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Stakeholder Perceptions of Environmental Risks Associated with Construction Activities in the Lagos Lagoon, Nigeria

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Abstract

Rapid waterfront development around the Lagos Lagoon has heightened concerns about the environmental impacts of construction in one of Nigeria's most important coastal ecosystems. While existing studies have largely focused on water quality and ecological indicators, limited attention has been given to stakeholder perceptions of environmental risks associated with shoreline development. This study examined stakeholder perceptions of construction-induced environmental risks across selected communities surrounding the Lagos Lagoon. We adopted a mixed-methods approach, using purposive and snowball sampling to survey 109 stakeholders, complemented by 12 key informant interviews. Quantitative data were analysed using descriptive statistics and Chi-square tests, while interview responses were analysed thematically. Building development (63.3%), sand filling (47.7%), road construction (45.9%), and dredging (22.0%) were the most commonly observed construction activities. Drainage channels (59.6%) and direct lagoon discharge (25.7%) were identified as major pollution pathways. Approximately 64.2% of respondents reported declining aquatic life, 51.4% reported health concerns associated with lagoon conditions, and 39.5% reported high or very high livelihood impacts. Impact zone was significantly associated with perceived health concerns ($\chi^2 = 33.53$, $p < 0.001$), whereas differences in perceived aquatic life reduction and livelihood impacts were not statistically significant. Interviews further highlighted sedimentation, flooding, shoreline modification, and construction runoff. We conclude that stakeholders perceive construction activities as important contributors to ecological degradation and

livelihood disruption within the Lagos Lagoon, underscoring the need for stronger environmental management and monitoring of waterfront development.

Keywords: Lagos Lagoon, Stakeholder Perceptions, Environmental Risk, Waterfront Development, Construction Activities, Coastal Management.

Introduction

Coastal lagoons are among the world's most productive and ecologically important aquatic ecosystems, supporting biodiversity, regulating hydrological processes, and providing ecosystem services that sustain millions of people through fisheries, transportation, recreation, and other livelihood activities. However, these ecosystems are increasingly threatened by rapid urbanization, land-use change, shoreline modification, and other anthropogenic pressures that accelerate environmental degradation and compromise ecosystem resilience (Davies-Vollum et al., 2024). Across many developing coastal cities, expanding waterfront development has intensified concerns regarding declining water quality, habitat loss, sediment disturbance, and the long-term sustainability of lagoon ecosystems.

The Lagos Lagoon, one of the largest coastal lagoon systems in West Africa, has experienced substantial transformation over the past few decades as a result of rapid urban expansion and infrastructure development. Accelerated population growth and increasing demand for residential, commercial, and transport infrastructure have stimulated extensive building development, dredging, sand filling, land reclamation, and shoreline modification, particularly within the Lekki–Ajah–Ikoyi–Victoria Island development corridor (Badejo et al., 2014; Sustainable Research and Action for Environmental Development [SRADev], 2014). While these developments contribute significantly to economic growth and urban expansion, they have also altered natural hydrological processes and increased pressure on the lagoon's ecological integrity.

Previous studies have shown that construction-related activities, including dredging, sand mining, reclamation, and construction runoff, contribute to increased turbidity, sediment resuspension, shoreline alteration, wetland loss, habitat degradation, and declining water quality within coastal environments (Adekunbi et al., 2018; SRADev, 2014). Studies conducted within the Lagos Lagoon have similarly reported ecological degradation, changes in benthic communities, declining fisheries productivity, and increasing environmental pressures associated with intensive shoreline development (Adekunbi et al., 2018; Fakoya et al., 2022; Enaikele et al., 2025). These environmental changes extend beyond ecosystem deterioration, affecting the livelihoods and well-being of communities whose daily activities depend directly on lagoon resources. Despite the growing body of evidence on construction-induced environmental degradation, research on the Lagos Lagoon has predominantly adopted a biophysical perspective. Existing studies have largely examined hydrochemical

characteristics, sediment quality, dredging impacts, biodiversity, fisheries depletion, and shoreline dynamics to evaluate environmental change (Adekunbi et al., 2018; Enaikele et al., 2025). Although these investigations have substantially advanced scientific understanding of the lagoon's ecological condition, they provide limited insight into how different stakeholder groups perceive environmental risks associated with ongoing construction activities. Recent studies have increasingly recognised that stakeholder perceptions complement conventional environmental assessments by revealing how different social groups interpret, prioritise, and respond to environmental hazards, thereby strengthening environmental risk evaluation and decision-making (Katirtzidou et al., 2023). This represents an important knowledge gap because effective environmental management requires not only scientific measurements of ecosystem change but also an understanding of how environmental risks are experienced and interpreted by affected communities.

Stakeholder perceptions constitute an important source of environmental knowledge, particularly within rapidly changing coastal environments where communities interact with natural resources on a daily basis. Fishermen, construction workers, lagoon-dependent businesses, community representatives, regulatory agencies, and waterfront residents frequently observe changes in water quality, aquatic resources, flooding patterns, shoreline stability, and livelihood opportunities through their routine interactions with the lagoon. Such experiences provide complementary evidence that can strengthen environmental monitoring, support adaptive management, improve regulatory responses, and promote more inclusive water governance (Davies-Vollum et al., 2024). Furthermore, differences in stakeholders' dependence on water resources shape how environmental risks are perceived, prioritised, and responded to, making stakeholder knowledge an important complement to biophysical assessments (Mahjoubi et al., 2022). Active stakeholder participation has also been recognised as a critical component of integrated coastal management, enhancing environmental governance, strengthening policy implementation, and improving the sustainability of coastal resource management (Lucrezi et al., 2021). Understanding these perceptions is therefore essential for developing management strategies that recognise both the ecological and socio-economic dimensions of environmental change.

Against this background, this study examines stakeholder perceptions of environmental risks associated with construction activities in communities surrounding the Lagos Lagoon. Specifically, the study investigates stakeholders' perceptions of construction activities linked to lagoon pollution, perceived environmental and livelihood impacts, and variations in environmental risk perceptions across high-impact, low-impact, and control communities. By integrating stakeholder perspectives with existing environmental evidence, this study contributes a social dimension to the growing body of knowledge on the Lagos Lagoon and provides empirical evidence to support more inclusive environmental management, water governance, and sustainable waterfront development planning.

CONCEPTUAL FRAMEWORK

The study's conceptual framework was informed by the Driver–Pressure–State–Impact–Response (DPSIR) framework, which provides a structured approach for linking socio-economic drivers and anthropogenic pressures with changes in environmental conditions, resulting ecological and human impacts, and management responses (European Environment Agency [EEA], 1999; Gari et al., 2015). We adapted this logic to the situation of waterfront construction in the Lagos Lagoon. In the framework, urbanisation, population growth, infrastructure limitations, and regulatory conditions provide the broader context within which construction activities such as building development, dredging, sand filling, and road construction occur. These activities generate environmental pressures through runoff, drainage channels, and direct discharge, which may contribute to changes in water quality, aquatic habitats, flooding, and aquatic life.

The framework extends the conventional DPSIR logic by explicitly incorporating stakeholder risk perceptions between observed environmental changes and their human consequences. This reflects the study's focus on how lagoon users and other stakeholders interpret environmental change through perceived pollution, ecological decline, health risks, and livelihood threats. These perceptions, together with experienced health and livelihood outcomes, may subsequently inform management responses such as improved waste management, drainage control, regulation, monitoring, and stakeholder engagement. The feedback pathways shown in Figure 1 recognise that management responses and stakeholder experiences can, in turn, influence construction practices and subsequent environmental pressures.

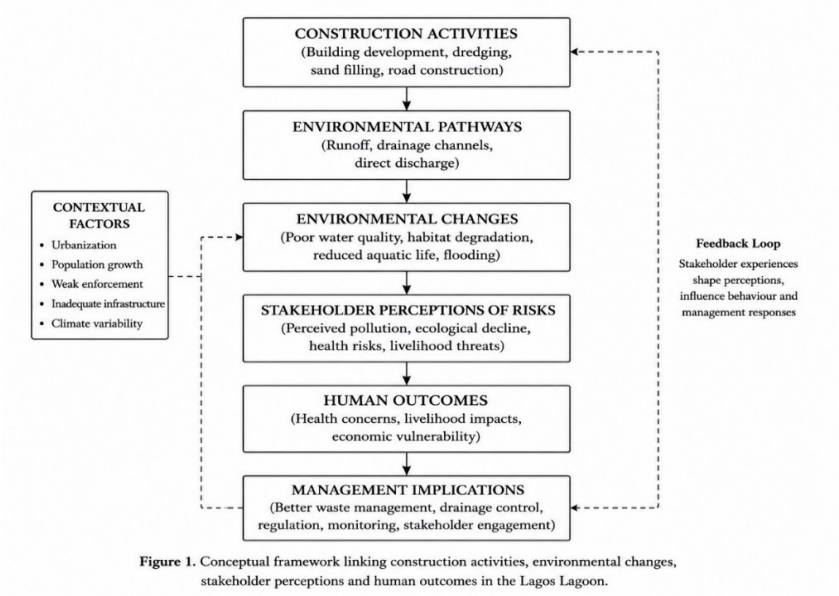


Figure 1: Conceptual Framework Linking Construction Activities, Environmental Changes, Stakeholder Perceptions and Human Outcomes in the Lagos Lagoon

Source: Author's Conceptualization, 2025

METHODOLOGY

We adopted a mixed-methods approach to examine stakeholder perceptions of environmental risks associated with construction activities around the Lagos Lagoon, Nigeria. The study combined questionnaire surveys and key informant interviews to capture stakeholder experiences, perceptions, and observations of construction-related environmental change across communities exposed to varying levels of development pressure.

The study was conducted across selected lagoon-front communities classified as high-impact, low-impact, and control areas based on the intensity of observable construction activities. High-impact communities included locations within the Lekki–Ajah–Ikoyi–Victoria Island development corridor, where activities such as sand filling, dredging, piling, and shoreline development are concentrated. Low-impact communities included Apapa, Oworo, Epe, and the University of Lagos waterfront, while relatively undisturbed communities within the Ibeshe–Ijede axis served as control locations. This classification provided a comparative basis for examining whether stakeholder perceptions varied according to the level of construction exposure.

A total of 109 stakeholders participated in the questionnaire survey. Respondents were grouped into seven stakeholder categories based on their primary interaction with the lagoon environment and construction activities (Table 1). We employed purposive sampling to identify participants with direct knowledge or experience of lagoon conditions and construction activities, while snowball sampling enabled access to additional relevant participants within stakeholder networks that were not readily identifiable through conventional sampling. To complement the survey findings, we conducted twelve (12) key informant interviews with construction practitioners, environmental officers, community leaders, and experienced lagoon users.

The questionnaire was developed in line with the study objectives and informed by relevant literature on construction-related environmental pressures in coastal environments. It collected information on observed construction activities, pollution pathways, environmental disturbances, health concerns, changes in aquatic life, and livelihood impacts. The instrument was reviewed for clarity, relevance, and alignment with the study objectives before field administration. Interview discussions further explored stakeholder experiences of environmental change, construction practices, and perceived risks associated with shoreline development. Respondents were allowed to provide multiple responses where applicable. As the questionnaire primarily comprised categorical and descriptive items rather than a multi-item psychometric scale, no internal-consistency reliability coefficient was computed.

Quantitative data were analysed using descriptive statistics, including frequencies and percentages. Chi-square tests of independence were used to examine associations between impact-zone classification and selected categorical measures, namely perceived health concerns, reduction in aquatic life, and livelihood impacts, with statistical significance assessed at $p < 0.05$. Qualitative interview responses were analysed thematically and used to complement and explain the quantitative findings through illustrative quotations.

Participation was voluntary, and respondents were informed of the purpose of the research before data collection. Informed consent was obtained before participation, and respondents were assured that their information would be treated confidentially and reported without personally identifying them.

Table 1. Distribution of Stakeholders Included in the Study (n = 109)

Stakeholder Category	Frequency	Percentage (%)
Construction stakeholders	30	27.5
General residents	25	22.9
Fishing stakeholders	15	13.8
Business/commercial actors	15	13.8
Community representatives	11	10.1
Government/regulatory stakeholders	7	6.4
Lagoon-dependent workers	6	5.5
Total	109	100.0

Source: Author's Field Survey (2025)

RESULTS

This section presents the findings of the study in relation to stakeholders' perceptions of construction-induced environmental risks in the Lagos Lagoon. The results are organized around three key themes: the nature of construction activities occurring within the lagoon corridor, stakeholders' perceptions of environmental and livelihood impacts associated with these activities, and variations in perceived environmental risks across impact zones. Findings are based on responses from 109 stakeholders drawn from different occupational and institutional groups, complemented by insights obtained from key informant interviews.

Perceived Construction Activities and Pollution Pathways

Table 2: Types of Construction Activities Observed Across Impact Zones

Type of Construction	High Impact (n=67)	Low Impact (n=25)	Control (n=17)	Total	%
Building development	44 (65.7%)	21 (84.0%)	4 (23.5%)	69	63.3
Sand filling	44 (65.7%)	7 (28.0%)	1 (5.9%)	52	47.7
Road/Bridge works	30 (44.8%)	13 (52.0%)	7 (41.2%)	50	45.9
Dredging	19 (28.4%)	3 (12.0%)	2 (11.8%)	24	22.0
Others	–	–	–	17	15.6

Source: Author's Field Survey, 2025.

Table 2 presents stakeholders' perceptions of the major construction activities occurring across communities surrounding the Lagos Lagoon. Building development was the most commonly reported activity, identified by 63.3% of respondents across the study area. The activity was particularly common in low-impact communities (84.0%) and high-impact communities (65.7%) but was reported less frequently in control areas (23.5%).

Sand filling showed a distinct pattern, as approximately 65.7% of respondents in high-impact communities reported sand-filling activities, compared with 28.0% in low-impact areas and only 5.9% in control locations. This suggests that land reclamation and shoreline modification activities are concentrated in areas experiencing intensive urban development around the lagoon.

Road and bridge construction was observed across all impact zones, while dredging activities were reported more frequently in high-impact communities than in low-impact and control areas. Overall, the findings indicate that construction activities are more intensive and varied within high-impact sections of the Lagos Lagoon corridor, where shoreline development and environmental alteration are occurring at a faster rate.

Perceived Environmental Disturbance Associated with Construction Activities

Table 3: Construction Stages Causing Environmental Disturbance by Impact Zone

Stage	High Impact (n=67)	Low Impact (n=25)	Control (n=17)	Total	%
Excavation	32 (47.8%)	10 (40.0%)	3 (17.6%)	45	41.3
Land clearing	15 (22.4%)	7 (28.0%)	4 (23.5%)	26	23.9
Material mixing	16 (23.9%)	6 (24.0%)	3 (17.6%)	25	22.9
Piling	3 (4.5%)	0 (0.0%)	0 (0.0%)	3	2.8
Finishing works	1 (1.5%)	0 (0.0%)	0 (0.0%)	1	0.9
Not specified	0 (0.0%)	2 (8.0%)	7 (41.2%)	9	8.3
Total	67 (100%)	25 (100%)	17 (100%)	109	100

Source: Author's Field Survey, 2025.

Table 3 presents stakeholders' perceptions of the construction stages that cause the greatest environmental disturbance within communities surrounding the Lagos Lagoon. Across all impact zones, excavation was identified as the most disruptive stage, accounting for 41.3% of responses. The activity was reported most frequently in high-impact communities (47.8%), followed by low-impact areas (40.0%). In contrast, only 17.6% of respondents in control communities identified excavation as a major source of disturbance. This pattern suggests that intensive site preparation and earth-moving activities are more common in areas experiencing rapid construction and shoreline development.

Land clearing and material mixing were the next most frequently reported stages, accounting for 23.9% and 22.9% of responses, respectively. Reports of these activities were relatively similar across high-impact and low-impact communities, indicating that environmental disturbance is not limited to large-scale construction projects alone but may also occur during routine site preparation and building operations. Piling and finishing works were reported only in high-impact areas, although their overall frequency was low.

A notable proportion of respondents in control communities (41.2%) were unable to identify a specific stage responsible for environmental disturbance. This may show lower exposure to construction activities or limited interaction with active development projects compared with stakeholders in high-impact locations.

Findings from the key informant interviews support the survey results. A construction stakeholder in a high-impact community explained that
"the worst disturbance comes during land clearing and dredging when fuel and sand wash into drains" (KII 1).

Similarly, another respondent noted that
"Excavation causes the worst disruption, and oily runoff affects nearby water" (KII 2).

These observations reinforce stakeholders' views that early-stage construction activities generate substantial environmental pressure through sediment movement and runoff.
Other interviewees highlighted the role of material handling and equipment operations. One respondent stated that
"Piling and mixing stages of construction disturb the environment the most because drains carry slurry straight to the lagoon" (KII 3)

while another observed that
"When we wash mixers, dirty water runs into the gutter" (KII 5).

These accounts suggest that construction-related disturbance is not confined to a single activity but occurs across multiple stages of project implementation.
Overall, the findings indicate that excavation, land clearing, and material mixing are perceived as the principal sources of environmental disturbance within the Lagos Lagoon corridor. Stakeholders consistently associated these activities with sediment mobilisation, polluted runoff, and increased pressure on surrounding lagoon ecosystems, particularly within high-impact communities.

Perceived Environmental Risks and Livelihood Impacts

Table 4: Stakeholder Perceptions of Environmental Risks in Lagos Lagoon

Variable	Response	Control (n=17)	High Impact (n=67)	Low Impact (n=25)	Total (n)	%
Lagoon Water Use	Yes	11 (64.7%)	41 (61.2%)	16 (64.0%)	68	62.4
	No	6 (35.3%)	26 (38.8%)	7 (28.0%)	39	35.8
	No response	0	0	2 (8.0%)	2	1.8
Health Issues	Yes	8 (47.1%)	32 (47.8%)	16 (64.0%)	56	51.4
	No	9 (52.9%)	4 (6.0%)	3 (12.0%)	16	14.7
	Not sure / Don't know	0	31 (46.3%)	2 (8.0%)	33	30.3
	No response	0	0	4 (16.0%)	4	3.7
Aquatic Life Reduction	Yes	7 (41.2%)	46 (68.7%)	17 (68.0%)	70	64.2
	Don't know	10 (58.8%)	21 (31.3%)	6 (24.0%)	37	33.9

Variable	Response	Control (n=17)	High Impact (n=67)	Low Impact (n=25)	Total (n)	%
	Other/No response	0	0	2 (8.0%)	2	1.8
Livelihood Impact	None	0	0	1 (4.0%)	1	0.9
	Low	6 (35.3%)	12 (17.9%)	1 (4.0%)	19	17.4
	Moderate	8 (47.1%)	25 (37.3%)	12 (48.0%)	45	41.3
	High	2 (11.8%)	22 (32.8%)	8 (32.0%)	32	29.4
	Very High	1 (5.9%)	8 (11.9%)	2 (8.0%)	11	10.1
	No response	0	0	1 (4.0%)	1	0.9

Source: Author's Field Survey, 2025.

Table 4 presents stakeholders' perceptions of environmental and livelihood risks associated with construction activities across the Lagos Lagoon corridor. The findings indicate that concerns about environmental change extend beyond construction sites and are increasingly reflected in the everyday experiences of lagoon users and surrounding communities.

A majority of respondents (62.4%) reported regular interaction with lagoon water. Similar proportions were recorded across the control (64.7%), high-impact (61.2%), and low-impact (64.0%) zones. Discussions with respondents revealed that contact with lagoon water occurs mainly through occupational activities such as fishing, boating, dredging, and other lagoon-dependent livelihoods rather than for domestic purposes. This suggests that environmental degradation of the lagoon may affect livelihoods more directly than household water use.

Health-related concerns were reported across all impact zones. Overall, 51.4% of respondents reported experiencing health issues such as skin irritation or gastrointestinal discomfort, while 14.7% reported no such concerns. A substantial proportion (30.3%) were uncertain whether their health experiences were linked to lagoon conditions. The highest proportion of reported health concerns was recorded in low-impact communities (64.0%), followed by high-impact communities (47.8%) and control areas (47.1%).

Table 5. Association Between Impact Zones and Environmental Risk Perceptions

Variable	χ^2	p-value	Decision
Perceived Health Issues	*33.53*	*<0.001*	*Significant*
Perceived Reduction in Aquatic Life	*5.72*	*0.057*	*Not Significant*
Perceived Livelihood Impact	*12.58*	*0.127*	*Not Significant*

Source: Author's Analysis (2025).

To determine whether these differences varied across impact zones, a Chi-square test was conducted. The results showed a statistically significant association between impact zone and perceived health issues ($\chi^2 = 33.53$, $p < 0.001$), indicating that the pattern of responses differed across the three zones. This difference was not simply a higher reporting of health concerns in high-impact areas, as affirmative responses were highest in the low-impact zone (64.0%),

while a large proportion of respondents in the high-impact zone (46.3%) were uncertain whether their health experiences were related to lagoon conditions. The result therefore suggests that perceptions of environmental health risk vary by location, although the study does not establish the reasons for these differences or a causal relationship between construction exposure and reported health concerns.

Ecological changes were among the most consistently reported environmental concerns. Overall, 64.2% of respondents indicated that they had observed a reduction in fish and other aquatic organisms within the lagoon. Reports were higher in high-impact (68.7%) and low-impact (68.0%) communities than in control areas (41.2%). Although this descriptive pattern suggests greater concern in communities exposed to construction activities, the association between impact zone and perceived aquatic life reduction was not statistically significant ($\chi^2 = 5.72$, $p = 0.057$). These observations are consistent with stakeholders' descriptions of increased turbidity, sediment accumulation, and changing water conditions across sections of the lagoon. Nevertheless, the consistently high proportion of respondents reporting ecological decline across impacted communities indicates that changes in aquatic conditions remain a major concern among lagoon stakeholders.

Livelihood impacts were also widely reported. While 41.3% of respondents described the impacts of construction activities on their livelihoods as moderate, approximately 39.5% reported high or very high impacts. High-impact communities recorded the greatest proportion of respondents reporting severe livelihood effects, with 32.8% indicating high impact and 11.9% indicating very high impact. In comparison, respondents in control communities were more likely to report low or moderate impacts. However, a Chi-square test showed that the differences in livelihood impact across zones were not statistically significant ($\chi^2 = 12.58$, $p = 0.127$). This suggests that livelihood concerns extend across the study area, which is understandable given how many local activities and livelihoods depend on the lagoon.

Overall, the findings indicate that stakeholders perceive construction-related environmental pressures as affecting both ecological conditions and human well-being. Concerns related to health, declining aquatic life, and livelihood disruption were reported across all impact zones, although their intensity varied among communities. The results further suggest that environmental risks associated with construction activities are experienced not only through physical changes to the lagoon environment but also through their implications for economic activities and quality of life among lagoon-dependent populations.

DISCUSSION

The findings of this study show that stakeholders across the Lagos Lagoon perceive construction activities as important drivers of environmental change and ecological stress. Building development, sand filling, dredging, and road construction were identified as the most common activities around the lagoon corridor, while drainage channels and direct discharge into the lagoon were perceived as the major pathways by which construction-related waste enters the aquatic environment. These findings suggest that stakeholders are not only

aware of ongoing development activities but also recognise the mechanisms through which such activities contribute to environmental degradation.

The concentration of sand-filling and dredging activities in high-impact areas is particularly important because these activities are commonly associated with shoreline modification, sediment disturbance, and increased pollutant transport. Stakeholders repeatedly linked construction activities to runoff containing sand, cement residues, fuel, and other materials. One respondent explained that

"most of what we do here is estate construction, sand filling, piling, and blockwork around reclaimed areas…the worst disturbance comes during land clearing and dredging when fuel and sand wash into drains."

Similar concerns have been reported in studies of the Lagos Lagoon, where dredging and sand extraction were found to alter sediment conditions, affect aquatic habitats, and increase environmental pressures on lagoon-dependent communities (Adekunbi et al., 2018). The dominance of drainage channels as perceived pollution pathways further suggests that inadequate stormwater and site drainage management may be facilitating the movement of construction-related pollutants into lagoon waters.

Stakeholders also identified excavation, land clearing, and material mixing as the construction stages causing the greatest environmental disturbance. These stages involve extensive soil disruption and the handling of construction materials that can be transported into nearby water bodies through runoff. A key informant noted that

"excavation causes the worst disruption and oily runoff affects nearby water," while another explained that "when we wash mixers, dirty water runs into the gutter."

These accounts indicate that environmental impacts are perceived to occur throughout the construction process rather than at a single stage. This makes site-level environmental management particularly important, but it also raises a broader question about how environmental safeguards are implemented and monitored during waterfront development.

Environmental Impact Assessment (EIA) provides one of the main regulatory mechanisms for identifying such risks and setting mitigation measures before and during project implementation. However, weaknesses in EIA implementation and coordination have long been reported in Nigeria, including in Lagos (Ogunba, 2004). More recent evidence from the Nigerian construction sector identifies regulatory instability, conflicting decision-making, limited access to environmental data, and poor information provision as barriers to effective EIA implementation (Osuizugbo & Nnodu, 2023). In the Lagos Lagoon context, stakeholders' repeated accounts of runoff, direct discharge, and poor site drainage point to the importance of monitoring what happens after project approval. Stronger site inspections and follow-up monitoring are therefore needed to ensure that environmental safeguards are maintained throughout construction.

A major finding of the study is the widespread perception of ecological degradation across the lagoon system. Nearly two-thirds of respondents reported observing declines in fish and other

aquatic organisms, particularly in high- and low-impact communities. Stakeholders frequently described murky water conditions, sediment accumulation, and declining fish catches. One respondent stated that

"near dredging points, pollution is highest because wastewater goes straight into the lagoon. Fish have reduced, and sometimes dead ones float."

These observations are consistent with evidence showing that dredging, habitat disturbance, and pollution contribute to declining fisheries and ecological stress within the Lagos Lagoon ecosystem (Adekunbi et al., 2018; Enaikele et al., 2025). Although the association between the impact zone and perceived reduction in aquatic life was not statistically significant, the consistently high proportion of respondents reporting ecological decline suggests that environmental degradation has become a visible and widely recognised concern among lagoon stakeholders.

Beyond ecological concerns, the findings demonstrate that environmental risks are increasingly perceived as issues for human well-being. More than half of respondents reported health concerns which they associated with lagoon conditions, wile Chi-square analysis revealed a significant association between impact zone and perceived health concerns. This suggests that perceptions of environmental health risks vary across communities exposed to different levels of construction activity. Although the study did not establish direct medical causation, the findings indicate that stakeholders perceive a relationship between deteriorating environmental conditions and human well-being. This result underscores the importance of considering how environmental change is experienced by local communities rather than focusing solely on physical indicators of ecosystem degradation.

Livelihood impacts were also widely reported across the study area. Respondents described declining fish catches, damage to fishing equipment, and increasing difficulty sustaining lagoon-dependent occupations. One respondent explained that

"after heavy rain, we sometimes find dead fish. The oil affects our nets too, it makes them sticky and harder to clean."

Such accounts demonstrate how perceived environmental degradation can translate directly into economic hardship for communities that depend on lagoon resources. Similar patterns have been observed in studies linking fisheries decline, environmental degradation, and livelihood vulnerability within the Lagos Lagoon system (Enaikele et al., 2025; Sowunmi, 2020). The findings therefore suggest that stakeholders view construction-induced environmental change not only as an ecological issue but also as a threat to economic security and community resilience.

Overall, the findings indicate that stakeholders perceive environmental risks associated with construction activities as cumulative and interconnected. Construction runoff, sediment mobilisation, and shoreline modification are viewed as contributing to ecological decline, health concerns, and livelihood disruption. The consistency of these perceptions across multiple stakeholder groups suggests that environmental changes occurring around the Lagos

Lagoon are sufficiently visible to shape how communities understand and experience environmental risk. These findings highlight the importance of strengthening construction waste management practices, improving drainage control measures, and enhancing environmental monitoring within rapidly developing waterfront areas. More importantly, they demonstrate that stakeholder knowledge provides an important complementary source of evidence for environmental management and sustainable waterfront development planning. Integrating stakeholder perspectives into environmental monitoring and governance can improve the identification of pollution pathways, strengthen adaptive management, support evidence-based decision-making, and enhance stakeholder participation in integrated coastal management, ultimately contributing to more effective and inclusive water governance (Lucrezi et al., 2021).

LIMITATIONS OF THE STUDY

While this study provides important insights into stakeholder perceptions of environmental risks associated with construction activities around the Lagos Lagoon, we acknowledge several limitations. The study relied on self-reported perceptions and experiences, which may be shaped by individual beliefs and levels of environmental awareness. We also used purposive and snowball sampling techniques to identify stakeholders with direct experience of lagoon conditions, which limits the statistical generalizability of the findings. Furthermore, the study was conducted in selected lagoon-front communities and may not fully represent perceptions across the entire Lagos Lagoon system. Nevertheless, by combining survey responses with key informant interviews and drawing participants from multiple stakeholder groups, we were able to develop a rich and context-specific understanding of how environmental risks are perceived within rapidly developing waterfront communities.

CONCLUSION

We conclude that stakeholders across the Lagos Lagoon widely perceive construction activities as contributors to environmental degradation, ecological decline, and livelihood disruption. Through surveys and interviews conducted across high-impact, low-impact, and control communities, we found that building development, sand filling, dredging, and related construction activities are commonly associated with pollution, declining aquatic resources, and increasing environmental pressures on lagoon-dependent livelihoods. We also found that concerns about environmental change extend beyond ecological issues, as many stakeholders linked deteriorating lagoon conditions to health and economic challenges. Taken together, these findings suggest that stakeholder experiences provide important evidence of the environmental consequences of ongoing shoreline development and should be considered in future environmental management, monitoring, and planning efforts within the Lagos Lagoon corridor.

RECOMMENDATIONS

Based on the findings of this study, we recommend that construction projects near the Lagos

Lagoon implement stronger runoff, sediment control, and waste management measures to reduce pollutant discharge into surrounding waters. We further recommend that environmental regulatory agencies strengthen routine monitoring and enforcement activities in rapidly developing waterfront areas where sand filling, dredging, and shoreline modification are concentrated. In addition, developers should incorporate effective drainage management systems into project planning to minimize construction-related pollution pathways. Finally, we recommend greater stakeholder participation in environmental monitoring initiatives, as local communities and lagoon users possess valuable knowledge that can support the early identification and management of emerging environmental risks.

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