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Editorial Note:

This latest issue of the Journal of Contemporary Society Education (JCSE) arrives at a moment when the boundaries between the academic, the social, and the urgently practical have never been more porous. A glance at the nineteen articles in this forthcoming collection reveals a publication that understands its mandate: to serve not merely as a repository of scholarship, but as a sharp, coherent lens through which to examine the pressing complexities of contemporary society, with a firm grounding in education as a transformative force.

What distinguishes this issue is its refusal to settle for disciplinary comfort. The contributions, drawn from institutions across Africa, demonstrate a welcome intellectual restlessness. We see scholars interrogating the intimate, such as Mudau et al.'s exploration of language as a source of family conflict within Vhavenda families alongside those grappling with structural questions, such as Sikwela and Diedericks' critical look at performance management as "a mirror of inertia" in public administration. This range is not a sign of incoherence; it is a testament to the journal's understanding that societal education occurs in classrooms, in homes, in municipal water governance (as Zulu and Nojiyeza's work on Zululand shows), and in the very language we use to communicate.

Several pieces stand out for their conceptual bravery. Maungedzo's reframing of academic literacy through sociocultural theory for rural teacher development tackles a perennial challenge with fresh theoretical rigour. Similarly, Lubombo and Zethi's work on "linguistic justice" and the Disciplinary Literacies framework asks a question that South African higher education can no longer afford to postpone: how do we re-imagine instructional communication not as a barrier, but as an equitable foundation? These are not abstract debates; they are core pedagogical interventions.

The journal also demonstrates a commendable commitment to surfacing marginalised voices and experiences. Nkumane's exploration of intersectionality and the lived experiences of Black women scholars at UNISA, and Sibango's ethnographic look at how belonging is negotiated in Anthropology departments, remind us that the university itself is a site of intense social contestation. When Lekoa and Nojiyeza connect off-campus housing to "ecologies of distress" affecting student mental health, they do what good contemporary scholarship must: they trace the material conditions of life directly into the outcomes of education.

If there is a through-line to this collection, it is the insistence that no social phenomenon, whether climate governance under the AU (Yemisi and Ani), the antinomies of decolonisation in literature (Moopi), or the gendered nexus of marital status and poverty (Dunga), exists outside the purview of rigorous inquiry. The JCSE is building a platform where scholars can hold those complex phenomena up to the light.

This volume does not offer easy answers. It offers something more valuable: a coherent, sharply focused set of questions, pursued with methodological care and regional relevance. For a journal of contemporary society and education, that is precisely the work that matters.

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THE EFFECT OF FLOOD RISK MANAGEMENT CONTROL ON PROPERTY PROTECTION IN LAGOS STATE, NIGERIA

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Abstract

This study examines the effect of flood risk management control on property protection in Lagos State, Nigeria. It identifies effective structural and non-structural strategies for mitigating flood risks and explores challenges that hinder their implementation. A mixed-method research design was adopted, combining quantitative and qualitative approaches. The study focused on Lekki, Makoko, and Ajegunle, three areas characterised by varying levels of urbanisation and vulnerability to flooding. A structured questionnaire was administered to 400 randomly selected residents, while in-depth interviews were conducted with community leaders. Data were analysed using simple regression analysis for the quantitative component and content analysis for the qualitative data. The results reveal that flood risk control has a significant positive effect on property protection. Structural measures such as improved drainage systems, flood barriers, road elevation, water diversion channels, and reservoirs were identified as critical mitigation strategies. Non-structural approaches including public education, stricter building regulations, early warning systems, community participation, and flood insurance were also found to enhance flood resilience. However, the implementation of these measures is constrained by inadequate funding, corruption, weak policy enforcement, poor urban planning, and limited community involvement. The study concludes that an integrated approach combining structural and non-structural measures is necessary for effective flood risk management in Lagos State.

Keywords: *Flood risk management, property protection, flood control, Lagos State, Nigeria,*

Introduction

Environmental hazards pose serious threats to human survival and sustainable development. Among these hazards, flooding has been identified as one of the most destructive natural disasters worldwide (Komolafe et al., 2015; Djimesah et al., 2018; Uma & Alison, 2023). Flooding occurs when an excessive volume of water flows over land that is usually dry, often resulting from heavy rainfall that exceeds the soil's absorption capacity (Nwachukwu et al., 2018). As a result, flooding frequently causes severe environmental, social, and economic consequences.

Globally, the occurrence of flood events has increased significantly in recent decades. Komolafe et al. (2015) observed that approximately 70 million people are exposed to flooding annually, while more than 800 million people live in flood-prone areas. Many scholars attribute this increasing trend to climate change, rapid urbanisation, and inadequate environmental management practices.

Nigeria has not been exempt from the growing threat of flooding. Flood disasters have become frequent in many parts of the country, particularly in coastal and riverine areas. According to Omoge (2024), flooding has emerged as one of the most common environmental hazards in Nigeria, often occurring alongside other natural disasters such as storms, droughts, erosion, and disease outbreaks. The 2022 flood disaster was particularly devastating, as it affected 33 of Nigeria's 36 states and displaced millions of residents (National Emergency Management Agency [NEMA], 2022). Reports indicate that over 600 lives were lost and more than

1.3 million people were displaced during the disaster (Oyebode, 2021).

Lagos State, Nigeria's largest urban centre and economic hub, is particularly vulnerable to flooding due to its coastal location, high population density, rapid urbanisation, and inadequate drainage infrastructure. Many communities located within coastal plains and riverine environments experience recurrent flooding, leading to significant losses of property and disruption of livelihoods.

Given the increasing vulnerability of urban areas to flooding, effective flood risk management has become essential for protecting lives and property. Flood risk management involves both structural and non-structural measures designed to reduce flood hazards and improve community resilience (Tariq et al., 2020).

Despite several interventions aimed at mitigating flooding in Nigeria, many communities continue to experience severe flood damage due to weak institutional capacity, poor urban planning, and inadequate implementation of flood control measures.

The main objective of this study is to examine how flood risk management can contribute to sustainable development in Lagos State, Nigeria. Specifically, the study aims to investigate the effect of flood risk control on property protection in Lagos State and to identify the most effective measures for mitigating flood risks and protecting properties in the study area.

Literature Review

Flooding is widely recognised as one of the most destructive natural hazards, causing significant social, economic, and environmental losses across the world. According to Diaconu et al. (2021), floods represent a natural phenomenon that annually generates significant economic losses and human suffering. The increasing frequency and intensity of flood events have been associated with factors such as climate change, rapid urbanisation, and poor environmental management practices. In many developing countries, particularly in Africa, the impacts of flooding are more severe due to weak institutional capacity, inadequate infrastructure, and high levels of socio-economic vulnerability.

In Nigeria, flooding has become one of the most recurring environmental disasters affecting both rural and urban communities. The Nigeria Hydrological Services Agency (2020) identified several major causes of flooding in the country, including soil moisture saturation, extreme weather conditions associated with climate change, dam management challenges, and topographical factors. Similarly, Adegboyega et al. (2018) argued that changes in land use, particularly rapid urbanisation, significantly contribute to urban flooding. Abolade et al. (2013) further observed that extreme precipitation events represent a major natural cause of flooding. In addition to natural causes, human activities such as dumping refuse in drainage systems, building on waterways, and inadequate drainage infrastructure significantly contribute to urban flooding.

Several studies focusing on Lagos State have highlighted urban factors contributing to frequent flooding. Aderogba (2012) noted that the major causes of flooding in Lagos metropolis include blockage of canals, inadequate drainage systems, torrential rainfall, and encroachment on natural waterways. Similarly, Agbonkhese et al. (2014) identified heavy precipitation, climate change, and anthropogenic activities as key drivers of flooding in Nigerian cities. Komolafe et al. (2015) further explained that both natural causes, such as intense rainfall and river storms, and human-related factors, including broken water pipes, inadequate drainage systems, and dam overflow, contribute to the increasing occurrence of flood disasters in the country.

Flood events often result in extensive damage to infrastructure, displacement of populations, and significant loss of lives and property. Sorboni et al. (2024) maintained that severe flooding can destroy physical infrastructure, threaten human life, and require extensive rehabilitation and reconstruction of affected areas. In many developing urban centres, weak infrastructure and poor environmental management practices increase the vulnerability of communities to flood disasters.

Theoretical Framework: Risk Management Framework

Flood risk management is commonly guided by established theoretical frameworks that focus on reducing disaster risks through systematic identification, assessment, and mitigation of hazards. One widely recognised framework is the United Nations International Strategy for

Disaster Risk Reduction (UNISDR) risk management framework, which conceptualises disaster risk as the interaction between hazard, exposure, and vulnerability (UNISDR, 2009). Hazard refers to the probability of a flood event occurring, exposure refers to the presence of people and assets in flood-prone areas, while vulnerability refers to the susceptibility of those assets to damage.

Similarly, modern risk management principles such as those emphasised in the ISO 31000 framework highlight the importance of systematic processes including risk identification, risk assessment, risk evaluation, and risk treatment in reducing potential disaster impacts. Within the context of flood risk management, these frameworks emphasise the need to identify flood hazards, assess the level of exposure of communities and infrastructure, and implement appropriate mitigation strategies.

Tariq et al. (2020) noted that understanding the role of numerous mitigation measures is a requirement for designing an efficient approach to managing flood risks. According to these authors, proper identification of flood risks is the first step in developing effective flood risk management strategies.

Flood Risk Assessment and Management Strategies

Risk identification and assessment represent key components of effective flood risk management. According to Wang et al. (2022), most flood risk assessments fall within the category of comprehensive assessment approaches.

Comprehensive assessment involves evaluating various indicators extracted from different aspects of environmental and socio-economic systems. Furthermore explained that such assessments often involve developing evaluation index systems based on three major indicators: hazard, exposure, and vulnerability.

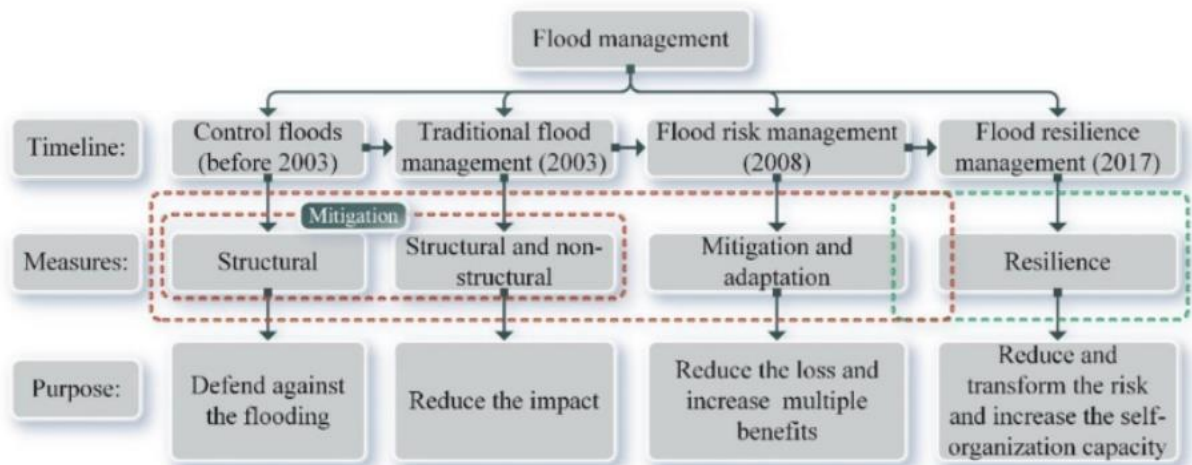
Some scholars have approached flood risk assessment from a systems perspective. Wang et al. (2022) emphasised that systems theory considers factors such as disaster-pregnant environments, disaster-causing factors, disaster-bearing systems, and defence capabilities when analysing disaster risks. This systems-based perspective highlights the interconnected nature of environmental, infrastructural, and social factors that contribute to flood vulnerability.

Globally, the impacts of flooding have intensified in recent decades. Wang et al. (2022) observed that disastrous floods driven by rapid urbanisation and extreme weather events have resulted in millions of fatalities and billions of dollars in economic losses worldwide. Similarly, Bloesch et al. (2019), CRED and UNISDR (2020), and Hallegatte et al. (2013) highlighted that the magnitude of flood-related losses is expected to increase in the future due to global warming and increased exposure of populations and economic assets.

Extreme precipitation events have also become more frequent, increasing the vulnerability of communities to water-related disasters (Tabari, 2020; Jongman et al., 2012; Paudel et al., 2014; Tellman et al., 2021). In many regions, multiple forms of flooding may occur

simultaneously. Ming et al. (2022) noted that river flooding, flash floods, urban floods, and coastal floods may occur concurrently, resulting in compound flood events driven by extreme rainfall, storm surges, and river overflow.

The increase in flood risk has also been linked to population growth and the expansion of economic assets in flood-prone areas (Hallegatte et al., 2013; Lai et al., 2020). As urban populations continue to grow and development expands into vulnerable areas, effective flood risk management becomes increasingly necessary.



Source: Wang et al, (2022). Research trends of flood risk management. A review of flood management from flood control to flood resilience. Heliyon, p.9.

Flood Risk Governance

In recent years, increasing scholarly attention has focused on the governance and institutional dimensions of flood risk management. Dordi et al. (2022) noted that the implementation of innovative flood risk management strategies often faces significant institutional and governance challenges.

Several studies conducted in Europe have examined governance challenges associated with flood risk management

diversification (Bosoni et al., 2021; Dieperink et al., 2016; Driessen et al., 2016; Hegger et al., 2016; Matczak & Hegger, 2020; Van Buuren et al., 2016; Wiering et al., 2017). These studies highlight issues such as fragmented institutional responsibilities, weak coordination among stakeholders, and policy implementation challenges. However, empirical studies examining the diversification of flood risk management strategies remain relatively limited (Dieperink et al., 2016).

In the African context, institutional capacity constraints and governance limitations continue to pose challenges to effective flood risk management. In Nigeria, the absence of integrated and sustainable flood risk management systems has been identified as a major barrier to effective disaster risk reduction. Adedeji et al. (2012) emphasised the need for improved spatial planning and coordinated institutional responses to flood disasters. Similarly, Storbjörk (2007) and Tran et al. (2009) argued that sustainable flood risk management systems must reflect the ecological conditions, infrastructural development, institutional behaviour, and socio-economic characteristics of their environments.

Economic Implications and Cost–Benefit Analysis of Flood Management

Flood disasters often impose significant economic costs on communities and national economies. In Nigeria, flooding has resulted in extensive losses of lives and property in many parts of the country. It has been estimated that flood events caused economic losses exceeding \$16.9 billion in damaged infrastructure, agricultural losses, and disruptions to oil production during the 2012 flood disaster (Amangabara & Obenade, 2012; Egbenta et al., 2015).

Given the substantial economic implications of flooding, policymakers increasingly rely on cost–benefit

analysis (CBA) as a tool for evaluating disaster risk reduction investments. Zeng et al. (2023) argued that the effective allocation of disaster reduction funds is crucial for governments seeking to balance investments in disaster risk reduction with broader economic development goals. However, decision-makers may hesitate to invest in disaster risk reduction projects when they lack quantitative information about the potential economic and social benefits of such investments (Miyamoto et al., 2014).

Cost–benefit analysis provides a systematic framework for evaluating the economic viability of flood mitigation measures by comparing the expected costs of intervention with the potential benefits of reduced disaster losses. Botzen et al. (2017) noted that CBA serves as a valuable decision-making tool by identifying the most economically efficient mitigation strategies. In addition, it facilitates coordination among different policy areas and levels of government, thereby improving the effectiveness of disaster risk reduction initiatives.

Overall, the literature demonstrates that effective flood risk management requires an integrated approach combining scientific risk assessment, strong governance systems, economic evaluation, and community participation. Despite the growing body of research on flood risk management globally, there remains a need for more

empirical studies examining the effectiveness of flood risk control strategies in Nigerian urban environments such as Lagos State.

Research Methodology

A mixed method research was used as the research design for this study and the proposed study areas are Lekki, Makoko and Ajegunle – all in Lagos State. A mixed-method research design is justified for this study as it allows for a comprehensive analysis of flood risk management by combining quantitative and qualitative approaches. The quantitative aspect, using questionnaires, provides measurable insights into the effect of flood risk control on property protection, while qualitative interviews offer in-depth perspectives on effective measures for mitigating flood risks. Lekki, Makoko, and Ajegunle were selected as study areas due to their varying levels of urbanization, exposure to flooding, and socio-economic diversity. Lekki represents a rapidly developing coastal area, Makoko is a flood-prone informal settlement, and Ajegunle is a densely populated urban community, ensuring a balanced and representative analysis.

Population and Sample of the Study

The population of the study comprises residents of Lekki (174,400), Makoko (250,000), and Ajegunle (550,000), totalling 974,400 individuals (Nigerian City Population, 2024). Using Yamane's (1967) formula for sample size

determination, where the population is 974,400, the sample size for the questionnaire aspect is calculated as yielding approximately 400 respondents. Simple random sampling technique while purposive and snowball sampling techniques were employed to identify relevant participants for the interviews, ensuring representation from diverse socio-economic backgrounds. This approach ensures a balanced and comprehensive analysis of flood risk management in the selected areas.

Method of Data Analysis

The methodology to be adopted in this study is the descriptive and inferential statistics. In the inferential statistics, the simple regression analysis was adopted for the first objective using a simple linear regression model expressed as:

$$PP = \beta_0 + \beta_1 FRC + \epsilon$$

Where:

- **PP** = Property Protection
- **FRC** = Flood Risk Control
- **β_0** = Intercept
- **β_1** = Regression coefficient
- **ϵ** = Error term

While this study employed content analysis to analyse the data gathered for the second objective. Statistical Package for Social Science was used to aid the analysis.

Results and Discussion

Out of the 400 questionnaires distributed, 221 valid responses were returned, representing a response rate of 55.25%. Although the response rate is

moderate, it is considered acceptable for social science research and provides sufficient data for meaningful statistical analysis.

Below is the demographic characteristics of the respondents for both the questionnaire and interview.

Table 3: Demographic Profile

Demographic Profile	Frequency	Percentage
Age Group:		
18–29 years	71	32.13
30–44 years	93	42.08
45–59 years	45	20.36
60 years and above	12	5.43
Occupation:		
Self-employed/Entrepreneur	100	45.25
Salaried Employee (Private/Public Sector)	68	30.77
Unemployed/Job Seeker	33	14.93
Student/Retiree	20	9.05
Socio-Economic Status:		
Low-income (Below ₦50,000/month)	111	50.23
Middle-income (₦50,000 – ₦200,000/month)	82	37.10
High-income (Above ₦200,000/month)	28	12.67
Length of Residence:		
Less than 5 years	37	16.74
5–10 years	71	32.13
11–20 years	64	28.96
More than 20 years	49	22.17

Table 3 presents the demographic characteristics of the 221 respondents who participated in the questionnaire and interview aspects of the study. The majority of respondents (42.08%) were aged 30–44 years, indicating that middle-aged adults, who are likely to be property owners or managers, formed the largest group. Younger adults (18–29 years) accounted for 32.13%, while

older adults (45 years and above) made up 25.79%, reflecting a balanced age distribution. In terms of occupation, self-employed individuals and entrepreneurs dominated at 45.25%, highlighting the prevalence of informal economic activities in the study areas. Salaried employees constituted 30.77%, while unemployed/job seekers and students/retirees represented 14.93%

and 9.05%, respectively. Socio-economically, low-income earners (below ₦50,000/month) formed the majority at 50.23%, followed by middle-income (37.10%) and high-income (12.67%) respondents, underscoring the economic diversity of the study areas. Regarding length of residence, 32.13% had lived in the area for 5–10 years, while 28.96% and 22.17% had resided there for 11–20 years and over 20 years, respectively, indicating that most respondents had substantial experience with local flood events. Only 16.74% had lived in the area for less than 5 years. These findings demonstrate that the

sample captured a diverse and representative group of respondents, ensuring comprehensive insights into flood risk management and property protection in Lagos State.

Quantitative Analysis

The study examines the effect of flood risk control on property protection in Lagos State, Nigeria. The hypothesis tested is: Flood risk control has no significant effect on property protection in Lagos State, Nigeria. Table 4, 5 and 6 presents the result of the quantitative analysis.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.575 ^a	.331	.328	.51443

a. Predictors: (Constant), Flood Risk Control

The model summary indicates that flood risk control explains 33.1% of the variance in property protection, as shown by the R Square value of .331. The adjusted R Square value of .328 suggests that the model is a good fit for

the data, with a standard error of .51443. This implies that flood risk control is a significant predictor of property protection, though other factors not included in the model may also influence the outcome.

Table 5: ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	28.634	1	28.634	108.200	.000 ^b
	Residual	57.956	219	.265		
	Total	86.590	220			

a. Dependent Variable: Property Protection

b. Predictors: (Constant), Flood Risk Control

The ANOVA results reveal that the regression model is statistically significant, $F(1, 219) = 108.200$, $p < .001$. This indicates that flood risk control significantly predicts property protection. The p-value of .000 is less

than the alpha level of .05, confirming that the model is a good fit for the data and that the relationship between flood risk control and property protection is not due to chance.

Table 6: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	1.579	.184		8.599	.000
	Flood Risk Control	.634	.061	.575	10.402	.000

a. Dependent Variable: Property Protection

The regression coefficients show that flood risk control has a significant positive effect on property protection ($\beta = .575$, $t = 10.402$, $p < .001$). For every 1% increase in flood risk control, property protection increases by 0.634%. The null hypothesis (H_1) is rejected, as flood risk control has a significant positive effect on property protection.

Qualitative Analysis

Nine community leaders were interviewed. Data saturation was considered achieved when no new themes emerged from additional interviews. The participants were asked to state the most effective structural and non-structural measures for mitigating flood risks and protecting properties in

Lagos State, and what challenges hinder their implementation. The responses are grouped into three thematic areas as followings

Effective Structural Measures

The thematic analysis of the interview transcripts from the nine participants reveals several recurring themes regarding the most effective structural measures for mitigating flood risks and protecting properties in Lagos State.

It was found that improved drainage systems were a common recommendation among participants. For instance, Participant 1 emphasised the need for "*better drainage systems to carry water away when it rains heavily,*" while Participant 9 highlighted the

importance of clearing blocked gutters and drainage systems caused by dirt and plastic. This suggests that functional and well-maintained drainage infrastructure is critical for flood prevention.

It is clear that flood barriers and protective structures are also considered essential. Participant 2 recommended *"building strong walls and barriers to stop floodwater from entering houses,"* indicating that physical structures can play a significant role in safeguarding properties from flood damage.

The data collected shows that road elevation and water diversion channels are viewed as effective measures. Participant 7 suggested *"building higher roads so water no go cover am during flood,"* while Participant 5 proposed *"creating channels to direct floodwater to rivers or lagoons."* These measures aim to redirect floodwater away from residential areas and critical infrastructure.

The findings show that reservoirs for floodwater storage are another important structural solution. Participant 6 advocated for *"building reservoirs to collect floodwater during heavy rain,"* which would help manage excess water during peak rainfall periods.

From the data presented, it was found that the participants collectively identified drainage improvement, flood barriers, road elevation, water diversion channels, and reservoirs as the most

effective structural measures for mitigating flood risks in Lagos State. These measures address both the immediate and long-term challenges of flooding, highlighting the need for a multi-faceted approach to flood risk management

Effective Non-Structural Measures

The thematic analysis of the interview transcripts highlights key non-structural measures for mitigating flood risks and protecting properties in Lagos State. It was found that public education and awareness campaigns are essential in preventing harmful practices such as dumping waste in drainage channels, as noted by Participant 1: *"Government should educate people on how to stop throwing rubbish inside drainage."* The data collected shows that enforcing stricter building regulations and improving urban planning can help reduce flood vulnerability, as emphasised by Participant 3: *"Make government create laws to stop building houses for areas wey flood dey happen."* The findings show that early warning systems are crucial in helping residents prepare for flooding events, as stated by Participant 9: *"Make government give early warning when flood go happen, so people fit prepare."* From the data presented, it was found that involving community leaders in flood management efforts (Participant 5) and providing flood insurance for affected properties (Participant 6) are also effective

strategies for mitigating flood risks. It is clear that a combination of public education, policy enforcement, community involvement, and financial protection can significantly enhance flood resilience in Lagos State.

Challenges Hindering Implementation

The thematic analysis of the interview transcripts highlights key challenges hindering the implementation of flood risk mitigation measures in Lagos State. It was found that inadequate funding is a major obstacle, as several participants noted the lack of financial resources for building drainage systems, flood channels, and reservoirs. Participant 2 stated, *"No money to build good drainage, and people no dey cooperate to keep environment clean,"* while Participant 8 emphasised, *"No funds to build reservoirs, and insurance no dey affordable for poor people."*

The data collected shows that corruption and weak policy enforcement further hinder effective flood management. Participant 3 pointed out, *"Corruption for government, and people no dey follow rules when building houses."* The findings show that poor urban planning and lack of proper infrastructure contribute to recurring flood problems, as highlighted by Participant 4: *"No good plan for road construction, and land use planning no dey work well."*

From the data presented, it was found that ineffective early warning systems and lack of community involvement also create barriers. Participant 9 stated, *"No equipment to clear drainage, and flood warning no dey reach people on time,"* while Participant 5 mentioned,

"Government no dey involve us for decision-making." It is clear that addressing these financial, political, and infrastructural challenges is essential to improving flood risk mitigation and protecting properties in Lagos State.

Discussion

The first objective of this study is to investigate the effect of flood risk control on property protection in Lagos State, Nigeria. The findings reveal that flood risk control significantly enhances property protection in Lagos State, as evidenced by the regression analysis. This implies that effective flood risk management strategies, such as improved drainage systems, flood barriers, and water diversion channels, play a crucial role in safeguarding properties from flood damage. The results justify the need for increased investment in flood control infrastructure and policies, particularly in flood-prone areas like Lekki, Makoko, and Ajegunle. This has broader implications for sustainable urban development, as reducing flood risks can minimise property losses, improve community resilience, and foster economic stability in Lagos State. The findings that flood risk control has a positive and significant effect on property protection in Lagos State align with several empirical studies. Obi et al. (2021) agree, demonstrating that indigenous flood control measures are 61.2% effective in reducing flood risks in Nigeria's coastal communities. Similarly, Ibeanu et al. (2023) support this finding, emphasising the importance of coordinated flood management strategies, such as resilient infrastructure and early warning systems, in mitigating flood impacts. Danladi et al. (2024) also concur, advocating for integrated

structural and non-structural solutions to enhance flood resilience. However, Atanga (2020) highlights challenges, such as limited community involvement, which may hinder effective implementation. Overall, these studies collectively affirm the importance of flood risk control in protecting properties.

The second objective of this study is to determine the most effective measures for mitigating flood risks and protecting properties in Lagos State. The findings reveal that the most effective measures for mitigating flood risks and protecting properties in Lagos State include both structural and non-structural strategies. Structurally, improved drainage systems, flood barriers, road elevation, water diversion channels, and reservoirs were identified as critical for flood prevention. Non-structurally, public education, stricter building regulations, early warning systems, community involvement, and flood insurance were highlighted as essential for enhancing flood resilience. These findings justify the need for a holistic approach to flood risk management, combining infrastructure development with policy enforcement and community engagement. The implications are significant: implementing these measures can reduce property damage, save lives, and promote sustainable urban development in Lagos State. By addressing both immediate and long-term flood risks, these strategies can improve the quality of life for residents and foster economic stability in flood-prone areas. This underscores the importance of coordinated efforts between government, communities, and stakeholders to achieve effective flood risk management.

The third objective of this study is to identify the challenges that hindered the implementation of the measures for mitigating flood risks and protecting properties in Lagos State. The findings reveal that the implementation of flood risk mitigation measures in Lagos State is hindered by several challenges, including inadequate funding, corruption, weak policy enforcement, poor urban planning, and lack of community involvement. Participants highlighted the lack of financial resources for infrastructure projects, such as drainage systems and reservoirs, as well as the inaccessibility of flood insurance for low-income residents. Corruption and non-compliance with building regulations further exacerbate the problem, while ineffective early warning systems and limited community engagement reduce the effectiveness of flood management efforts. These findings justify the need for increased funding, transparent governance, stricter enforcement of policies, and inclusive decision-making processes. Addressing these challenges is crucial for enhancing flood resilience, protecting properties, and ensuring sustainable development in Lagos State.

Conclusion and Recommendation

The study concludes that effective flood risk management is crucial for sustainable development and property protection in Lagos State. The findings demonstrate that flood risk control has a significant impact on safeguarding properties, highlighting the need for proactive mitigation strategies. It is clear that both structural and non-structural measures play a vital role in reducing flood risks. Structural solutions such as drainage systems, flood barriers, and elevated roads are essential for

controlling floodwater, while non-structural strategies like public education, stricter regulations, and early warning systems enhance community preparedness. However, the study also found that the successful implementation of these measures is hindered by financial constraints, corruption, weak policy enforcement, and poor urban planning. Addressing these challenges requires a collaborative effort between the government, local communities, and other stakeholders. Overall, the study underscores the urgency of integrating effective flood risk management into urban planning policies to ensure long-term resilience and sustainable development in Lagos State.

The following are the recommendations. The Lagos State Ministry of Environment and Water Resources should prioritise the construction and maintenance of drainage infrastructure in flood-prone communities such as Makoko and Ajegunle. This can be achieved through a combination of strict zoning laws and enforcement of building codes that require flood-resistant designs.

A multi-stakeholder approach should be adopted, combining both structural and non-structural flood management strategies. The government should invest in drainage expansion, elevated roads, and reservoirs while also launching community-based awareness programmes. In Nigeria, local councils and community leaders can facilitate public education campaigns on waste disposal and flood preparedness, ensuring grassroots participation in flood risk reduction. This approach will strengthen community resilience and complement infrastructural solutions.

To address financial and governance challenges, a dedicated Flood Management Fund should be established through public-private partnerships (PPPs) and international funding. This will ensure continuous investment in flood control projects. In Nigeria's context, anti-corruption measures should be integrated into flood management policies, and community-based monitoring should be encouraged to ensure transparent and efficient resource allocation.

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