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CLIMATE CHANGE IMPACT AND INDIGENOUS ADAPTATION STRATEGIES OF SELECTED COASTAL COMMUNITIES IN BADAGRY LOCAL GOVERNMENT AREA OF LAGOS STATE

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Abstract

Climate change threatens coastal communities worldwide, especially low-lying regions where flooding disrupts livelihoods and damages infrastructure. In Nigeria, Lagos State's coastal settlements are highly vulnerable but rely on indigenous knowledge adaptation. This study examines local adaptation strategies to flooding, focusing on impacts on livelihoods and infrastructure, using a mixed-method approach that combined spatial analysis, field observation, and surveys. Data from 302 respondents were analyzed using SPSS, while geospatial analysis employed Google Earth Engine and QGIS. Findings show extensive 0–5 m terrain, recurrent inundation zones, and lagoon systems intensify flood risk. Result revealed that flooding severely affects farming, fishing, livestock, social activities, and housing. Communities respond with indigenous strategies such as spiritual practices, redirecting floodwaters, building local bridges, and engaging in petty trade or labor. Despite adaptive capacity, residents especially farmers and fishermen remain highly vulnerable. The study recommends urgent zoning policies, drainage systems, flood-resilient infrastructure, community-based adaptation, and integration of geospatial flood mapping into planning. Local councils should prioritise water provision and mitigation measures like canal construction to reduce risks and strengthen resilience.

Keywords: Climate change, Coastal communities, Flooding, Indigenous adaptation strategies.

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Introduction

The world is getting warmer, extreme weather occurrences are becoming more frequent and intense, sea levels are rising. Climate change, largely driven by cumulative anthropogenic activities, has led to the accumulation of greenhouse gases that fuel global warming. Its impacts are universal, affecting every continent and country, though the degree of vulnerability varies. Nigeria remains one of the countries exposed to climate change, with approximately 6% of its

Vol 2(1) March 2026
ISSN: 3121 9144

land area vulnerable to extreme weather events such as flooding (Climate Policy Initiative, 2025; World Bank, 2019). Recent assessments highlight increased pest and disease outbreaks, reduced crop yields, and declining household incomes as key consequences (Okon et al., 2021; Nigerian Meteorological Agency (NiMet), 2024).

Climate change continues to pose severe risks to coastal communities in Nigeria, particularly in Lagos State, where rapid urbanization, high population density, and fragile ecosystems converge. Several studies have documented the increasing frequency of flood events and their devastating effects on livelihoods and infrastructure in Lagos coastal zones, including (Ndimele et al., 2024; Oladipo & Adeola, 2023). While state-level climate resilience frameworks such as the Lagos Climate Action Plan (LCAP, 2022) emphasize adaptation, they often overlook the nuanced indigenous strategies employed by local communities.

The terrain is predominantly flat, and the low slope gradient across Lagos reduced the natural drainage capacity, allowing floodwaters to accumulate during intense rainfall events (Lagos State Government, 2021). Literature on climate risks in Lagos State highlights a wide range of hazards that threaten both urban and rural communities. The major climate hazards reported include inland flooding driven by increasing precipitation intensity, duration, and frequency, as well as coastal and lagoon flooding associated with sea-level rise, riverine flooding, thunderstorms, tropical storms, and the urban heat island effect (Lagos State Government, 2021). These hazards not only disrupt livelihoods and infrastructure but also exacerbate the vulnerability of coastal settlements such as those in Badagry, where dependence on agriculture, fishing, and forest resources heightens exposure to climate variability.

According to Adelekan (2016), Lagos has been identified as one of the cities exposed to extreme sea level and coastal flooding, with projection indicating a significant increase in population exposure to coastal flooding by 2070. Studies further revealed that low-lying coastal cities are highly susceptible to flood risks owing to their relatively low terrain of land, assets, and populations, which is the exact situation in Lagos (Pelling and Blackburn 2013). Consequently, repeated flooding has resulted in social disruption, significant economic losses, and in severe cases, loss of life (Olayinka and Irivbogbe, 2017).

While several studies have examined climate impacts in Lagos broadly (BNRCC, 2012; Akinbode et al., 2021), only limited research has focused specifically on Badagry's coastal settlements. Indigenous knowledge approach used by local communities to cope with climate change impacts are often overlooked or treated as anecdotal rather than systematically analyzed. This gap underscores the need for localized, community-driven evidence that can inform both policy and practice.

In the light of these gaps, this study sets out to:

1. Determine indigenous perceptions of climate change among respondents.
2. Examine the interplay between elevation, flood susceptibility, and surface water occurrence in Badagry Local Government Area.

Vol 2(1) March 2026
ISSN: 3121 9144

3. Assess the extent of climate change impacts on livelihoods and community facilities.
4. Identify indigenous climate change adaptation strategies employed by the people.

Methodology

The study adopted a participatory and survey-based approach to examine the perception and lived climate change impacts in selected communities of Badagry Local Government area. This allowed for systematic data collection while ensuring that community voices and indigenous knowledge were adequately represented.

Research Design

The study employed a mixed-method, combining observational method, Geospatial analysis, and survey design anchored on the Vulnerability Participatory Profile (VPP) framework developed by Hann et al. (2001). This framework enables the assessment of community vulnerability and adaptation strategies to the impacts of climate variability through structured questionnaire and participatory engagement.

Study Area and Sample Population

Badagry is historically a fishing and farming hub, and its coastal settlements are particularly vulnerable to climate variability given their dependence on natural resources and proximity to the Atlantic Ocean. The population of the study area encompasses an estimate of over 5000 people in three coastal villages, namely; Gbaji-Yeke, Ganyingboji and Joforo (Figure 1). These communities were purposively selected due to their geographical location along the coastline and their high exposure to climate-related hazards such as flooding, coastal erosion, and saltwater intrusion.

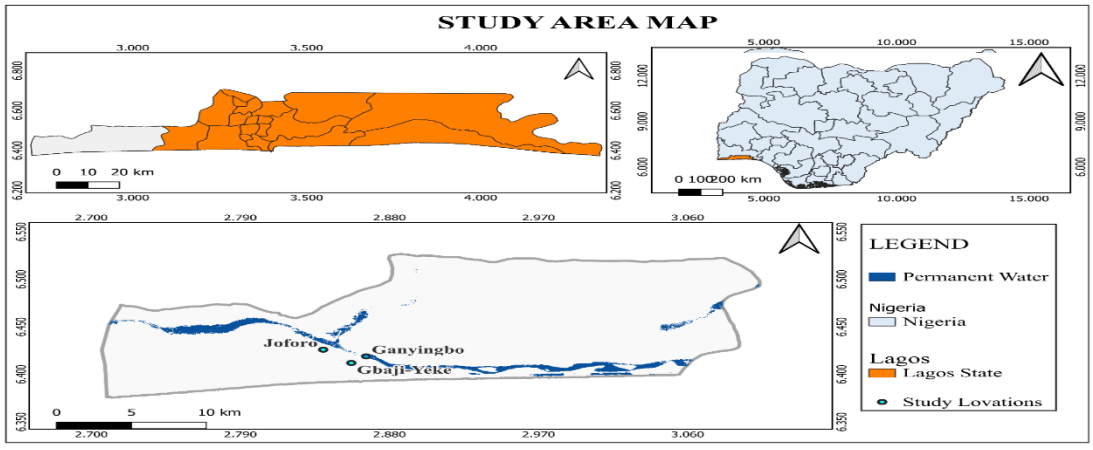

Figure 1: Study Area Map (Source: Author, 2026)

Survey Data Collection

Research Instrument

Survey data were collected using a structured questionnaire developed in line with the Participatory Profile (VPP) framework. The instrument was divided into sections covering: Demographic information of respondents, Perceptions of climate change and its impacts, Livelihood and infrastructural impacts of flooding and other hazards and Indigenous adaptation

Vol 2(1) March 2026
ISSN: 3121 9144

strategies employed by households. The questionnaire was pre-tested in a pilot study to ensure clarity, reliability, and cultural appropriateness before full deployment.

Sampling Techniques

A purposive sampling technique was adopted to select communities most vulnerable to flooding and climate hazards within Badagry. Within these communities, 351 households were sampled from about 500 households to ensure representation across different livelihood groups, particularly farmers and fishermen who are disproportionately affected, out of which 302 households were confirmed valid for analysis. Participation in the survey was voluntary, and respondents were informed about the purpose of the study. Consent was obtained, and responses were treated confidentially.

Statistical Analysis

Descriptive statistics were run on Statistical Package for Social Scientists (SPSS) and Microsoft excel to produce frequency tables of responses and to plot relevant charts.

Geospatial Analysis

The raster datasets used were obtained from Google Earth Engine, while QGIS version 3.40 (Bratislava) was employed for the geospatial analysis.

- Digital Elevation Model (DEM) derived from the Shuttle Radar Topography Mission (SRTM) at 30 m spatial resolution was used to produce elevation map. Elevation values were classified into six categories representing different terrain levels: water surfaces (<0 m), very low coastal plains (0–2 m), low elevation (2–5 m), moderate elevation (5–10 m), higher ground (10–25 m), and highest terrain (25–40 m).
- Flood susceptibility was also derived from DEM using threshold-based classification approach. Areas with elevation ≤ 5 m were classified as flood-prone, while other zones are classified as not been at the risk of Flood. Raster Calculator tool in QGIS was used to achieve this.

Results and Discussion

This section presents the results and discusses the findings from the survey data, field observation, and geospatial analysis on climate change impacts and the indigenous adaptation strategies adopted by the people of Badagry LGA.

Socio-Economic Characteristics of Respondents

The socio-economic characteristics of respondents revealed high vulnerability. Most respondents have low level of formal education, with 62. 6 % completing primary education, while less than 8 % had some form of tertiary education. Also, income levels were low, with over half of respondents (51.7%) earning between ₦18,001 and ₦25,000 monthly, which is an indication of limited financial capacity to invest in formal flood adaptation measures. More importantly, Livelihoods were dominated by fishing (41.7%) and farming (22.8%), indicating strong dependence on climate-sensitive occupations (Table 1).

Vol 2(1) March 2026
ISSN: 3121 9144

Table 1: Respondents' Demographic Information

VARIABLE	OPTIONS	FREQUENCY	PERCENTAGE
Education	Primary	189	62.6
	Secondary	64	21.2
	Polytechnic	18	6.0
	BSc	1	.3
	MSc	3	1.0
	None	27	8.9
Income Level	<18,000	25	8.3
	18,001-25,000	156	51.7
	25,001-50,000	86	28.5
	50,001-100,000	33	10.9
	Above 100,000	1	.3
	No salary	1	.3
Livelihood	Fishing	126	41.7
	Farming	69	22.8
	Small Scale	20	6.6
	Petty Trade	6	2.0
	Skilled Labour	20	6.6
	Unskilled Labour	37	12.3
	Clerk/Profession	19	6.3
	None	1	.3
	Other	4	1.3
N =		**302**	

Indigenous Perceptions of Climate Change in Coastal Communities

Despite limited formal education, nearly all respondents (95.7%) reported noticing changes in weather patterns, suggesting reliance on indigenous ecological knowledge and lived experiences. Respondents identified increased rainfall (62.9%), flooding (60.9%), and rising temperatures (21.5%) as the most noticeable changes (Figure 2). These perceptions reflect the climate-sensitive livelihoods of the communities, especially fishing (41.7%) and farming (22.8%). Similar findings have been reported for other areas in Nigeria (Okafor et al., 2024), and more specifically in Lagos where flooding and rainfall variability dominate the climate risks (Okeke, 2022; Akiyode & Bob, 2025).

Flooding emerged as the most critical perceived hazard affecting community livelihoods, closely linked to increasing rainfall variability reported by respondents, which is consonance with the study of Okeke, (2022); Okafor et al. (2024) who attribute such to poor drainage, sea-level rise, and unplanned urban expansion (Okeke, 2022; Okafor et al., 2024).

Vol 2(1) March 2026
ISSN: 3121 9144

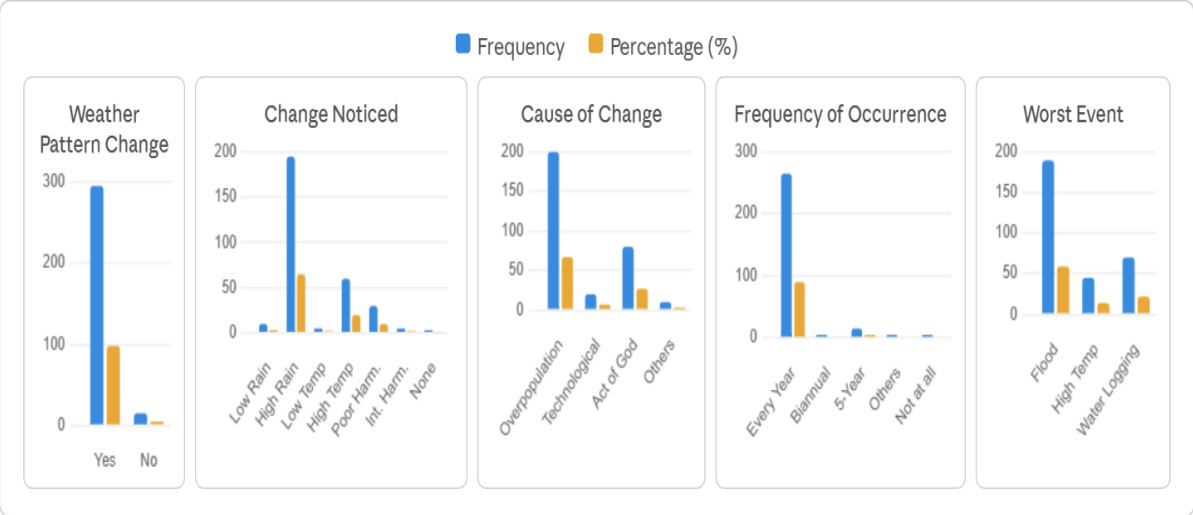

Figure 2: Indigenous Perception of Climate Change

Elevation and Flood Susceptibility

Elevation analysis shows that most of the area lies within the 0–10 m band, with the very low coastal plain (0–2 m) and low elevation zones (2–5 m) concentrated in the central and southern sectors. (Figures 3a). These zones are particularly vulnerable to coastal flooding, tidal incursions, and storm surges, while the northern sector (10–25 m) provides relatively safer ground.

This pattern reflects the strong influence of lagoon hydrology and tidal processes, consistent with Adelekan's (2016) observation that low-lying coastal LGAs in Lagos are disproportionately exposed to flood hazards due to their geomorphological setting and limited adaptive capacity.

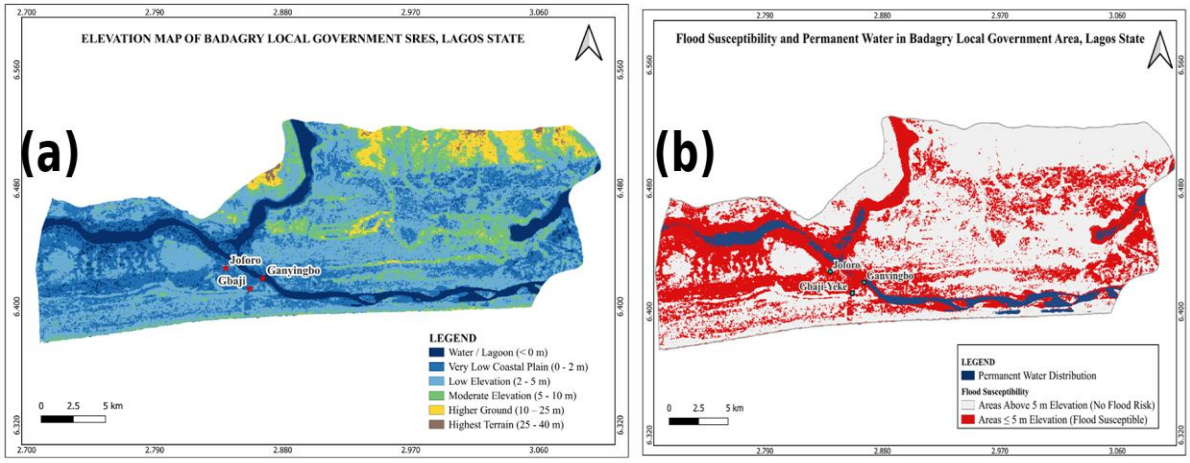

Figure 3: Spatial characteristics of Badagry Local Government Area showing (a) elevation distribution and (b) flood susceptibility and permanent water distribution. (Source: Author, 2026).

The flood susceptibility map reinforces this vulnerability, indicating that areas at or below 5 m elevation especially along the Badagry Lagoon, floodplains, and creek systems are highly exposed to recurrent inundation (Figure 3b). Communities such as Gbaji-Yeke, Ganyingbo,

and Joforo are directly threatened, with livelihoods and infrastructure at risk. This finding aligns with those of Olanrewaju et al. (2019), who emphasized that sea-level rise and poor drainage infrastructure compound the risks posed by permanent water systems in Lagos coastal communities.

Climate Change Impacts on Livelihoods and Community Infrastructure

Flooding in Badagry's coastal communities has wide-ranging impacts across services, households, and infrastructure. Income (65.2%) was the most affected service, followed by clean water (10.6%) and public health (8.9%) (Figure 4). This reflects the economic vulnerabiltiy of households whose livelihoods depend on fishing and farming. When flooding disrupts fishing activities or damages farmland, household income collapses, reinforcing cycles of poverty. Respondents also reported severe damage to crop produce and livestock (26.8%), high cost of living (20.5%), and loss of time and property (15.9%). These outcomes highlight the multidimensional nature of flood impacts, extending beyond immediate livelihood losses to broader socio-economic disruptions.

A systematic review of flood resilience strategies in Lagos found that flooding increases household expenditure on food and health, while reducing productivity due to time lost in recovery (Orimoogunje & Aniramu, 2025). Recent studies confirm that flooding in Lagos disproportionately affects informal workers and small-scale traders, undermining economic stability (Okeke, 2022; Orimoogunje & Aniramu, 2025).

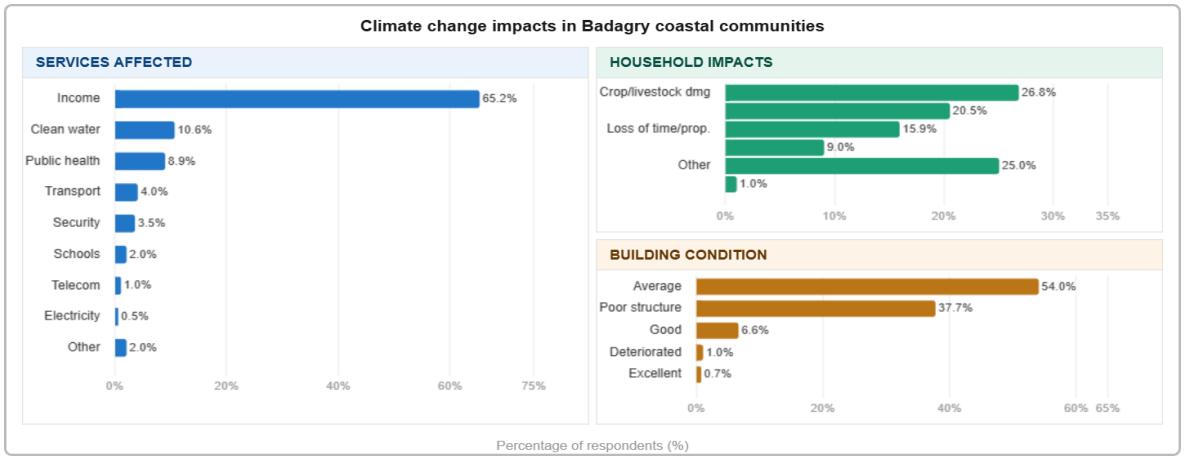

Figure 4: Extent of climate change impacts on household and community facilities

The condition of buildings provides further evidence of vulnerability. A significant proportion of respondents rated their buildings as poor structures (37.7%) or average (54.0%), with only 6.6% reporting good structures. Poorly constructed housing is easily damaged, increasing displacement risks and recovery costs. Plates 1a and b show photographs of the housing condition in the study area. According to Adeaga & Nubi (2026), Experts from the University of Lagos and the African Cities Research Consortium recently warned that inadequate housing and poor drainage systems are critical drivers of flood vulnerability in Lagos, calling for urgent climate action.

Vol 2(1) March 2026
ISSN: 3121 9144

Plate 1: (a) *Wall of a residential building affected by flooding at Ganyingbo;* ***(b)*** *Degraded floor of a passage captured at Joforo community (Source: Author, 2018)*

These findings demonstrate that flooding in Badagry is not merely an environmental hazard but a systemic threat affecting economic stability, household welfare, and infrastructure resilience. Locally, the predominance of income loss highlights the dependence on climate-sensitive livelihoods.

Indigenous Adaptation Strategies to Climate Variability

Adaptation strategies in Badagry's coastal communities reflect both individual household responses and collective community actions, shaped by socio-economic realities and cultural frameworks.

Adaptation After Events

Survey data show that households most commonly learned new trades or skills (27.5%), relocated (11.3%), or changed sources of income (8.6%) following flood events (Table 2). These strategies highlight the livelihood diversification that communities employ to reduce vulnerability. However, 20.9% reported not adapting at all, underscoring the limits of adaptive capacity among the poorest households. Similar findings have been reported in Lagos mainland, where households often resort to informal skill acquisition or migration as coping mechanisms (Orimoogunje & Aniramu, 2025).

Vol 2(1) March 2026
ISSN: 3121 9144

Table 2: Climate Change Adaptation Options

VARIABLES	OPTIONS	FREQUENCY	PERCENTAGE
Adaptation after event	Learnt trade/new skill	83	27.5
	Relocate	34	11.3
	Change source of income	26	8.6
	Add source of income	9	3.0
	Monitor seasonal variation	7	2.3
	Others	80	26.5
	Not at all	63	20.9
Adaptation through community involvement	Spiritual prayers	74	24.5
	Local drainage	52	17.2
	Clearing of existing canals	95	31.5
	Others	45	14.9
	None	36	11.9
Adaptation to future risk	Local Government Intervention	196	64.9
	Every House Hold	74	24.5
	Local NGO	15	5.0
	Relatives, Neighbors and friends	13	4.3
	International and Foreign Organizations	1	.3
	I do not know	3	1.0
N = 302			

Adaptation Through Community Involvement

Community-level responses include clearing existing canals (31.5%), local drainage initiatives (17.2%), and spiritual prayers (24.5%). These strategies reflect both practical environmental management and cultural coping mechanisms. Canal clearing is particularly significant, as poor drainage has been identified as a critical driver of flood vulnerability in Lagos (Adeaga & Nubi, 2026). Plates 2a and b are photographs of a tree and shrine dedicated to spiritual prayers. This demonstrates the cultural dimension of adaptation, where communities seek resilience through collective belief systems. Similar patterns are observed in other African contexts, where religious and cultural practices form part of adaptation narratives (Akinyemi, 2023).

Adaptation to Future Risks

Looking ahead, respondents overwhelmingly expect local government intervention (64.9%) as the primary adaptation pathway, followed by household-level efforts (24.5%). This reliance on government reflects recognition of the structural nature of flood risks, which require infrastructural and policy responses beyond individual capacity. Recent Lagos climate adaptation planning emphasizes the need for multi-level governance, integrating local

Vol 2(1) March 2026
ISSN: 3121 9144

government, NGOs, and community actors (FSD Africa, 2025). Globally, similar reliance on state-led adaptation is observed in coastal megacities such as Jakarta and Manila, where large-scale infrastructural projects are seen as essential to reducing flood risks (IPCC, 2022).

Plate 2: (a) Tree dedicated for spiritual prayers and (b) Shrine known for protection against skin diseases, both captured at Joforo (Source: Author, 2018)

The adaptation strategies of Badagry's coastal communities demonstrate a hybrid approach: households diversify livelihoods or relocate, communities engage in canal clearing and cultural practices, and residents look to government for future resilience. These strategies reflect the demographic realities of low education, low income, and reliance on fishing and farming. Regionally, Lagos communities share similar adaptation pathways, while globally, the emphasis on livelihood diversification and infrastructural interventions resonates with patterns in other vulnerable coastal regions.

Implications for Climate Adaptation Policy and Coastal Planning

The evidence from Badagry's coastal communities demonstrates that climate change impacts are systemic, affecting livelihoods and infrastructure. The reliance on fishing and farming makes households highly sensitive to rainfall variability, flooding, and mangrove degradation. While communities employ indigenous coping mechanisms such as canal clearing, livelihood diversification, and cultural practices, these strategies remain limited in scope and effectiveness. The expectation of local government intervention, expressed by nearly two-thirds of respondents, reflects recognition that adaptation requires institutional support and coordinated planning.

These findings have direct implications for climate adaptation and planning in Lagos State. Ndimele et al. (2024) emphasize that Lagos coastal communities exhibit both vulnerability and resilience, but their adaptive capacity is constrained without structured government involvement. Similarly, Oladipo and Adeola (2023) highlight the importance of institutional frameworks and resilience planning in mainstreaming climate adaptation into Lagos State's development agenda. Integrating community-based strategies with state-led initiatives is therefore essential. For example, canal clearing and drainage maintenance can be formalized

Vol 2(1) March 2026
ISSN: 3121 9144

within municipal flood management programs, while livelihood diversification can be supported through vocational training and microfinance schemes.

At the policy level, Lagos State's Climate Adaptation and Resilience Plan (LCARP, 2025) provides an opportunity to embed localized experiences from Badagry into broader frameworks. This requires prioritizing coastal forest conservation, investing in resilient housing and drainage systems, and strengthening climate literacy at the community level. Globally, lessons from Bangladesh, Vietnam, and Ghana show that successful adaptation in coastal regions depends on combining indigenous knowledge with infrastructural investment and governance reforms. For Lagos, this means bridging the gap between community realities and institutional planning, ensuring that adaptation strategies are both culturally relevant and technically robust.

In sum, resilience in Badagry's coastal communities cannot be achieved through isolated household or community efforts alone, it requires a multi-level governance approach that integrates local knowledge, institutional frameworks, and global best practices. By aligning community adaptation strategies with Lagos State's climate policies, the region can move toward a more sustainable and resilient future.

Conclusion

This study examined the demographic characteristics, perceptions, impacts, and adaptation strategies of climate change on three coastal communities; Gbaji-Yeke, Ganyingbo, and Joforo in Badagry Local Government Area of Lagos State. The findings revealed that low educational attainment, modest income levels, and reliance on fishing and farming strongly shape how climate change is perceived and experienced. Flooding emerged as the most severe hazard, disrupting income, damaging crops and livestock, increasing living costs, and exposing infrastructural weaknesses. Adaptation strategies employed by households include livelihood diversification, relocation, and skill acquisition, while community-level responses focus on canal clearing, local drainage, and cultural practices such as spiritual prayers. Respondents overwhelmingly expect local government intervention to play a central role in future adaptation, underscoring the need for institutional support. Looking at susceptibility of the study area to flood, extensive 0–5 m terrain, recurrent inundation zones, and permanent lagoon systems converge to heighten flood risk, underscoring the urgent need for integrated planning, resilient infrastructure, and community adaptation.

These findings are consistent with Ndimele et al. (2024), who reported that Lagos coastal communities exhibit both vulnerability and resilience, relying on indigenous coping mechanisms while expecting government-led interventions. They also align with Oladipo and Adeola (2023), who emphasize the importance of institutional frameworks and resilience planning in Lagos State's climate governance. Overall, the study demonstrates that vulnerability in Badagry's coastal communities is shaped by the intersection of low socio-economic capacity, high climate exposure, and limited infrastructural resilience. While

Vol 2(1) March 2026
ISSN: 3121 9144

indigenous coping mechanisms provide immediate relief, sustainable adaptation requires integration of local knowledge with formal governance and infrastructural investment.

Recommendations

The study recommends that there is need to

1. **Strengthen Education and Awareness:** By expanding climate literacy programs in coastal communities to complement indigenous knowledge with scientific understanding, consistent with Ndimele et al. (2024), who highlight the role of awareness in building resilience.
2. **Enhance Livelihood Resilience:** By supporting livelihood diversification through vocational training and microfinance schemes. Provide targeted support for fishers and farmers to adopt climate-resilient practices, reducing dependence on climate-sensitive activities.
3. **Improve Infrastructure and Services:** By Investing in resilient housing and drainage systems to reduce flood vulnerability. Upgrade water supply and sanitation facilities to prevent contamination during flood events, in line with Oladipo and Adeola's (2023) call for institutional resilience planning.
4. **Strengthen Community-Based Adaptation:** By formalizing and supporting local initiatives such as canal clearing and drainage maintenance, participatory planning is encouraged where communities co-design adaptation strategies with local authorities.
5. **Institutional and Policy Support:** Ensure proactive involvement of local government in climate adaptation planning and implementation. Also foster collaboration with NGOs, research institutions, and international organizations to provide technical and financial support. Integrate Badagry's coastal communities into Lagos State's broader climate adaptation and resilience frameworks (Oladipo & Adeola, 2023).
6. **Global and Regional Learning**: By drawing lessons from other vulnerable coastal regions such as Bangladesh, Vietnam, and Ghana, where community-based adaptation has been successfully integrated with government-led interventions. Knowledge exchange platforms can be promoted for coastal communities across West Africa to share experiences and best practices.

References

Adeaga, O., & Nubi, T. (2026, March 2). Experts warn Lagos faces severe flood risks, call for urgent climate action. *Housing News*. African Cities Research Consortium.

Adelekan, I. O. (2016). Vulnerability of poor urban coastal communities to flooding in Lagos, Nigeria. *Environment and Urbanization*, 28(1), 239–260. https://doi.org/10.1177/0956247815613706 (doi.org in Bing)

Akinbode, O. A., Adeola, O. A., & Oladipo, S. O. (2021). *Climate change impacts and adaptation strategies in Lagos coastal communities*. Journal of Environmental Management and Sustainability, 12(3), 45–59.

Vol 2(1) March 2026
ISSN: 3121 9144

Akinyemi, F. O. (2023). Climate change adaptation and cultural resilience in West African communities. *Journal of Environmental Management, 345*, 118765. https://doi.org/10.1016/j.jenvman.2023.118765 (doi.org in Bing)

Akiyode, O., & Bob, U. (2025). The extent of awareness and degree of contributions of socio-community features to changing climate and its variability in Lagos mega-city, Nigeria. *Discover Global Society, 3*(101). https://doi.org/10.1007/s44220-025-00101-9 (doi.org in Bing)

Building Nigeria's Response to Climate Change (BNRCC). (2012). *Nigeria climate change adaptation strategy and plan of action (NASPA-CCN)*. Ibadan: BNRCC.

Climate Policy Initiative. (2025). *Landscape of climate finance in Nigeria 2025*. https://www.climatepolicyinitiative.org/publication/landscape-of-climate-finance-in-nigeria-2025/Climate Mitigation/Adaptation Screening Report

FSD Africa. (2025). *Lagos State Climate Adaptation and Resilience Plan (LCARP)*. FSD Africa.

Hann, J., et al. (2001). Vulnerability participatory profile framework: A tool for community-based climate risk assessment. *International Institute for Environment and Development* (IIED).

Intergovernmental Panel on Climate Change (IPCC). (2022). *Climate change 2022: Impacts, adaptation, and vulnerability*. Cambridge University Press.

Lagos State Ministry of the Environment and Water Resources. (2021). *Lagos State Climate Risk Assessment: Comprehensive Report (Final).* Lagos: Lagos State Government. Available at: https://moelagos.gov.ng/wp-content/uploads/2021/09/Geo-Solutions-Lagos-CRA-Feb-Final-Report-V4-April-23-2021.pdf

Ndimele, P. E., Adekoya, B. B., & Ojo, T. A. (2024). Flooding and climate change adaptation in Lagos coastal zones: Indigenous responses and policy gaps. *African Journal of Climate Studies*, 18(1), 77–95.

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., Abdulganiy, I. O., & Ayodele, O. T. (2024). Vulnerability, resilience and adaptation of Lagos coastal communities to flooding. *Earth Science, Systems and Society, 4*(10087). https://doi.org/10.3389/esss.2024.10087

Nigerian Meteorological Agency. (2024). State of the climate in Nigeria 2024. https://nimet.gov.ng/downloader?file=admin/uploads/publications/67a3837604c26_2024%20State%20of%20the%20Climate.pdf

Vol 2(1) March 2026
ISSN: 3121 9144

Okafor, C. C., Ajaero, C. C., Madu, C. N., Nzekwe, C. A., Otunomo, F. A., & Nixon, N. N. (2024). Climate change mitigation and adaptation in Nigeria: A review. *Sustainability, 16*(16), 7048. https://doi.org/10.3390/su16167048

Okon, U. E., Ogbanga, M. M., & Nwankwoala, H. O. (2021). Climate change and its implications on agriculture in Nigeria. *Journal of Environmental Science and Policy*, 24(3), 45–58.

Oladipo, S. O., & Adeola, O. A. (2023). Community vulnerability and resilience to flooding in Lagos State. *Nigerian Journal of Environmental Research*, 9(2), 101–118.

Olanrewaju, O., Chukwuma, V., & Popoola, A. (2019). Flooding and flood risk reduction in Nigeria: A review. *International Journal of Environmental Research and Public Health*, 16(5), 745. https://doi.org/10.3390/ijerph16050745 (doi.org in Bing)

Olayinka, D.N. & Irivbogbe, H.E. (2017). Flood modelling and risk assessment of Lagos Island and part of Eti-Osa Local Government Areas in Lagos state. *Journal of Civil and Environmental Systems Engineering* – UNIBEN, 15(1), 106- 121

Orimoogunje, O., & Aniramu, O. A. (2025). Systematic review of flood resilience strategies in Lagos Metropolis: Pathways toward the 2030 sustainable development agenda. *Frontiers in Climate, 7*, 1603798. https://doi.org/10.3389/fclim.2025.1603798

Pelling, M. & Blackburn, S. (2013). Megacities and the coast: risk, resilience and transformation (pp.1-245). *Oxon*: Routledge

World Bank Report, (2019). Building Climate Resilience: Experience from Nigeria. https://www.worldbank.org/en/results/2019/04/18/building-climate-resilience - experience-from-nigeria. Accessed September, 20th, 2020.