index	0.209	0.014	Weak positive association

Panel B: Simple linear regression predicting community resilience

Predictor	B	Standard error	Standardised β	*t*	*p*-value
Constant	2.462	0.205	—	12.007	<0.001
Environmental Governance Index	0.193	0.078	0.209	2.479	0.014

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Model statistic	Value
R	0.209
R^2	0.044
Adjusted R^2	0.036
F-statistic	6.144
Model *p*-value	0.014

Dependent variable: Community Resilience Index.
Source: Computed from Field Survey Data (2026).

The regression analysis reinforces this pattern. A one-unit increase in the governance index was associated with an estimated 0.193-unit increase in community resilience. The model was statistically significant, but environmental governance explained only 4.4% of the variation in resilience. This limited explanatory power should not be interpreted as evidence that governance is unimportant. Rather, it shows that resilience emerges from several interacting influences, including household resources, livelihood strategies, social networks, environmental exposure, infrastructure and knowledge developed through repeated experience of coastal hazards.

This interpretation reflects the empirical pattern established in the preceding subsections. Governance performance was generally weak, particularly in relation to compensation, consultation, environmental impact assessment compliance and grievance redress. Community resilience nevertheless remained moderate because its strongest elements were mutual assistance, collective organisation and locally developed coping practices. The findings support the conceptual proposition that formal governance can strengthen resilience but does not create it independently of community institutions and household capacities. Coastal governance research similarly emphasises that durable resilience develops through interaction among public institutions, knowledge networks, and local actors rather than through exclusively state-led or community-led action (Rölfer et al., 2022; Elrick-Barr et al., 2024).

The modest governance–resilience relationship also exposes the limitations of relying heavily on community coping. Social solidarity may help residents respond to flooding and ocean surge, but it cannot substitute for enforceable environmental safeguards, resilient drainage and transport infrastructure, ecosystem restoration or secure livelihood support. Resilience framed mainly as recovery and coping can leave the conditions producing vulnerability unchanged, whereas a social–ecological approach requires institutions to address the connected environmental and socioeconomic systems within which communities live (Jozaei et al., 2022). Justice is equally important because resilience interventions may remain ineffective or inequitable where affected populations lack

meaningful influence, adequate compensation or accessible remedies for development-related losses (Pellerey et al., 2025).

The evidence suggests that strengthening environmental governance should be understood not simply as improving administrative performance but as investing in the long-term resilience of coastal communities. In Magbo Esan, formal institutions could reinforce existing community capacities through preventive monitoring, transparent risk communication, meaningful participation, fair grievance and compensation systems, ecosystem protection and infrastructure adapted to recurrent coastal hazards. Such an approach would reduce the burden currently carried by households and local networks while supporting a more equitable form of coastal transformation.

Conclusion and Policy Implications

This study demonstrates that rapid coastal development does not necessarily translate into stronger environmental governance or more resilient host communities. In Magbo Esan, recurrent flooding, ocean surge, erosion and pollution intersect with fishing-based livelihoods and residential concentration within the shoreline exposure zone. Yet governance performance remains weak, particularly in environmental impact assessment compliance, public consultation, compensation, access to information and grievance redress. Institutional action is more visible after environmental disturbances than in the preventive planning and monitoring required to reduce risk before damage occurs.

Community resilience is nevertheless moderate because residents rely on mutual assistance, collective organisation and practical coping strategies developed through repeated exposure to coastal hazards. The positive but modest relationship between governance and resilience confirms that formal institutions matter, although they are only one part of a wider resilience system shaped by social networks, household resources, livelihoods, infrastructure and local environmental knowledge. The study advances coastal-resilience research by showing that governance should be understood as an enabling condition that can reinforce community capacity rather than replace it.

Policy intervention should begin by repositioning environmental impact assessment from a one-off approval requirement to a continuous system of post-development monitoring and public accountability. Community participation should be institutionalised throughout project planning, implementation and review, with the Baale, *Omo Onilu*, livelihood groups and community organisations given clearly defined roles. Compensation and grievance mechanisms should be transparent, accessible and responsive to property, livelihood and environmental losses. Investment is also required in drainage, access roads, shoreline protection, ecosystem restoration and livelihood diversification.

As mega coastal development continues to transform the Lagos coastline, its long-term sustainability will depend not only on economic investment and physical infrastructure,

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

but equally on governance systems that protect livelihoods, strengthen community participation and ensure that the benefits and environmental costs of development are shared more equitably among host communities.

References

Adelekan, I. O. (2010). Vulnerability of poor urban coastal communities to flooding in Lagos, Nigeria. *Environment and Urbanization, 22*(2), 433–450. https://doi.org/10.1177/0956247810380141

Elrick-Barr, C. E., Thomsen, D. C., & Smith, T. F. (2024). Governance innovations in the coastal zone: Towards social–ecological resilience. *Environmental Science & Policy, 153*, Article 103687. https://doi.org/10.1016/j.envsci.2024.103687

Glavovic, B. C., Dawson, R., Chow, W., Garschagen, M., Haasnoot, M., Singh, C., & Thomas, A. (2022). Cross-chapter paper 2: Cities and settlements by the sea. In H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, & B. Rama (Eds.), *Climate change 2022: Impacts, adaptation and vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 2163–2194). Cambridge University Press. https://doi.org/10.1017/9781009325844.019

Intergovernmental Panel on Climate Change. (2022). *Climate change 2022: Impacts, adaptation and vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, & B. Rama, Eds.). Cambridge University Press. https://doi.org/10.1017/9781009325844

Jozaei, J., Chuang, W.-C., Allen, C. R., & Garmestani, A. S. (2022). Social vulnerability, social–ecological resilience and coastal governance. *Global Sustainability, 5*, Article e12. https://doi.org/10.1017/sus.2022.10

Ndimele, P. E., Ojewole, A. E., Mekuleyi, G. O., Badmos, L. A., Agosu, C. M., Olatunbosun, E. S., Lawal, O. O., Shittu, J. A., Joseph, O. O., Ositimehin, K. M., Ndimele, F. C., Ojewole, C. O., Abdulganiyi, I. O., & Ayodele, O. T. (2024). Vulnerability, resilience and adaptation of Lagos coastal communities to flooding. *Earth Science, Systems and Society, 4*, Article 10087. https://doi.org/10.3389/esss.2024.10087

Pellerey, V., Torabi Moghadam, S., & Lombardi, P. (2025). A systematic review of justice integration to climate resilience: Current trends and future directions. *Urban Climate, 59*, Article 102250. https://doi.org/10.1016/j.uclim.2024.102250

Rölfer, L., Celliers, L., & Abson, D. J. (2022). Resilience and coastal governance: Knowledge and navigation between stability and transformation. *Ecology and Society, 27*(2), Article 40. https://doi.org/10.5751/ES-13244-270240

Steven, A. D. L., Appeaning Addo, K., Llewellyn, G., Vu, T. C., Boateng, I., Bustamante, R., Doropoulos, C., Gillies, C., Hemer, M., Lopes, P., Kairo, J., Rahman, M., Ravaoarinorotsihoarana, L. A., Saunders, M., Sumaila, U. R., Sidik, F., Teh, L., Vanderklift, M., & Vozzo, M. (2020). *Coastal development: Resilience, restoration and infrastructure requirements*. World Resources Institute.

United Nations Office for Disaster Risk Reduction. (2015). *Sendai framework for disaster risk reduction 2015–2030*. United Nations.

United Nations Human Settlements Programme. (2024). *World cities report 2024: Cities and climate action*. UN-Habitat. https://doi.org/10.18356/9789211065602

van der Jagt, A. P. N., Buijs, A., Dobbs, C., van Lierop, M., Pauleit, S., Randrup, T. B., Skiba, A., & Wild, T. (2023). With the process comes the progress: A systematic review to support governance assessment of urban nature-based solutions. *Urban Forestry & Urban Greening, 87*, Article 128067. https://doi.org/10.1016/j.ufug.2023.128067

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]